
The IT Revolution and the Practice of Sport History: An Overview and Reflection on Internet Research and Teaching Resources

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Information Technology (IT) and the Sport Historian

Historians have been taking advantage of new technologies knowingly or unknowingly, directly or indirectly, willingly or reluctantly in their teaching and research for several decades now. In the 1960s, they began to abandon the chalkboard for acetate transparencies and felt-tipped pens in their teaching. By the 1970s, they began to use tape recorders to collect oral evidence, to consult microfilmed versions of newspapers, and to make photocopies of primary documents they could analyze later at their leisure. The 1980s saw historians using fax machines to communicate with one another and Personal Computers (PCs) for word processing, number crunching, and data storage. During the early 1990s, some connected their PCs to electronic networks and now have at their disposal the facility to do even more, often without having to leave their homes or offices. Today, historians can search remote archives and library collections, access digitized versions of items to examine in detail, and manipulate data extracted from remote sources using statistical packages. Most fundamentally, though, computers enable historians to compose their thoughts on screen using a

word processing package and to make modifications as they go. They can illustrate reports with graphics (still or moving images, captured or generated) imported into the documents using a desktop publishing program or presentation package. They can send documents to distant colleagues (knowing it will be with them almost instantaneously), pass it on to publishers for immediate printing, or publish it themselves in hard copy or electronic on-line formats. They can mount the end product on a file server (as a postscript, html, CAL, or a self-running presentation file) so that others can consult it regardless of their whereabouts.

The Internet is at the center of this brave new world of technologically assisted research. The Internet is an international telecommunications grid of computer networks that spans the globe. It emerged out of a network created twenty years ago in the United States to exchange information between advanced research projects funded by the Department of Defense. Using a common suite of protocols (communications language), it provides an information “super-highway” along which information in electronic form can pass at tremendous speeds. The Internet heralds an age where we will have access to more information than ever before and, simultaneously, shatters the tyranny of distance, makes learning fun, provides entertainment and expands the mind to create a new reality. Currently, the Internet links more than four million computers and 100,000 networks in more than 150 countries—and these numbers increase daily. At a projected growth rate of 15% per month, the Internet will double by this time next year. This article focuses on some of the services emanating from the emergence of the Internet (i.e., the global electronic network), illustrates these services with examples of what can be achieved, and finally surmises about the consequences these might have for the way in which we as sport historians will operate in the future.

Basic Internet Services

Electronic mail (e-mail) allows network users to send messages to each other and is probably the most commonly used and best-known application on the Internet. Although it offers nothing special to the sport historian per se, it does dramatically accelerate the flow of information and, in so doing, releases more time for teaching, research, and writing. Like the facsimile machine, electronic mail facilitates quick and easy communication over both time and distance.¹ Like any other form of communication, e-mail has its strengths and weaknesses. The brief tabular analysis below is adapted from Krol²:

Table 1. A Tabular Comparison Between E-mail and Other Conventional Forms of Communication

Method	Speed	Synchronized	Formality	Security	Cost
Telephone	High	Yes	Varies	Moderate	Expensive (at certain times)
E-Mail	Variable but usually fast	No	Moderate	Low	Cheap
Fax	High	No	Varies	Moderate	Variable
Post	Low	No	Varies	High	Relatively Cheap

There are thousands of discussion lists, also known as electronic conferences or listservs, that provide a way for network users sharing an interest in a given topic to exchange messages with an entire group. Using a discussion list, the user can send a message to a central address and the message is then broadcast to all other participants. With some discussion lists, incoming messages are screened by a moderator before being distributed. An important point of protocol, or netiquette (to employ the jargon), is not to use an electronic conference to issue messages of a personal nature, to advertise, or for any other form of self-indulgence. This type of communication is more acceptable among newsnet groups.

Several sport conferences have emerged in recent years. The three sport history electronic conferences to date are SPORHIST (The International Society for the History of Physical Education and Sport), Aus-sport-history (The Australian Society for Sport History), and Britsporhist (British Society of Sports History). Subscribers to the ISHPES service have witnessed over the years stimulating debate about gender issues, sport broadcasting, the relationship of sport history to popular culture, and the status of sport history in higher education. Conference announcements and the contents of sport history publications are also regularly posted. SPORHIST has almost 400 subscribers from approximately thirty countries and circulates information from the other two listservs. There are numerous related conferences on mainstream history, mainstream physical education, comparative sport, sport literature, and the like. All are free. A select list is provided in Appendix 1. Details on how to subscribe to the sport history listservs are included in Appendix 2. There are also thousands of news groups (or to use the vernacular, Usenets) that cover a broad range of topics on virtually anything. If one sends a message over a Usenet, thousands of other people will see it.

Talk Protocol has been developed for those in need of real-time communications over the network. When a talk session is established, the words typed by one user onto his/her screen are simultaneously displayed on the screen of the user at the other end of the connection. Whatever the local-user composes is usually displayed on the upper portion of the screen and the responses from the remote-user are displayed on the lower portion of the screen. This service is particularly valuable to two sport historians debating issues surrounding the review of an article, the examination of a dissertation, or the like, for which documentation is required. However, it can be time consuming and, apart from cost, has little advantage over a telephone communication. Another novel form of scholarly communication is the electronic seminar. The University of London Institute of Historical Research has pioneered this development in the UK. Starting in 1995, this service mounts lectures by prominent individuals in a number of subject areas (but not as yet sport history) and invites responses by e-mail that are distributed to and debated by those subscribing to the electronic conference.

Telnet is the Internet's remote login protocol. It allows one to sit at a computer and log on to a remote computer across the network. The connection can be to a machine in the same room, on the same campus, or in a distant corner of the world. Once a user is connected, it is as if her keyboard is directly connected to

the remote computer. The advantage here is that one need not purchase expensive hardware or software to undertake occasional or specialist computing. An example here might be using a remote machine to manipulate large datasets.³ Those who have interrogated a library OPAC (On-Line Public Access Catalogue) over the network in the recent past probably did so using a Telnet connection. Of course, a user can “Telnet” directly to a machine from anywhere on the Internet, providing she knows the appropriate IP (Internet Protocol) address. This can be very useful for examining the contents of your electronic mailbox whilst away from the office, whether you are in Australia or Yugoslavia.

The facility known as File Transfer Protocol (or FTP) allows the user to move files to and fro between machines. This is often used to transfer files from software sites to your own machine or to mount files on a file-server for others to use. Increasingly, like Telnet, this is something you need know little about as a non-computer specialist because modern graphically based software interfaces establish the connection and transfer files in the background without you being aware of what is technically happening.⁴

Resources

Information technology has enabled us to generate large quantities of information, which, in turn, has given rise to many data services, including those of a bibliographic nature. Fortunately the Internet is beginning to be used to post and allow remote access to this information. In Britain, the Joint Information Systems Committee (JISC) has been active in this respect, facilitating access to three large datasets for the British academic community. These include:

EDINA—Edinburgh Data and Information Access Project (<http://edina.ed.ac.uk/>), which provides access to such sources as Palmer’s Index to *The Times*.

BIDS—Bath Information and Data Services (<http://www.bath.ac.uk/>), which provides access to three multidisciplinary citation indexes; the most pertinent to the sport historian are the Social Science Citation Index and Arts and the Humanities Citation Index, which contains details of articles from more than 7,000 journals worldwide. The data are supplied by the Institute for Scientific Information. BIDS also provides access to IBSS (International Bibliography of the Social Sciences), this being based on the holdings of the London School of Economics Library. The most recent service offered by BIDS is “Journals on-line,” which provides access to a range of journals published in electronic format.

MIDAS—The Manchester Information Datasets and Associated Services database (<http://midas.ac.uk>) provides access to recent census and General Household Survey data. The United States Census Bureau offers a similar service (<http://venues.census.gov/cdrom/lookup>).

The ESRC Data Archive at the University of Essex acts as a repository for datasets generated by publicly funded research that might be of value to others (this is jointly funded by JISC and the Economic and Social Science Research Council). The Mass Observation Archive at the University of Sussex contains

primary material on life in the Second World War). This database is especially useful for scholars working on British sport history. There are also datasets specifically relating to sport. Instant Sport is a commercial supplier of baseball statistics. Others are provided by such organizations as the Association of Cricket Statisticians and Historians, the Association of Soccer Statisticians, and so on. The British Society of Sports History has developed several on-line databases that include chronology of dates, various bibliographic databases, directories of sport historians, courses, sport museums, libraries, and the like. In terms of bibliographic information, the Canadian-based SIRC (Sports Information Resource Centre) database and the Commonwealth Agricultural Bureau's Leisure and Tourism Abstracts bibliographic databases are now accessible via the Internet. Both are commercial enterprises but enable the researcher to obtain a quick listing of theses, periodical articles and monographs on a particular topic.

The most common and important sources of information for sport historians, of course, are the libraries themselves. Most libraries have always been eager to take advantage of new technologies to improve identification and delivery of information. The first exposure to new technologies for many sport historians (microfilm/microfiche publications, photocopies, etc.) was in the library. Libraries were also at the forefront of making the contents of their collections available using remote computer databases. It is, therefore, of little surprise that they have now embraced the Internet to reach out to even wider audiences by providing remote access to their OPACs. The Gabriel gateway provides ready access to the major European libraries. The National Information Services and Systems (NISS) Bulletin Board provides a gateway to virtually every university library in Britain. Several of these (such as those forming the Consortium of University Research Libraries—CURL) can now be searched simultaneously via COPAC (Consortium Online Public Access Catalogue—<http://copac.ac.uk>). The next step is to deliver the full text documentation on-line. The Hytelnet Home Page provides a similar gateway in North America. Finally, there are many additional virtual library projects at various stages of development. Details of some are included in Appendix 3.

Most daily national broadsheet and tabloid newspapers are now accessible via the Internet, as are many regional papers, some of which provide search facilities and allow access to full content. Imagine the benefits to the sport historian of the nineteenth and twentieth century if some of these were to be digitized. There are several gateways to these, such as the News International Home Page.

Electronic sport-related journals are now being posted worldwide. Many are in English, although an increasing number, such as *Lecturas: Educación Física y Deportes*, *Revista Digital*, are beginning to appear in other languages. The *Sports Historian* has been published in both electronic and hard copy formats for the past three years. This is a relatively simple operation given that several popular word processing packages now have an Internet assistant “add-on” that allows the document prepared for printing to be converted and saved as an html (hypertext mark-up language) document. It must be stressed at this point, however, that the design for such publications should not be the same. A failing of many

of the early market leaders in electronic publishing, such as Elsevier, was that they simply mounted graphic images of the page as it appeared in the printed version and the end-user has to call on a utility (such as Adobe Acrobat) to view it. This is not the way to proceed. A major collaboration between twenty publishers, universities and libraries to develop multimedia electronic journals started in December 1995 under the eLib umbrella (see Appendix 3). Its purpose is to identify what readers want from electronic journals (i.e., the features that readers feel add value to their subject area), what authors require (e.g., the opportunity to allow new forms of content to express their methods and findings, such as three-dimensional molecular graphics that can be rotated, video and sound tiles, data in useable databases, etc.), and suitable methods for delivery (<http://www.superjournal.ac.uk/si>). The Department of Computation at UMIST is currently engaged in a research project with the Manchester Evening News Sporting Pink aimed at producing an electronic multimedia hypertext version mounted on the WWW (World Wide Web). This may mean that in years to come the sport historian will be working with hypertext multimedia “newspaper” formats containing video clips of interviews and action shots.

There are also resource centers on the Internet that offer services such as software programs. Those allowing remote logins by anonymous users and granting permission for members of the public to copy their files are usually referred to as Anonymous FTP Archives.⁵ In the UK there are two main sites for educational material: CHEST—the Combined Higher Education Software Team based at the University of Lancaster (<http://www.chest.ac.uk>), which negotiates bulk deals on software and electronic information for the higher education community; and HENSA—the Higher Education National Software Archive based at the University of Kent (<http://hensa.ac.uk>), which provides shareware (an exchange of free software and information) and caches. They offer software for all the common applications, such as statistical analysis and word processing, as well as games and screen savers for all the major hardware platforms (PC, Mac, Archimedes, etc.). To date, it is doubtful there is anything available specifically for the sport historian, but this could and hopefully will change in years to come. Likewise, the British Society of Sports History has an anonymous FTP site, but no one has yet deposited any materials. Notice of new sites or information on recent material available at FTP archives is often posted on discussion lists and by news groups.

It is now possible to purchase other merchandise via the Internet. Users can browse through listings of items for sale and submit orders electronically, charging established accounts or their credit cards. Several major publishing houses with sport history portfolios (such as Frank Cass, Human Kinetics, the University of Illinois, and the University of Manchester) have on-line catalogues of recent and forthcoming publications that can be ordered. So too have a few small private companies specializing in sport books, such as Yore Publications. A number of second-hand book shops and dealers in sporting memorabilia also now have information and ordering facilities mounted on the Web.

The concept of "virtual services" also applies to museums and galleries. Delicate artifacts and paintings no longer need to be transported great distances at considerable cost and risk in order to be displayed side by side. Museums can (and do) mount digitized images that can be rotated, measured, and enlarged at the whim of the user. This technology is used to teach history in the Highlands and Islands of Scotland. It does not matter that the pupils have never been to, nor are likely to, visit the National Museum of Scotland in Edinburgh. Thanks to a Scottish Education Department/National Museum of Scotland initiative, pupils using their own PCs can explore three-dimensional visual images of artifacts and the appropriate manuscripts "till their hearts content." This opens up an opportunity for worldwide exhibitions on specific sports, sport themes, etc, and most certainly brings into question the merits of centralized collections. Useful links to sports museums are maintained on the BSSH home page (http://www.umist.ac.uk/UMIST_Sport/mus.html) and the Britannica Internet Guide (<http://www.ebig.com/>).

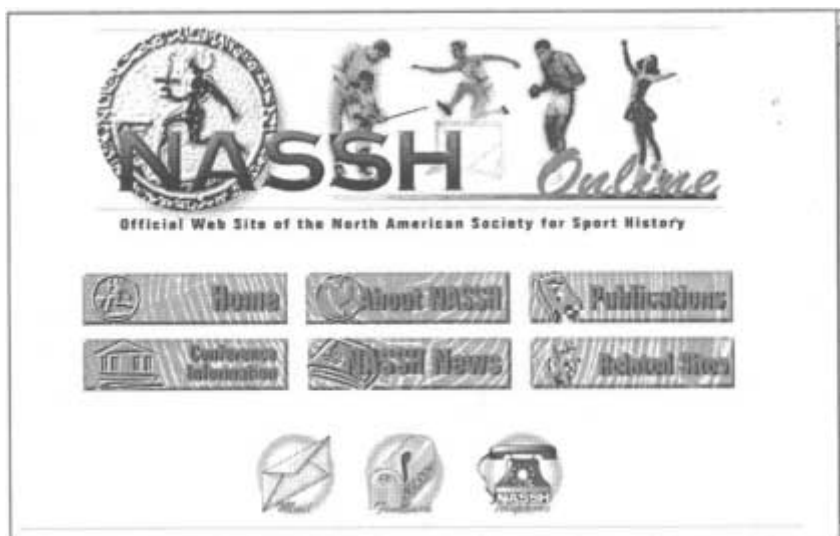
Opportunities for providing effective Computer Assisted Learning (CAL) via the Internet have improved drastically in recent times with the development of Java Script and Java. This scripting language and html add-on will allow the Internet to support interactive multimedia products similar to what already exists on CD-ROM. In principle, it is now possible for anything that can be put on a CD-ROM to be downloaded to a PC over an appropriate connection from a distant server. There are many advantages of CAL programs in teaching new concepts. Structured learning formats can let the student who makes a wrong response return to the last point of understanding before allowing him or her to proceed. Likewise, they permit the simulation of experiments that would otherwise be dangerous or too expensive. Students are able to learn at their own pace, in their own time. In terms of sport history, the next step may be to create virtual reality experiences that employ the audile and visual senses to recreate the experience of sitting in the Coliseum in Ancient Rome watching a gladiatorial contest and witnessing the crowd's reactions. Alternatively, it might be possible to facilitate a more technical analysis of the performance of some of history's elite athletes using archived film to extract the data.

Thus far we have talked only of the global community. The Web, of course, can be used to communicate on a local area network also and is increasingly being employed as a management information tool by individual organizations. By using password control and firewalls (a software security device), it is possible to restrict access to sets of information to specific groups or individuals. This facility is most valuable for mounting courseware. Teachers can mount course descriptions, enrolment forms, reading lists, lecture notes or presentations, and CAL products without fear of the material being plagiarized or distorted. Essential texts (of both a primary and secondary nature) can be mounted in digitized form and the current status of the hard copies can be made apparent to the student (e.g., signed out; in short-term or the reserved collection; available only through the interlibrary loan system, etc.).

Bulletin Boards and Gateways

A number of organizations have established publicly accessible bulletin boards linked to the Internet. Most of these services (e.g., databases, FTP sites, and electronic journals) are now mounted in Web format. As such, they use Hyper Text Transfer Protocol (HTTP) to present multimedia information from distributed sites. Indeed, it is this technology that has transformed the Internet. While e-mail, Telnet and FTP have been around for some time, it is only in recent years that user-friendly Web browsers (front-end software products designed to provide a number of functions on the Internet) made it become possible to link documents, be they text, graphics, or video, in a seamless manner. IHR Info is now in its third year of operation at the University of London Institute of Historical Research. This bulletin board and gateway provides links to services of interest for historians around the world.⁶ In terms of sport history, the British Society of Sports History Web Service (http://www.umist.ac.uk/UMIST_Sport/bssh.html) has now been in operation for three years and currently receives around 100 visits a day. This service provides details of the Society (aims and objectives, executive officers, conference details, an electronic membership application form, a series of publications (including the Society newsletter and journal in electronic form), indexes to current journals in sport history, sport history conferences, a chronology of important dates, and links to other organizations, exhibitions, museums, and archives. In 1996 the International Society for the History of Physical Education and Sport (ISHPES; http://www.umist.ac.uk/UMIST_Sport/ishpes.html) service was mounted, and in the summer of 1997, the North American Society for Sport History (NASSH) website was launched (<http://nassh.uwo.ca>).

Figure 1. NASSH Home Page



Bulletin boards have also been established by many sport governing bodies, professional associations, and major sporting events. Some services, such as the ones covering the Wimbledon All-England Lawn Tennis Championships and the England versus Australia test matches include live video coverage and up-to-the-minute scores and statistics. We recommend readers consult the three Sport History WWW sites mentioned above and access the links.

The Future

Having outlined some of the services of the Internet, it is worth dwelling further on the impact this will have on the future of sport history teaching and research—shifts caused by the changing structure of higher education in changing economies. Increased competition for students in a time of economic restraint has forced most institutions of higher education to look to new markets, to increase class sizes, and to develop more flexible programs of learning.

Sport history is both advantaged and disadvantaged by these developments. Its popularity in some quarters has helped secure its future and expanded the number of courses offered, but at the expense of increased teacher to pupil ratios. Increasingly, these students are a mix of traditional (18-22 years old) and new markets (part-time, mature, distant education, and foreign students). The only way to communicate effectively with such large numbers, given the logistics of distance, the varied backgrounds and range of abilities, and clientele-determined schedules, is to employ the new technology now at our disposal. Eighteen-year-old students are increasingly well-versed in using computers before they enter higher education. They have been heavily stimulated in the learning process by new teaching techniques and expect to continue to be so. Even members of the general public (who will be the first priority for some who read this article) have similar experiences and expectations. No longer do they visit a museum with the expectation of seeing only static exhibits in sealed cases, or visit the library to look up information in a multivolume traditional encyclopedia. They expect to be actively engaged in the process of learning, to be able to search and get answers on-line instantaneously.

The new technology is not a simple panacea that will magically solve all the problems that beset institutions of higher learning in the twenty-first century. Nor is it a simple matter to install. Information Technology is expensive to put in place; the infrastructure that allows one to make optimal use of the services available is a recurring cost. Upgrades and replacements are required on an annual basis to stay at the forefront of the technology. Its application also demands massive cultural change. One cannot implement these changes without forcing new ways of thinking. Individuals must be offered a vision of the future, be retrained, and be given technical and moral support to help them move forward. Ancillary services, such as libraries, need to be restructured to support all forms of learning through a variety of media. It is also important to appreciate that these things are not going to happen overnight. Progress is slow in some areas because of the

backlog of time-consuming work that needs to be completed prior to implementation (e.g., retrospective cataloguing).

Sport historians need to more actively engage new generations of students if they are to prosper and not lose ground to disciplines that have traditionally been at the cutting edge of technology. Changing our *modus operandi* is also supported by recent research. The traditional lecture can be dull, inefficient in transmitting the message, and tells us almost nothing about whether learning has actually occurred. For some it is a major cultural shift. Whilst the new generation have grown up with it, established scholars may be afraid of changing a known work environment, lack the confidence to adjust, or find it hard to accept new concepts that demand a completely different mind-set. In short, they may see it as a threat and not embrace it completely and with enthusiasm.

It is important to ensure that in all these developments the learning process is not dehumanized. The rewarding social aspects of traditional learning and teaching must not be removed from the process. The Internet can never replace the human contact and personal interaction that is so much a part of the classroom setting. The important issue of access also needs addressing. Although the Internet can open up the world to some disadvantaged groups (such as those confined to the home or to wheelchairs, challenged learners, or students who are also employed full-time), it can disenfranchise others, such as the visually impaired, unless the appropriate technology is developed to help them cope. Likewise, it will exacerbate the growing chasm between the developed and third world unless the technology is made available to the latter. Potentially, it has the power to erode certain cultural values (we are moving very quickly toward an English-speaking planet), to impact on job satisfaction (more people today are working in isolation or interacting primarily with machines), and to hamper communication skills (increasingly children are now using computers as their main source of interaction, amusement, and entertainment).

We must not let the tail wag the dog by allowing technology to take over where it is not appropriate. We must ensure that the products we need are the ones we get. We need to think imaginatively about how to teach our subject so that it is informative, interesting, and just as exciting as that offered by other departments. We already have examples of good practice in the teaching of history in general⁷ and in the world of sport in particular⁸. There is no reason why we cannot build on these and utilize the existing expertise. Here sport historians are in an advantageous position because of the broad socio-cultural appeal of their subject matter and the fact that it is a dynamic activity. In teaching Roman Sport we can develop products that include video clips from *Ben Hur*, three-dimensional images of Roman sculptures, and virtual reality programs that allow students to wend their way through the corridors of the Coliseum, experiencing the sights and sounds as if they were there. In teaching about nineteenth century public school athleticism, we can show clips of *Tom Brown's Schooldays*, maps and plans of school layouts, and extracts from school magazines, and encourage students to ask questions of different groups to learn about life during the period. A discussion that extends to twentieth century athleticism might well place students in a

computer lab viewing vignettes from the film "*Chariots of Fire*"⁹ Datasets and analytical tools can be posted to better examine the relationship between expanded and improved modes of transportation and the diffusion of professional leagues. In examining the history and politics of the modern Olympic movement, we can offer for direct comparison differing newspaper accounts of specific events, photographic images, performance data, the CD-ROM *Olympic Gold*¹⁰—all linked to carefully selected key questions for the students to consider.

Using the Internet requires two parts education and one part quality control. Students must be taught how to search the Web efficiently and to use the various search tools at their disposal to full capacity. You cannot simply expose students to a plethora of information about the Olympic Games, for example, and then leave them to their own devices. Some students are easily diverted. They may use their networked PCs to communicate with friends or to simply surf the Web. Some researchers become stressed trying to handle the information overload. They experience difficulty in sorting the chaff from the wheat, the good from the bad, the accurate from the inaccurate, the quality from the rubbish. Some commentators have claimed that 99% of the information placed on the World Wide Web is rubbish. Undoubtedly there is some truth in this statement (although the percentage is likely high), especially when there is no control or peer review of the standards applied to the information posted. The less discerning reader often gets carried away by the quality of the presentation as opposed to the content.

We would be remiss not to mention that many pioneering products have been slow, expensive, unreliable, and difficult to use. Many of us have suffered acute embarrassment when the computer we were using to demonstrate suddenly hung up or gave a wrong or unexpected answer. Luckily, advances in hardware and software, both mainstream and peripheral, are being made all the time to improve performance and reliability. These usually result in lower costs. Soon there will be more satellites orbiting the earth at lower levels (to speed communications). There will be more effective transmitters and receivers, more and greater bandwidth cables routed underground and reaching out to individual households around the world. Modems will be cheaper and faster, sound and graphic cards more sophisticated. Software will become more user-friendly with a common Web interface to everything from word processing and e-mail to desktop publishing and computer-aided design. There will be new scripting languages and authoring packages offering easy preparation of interactive multimedia productions along with more efficient file formats for sound, graphics, and video data. We will see simpler forms of data input and translation as scanner and OCR (optical character recognition) software improves and digital cameras become more common. Although there will be more layers of software as operating systems increase in complexity, these will sit on remote file servers with the program software so that it is constantly refined and updated without the individual end-user having to buy new versions and upgrades all the time. Processors will get faster, memory (RAM and ROM) cheaper. The only software that will sit on your machine will be the personally configured browsers that ensure information is delivered in the language of your choice, appropriate to the

types of hardware you have in place. Integrated services will be presented to you in a seamless fashion as mediators are used to bring it all together. Intelligent agents will be employed on your behalf to search for the type of information you require 24 hours a day, 365 days a year. They will present it to you as you want it, no matter where it was generated or what its original format was.

The technology will release the sport historian from unskilled, repetitive, time-consuming tasks to allow him or her to concentrate on the core activities of a sport historian—analyzing, synthesizing, theorizing, and communicating information. Huge strides in efficiency will be made in the collection of datasets for research, in thinking enhanced by the rapid manipulation and analysis of data, and in the regular communications we can hold with our remote colleagues. The Internet will allow us to pool some of our computing and library resources, our illustrations, and other teaching materials. If we work in a small department and we have no one in a position to offer a course on ancient sport, we may be able to buy it to be delivered over the Internet, as a CAL program, or perhaps on CD-ROM. If two or three of us teach a similar course, we can each contribute our particular strength or specialization toward writing a new module or a CAL package. We already have the example of members of the BSSH collaborating over the network to jointly produce useful products that would be beyond the scope of one or two individuals.¹¹ Likewise, we have examples of individual libraries no longer subscribing to expensive journals for a limited readership or for the occasional article it may contain of potential interest, and then being able to afford something more relevant.¹² No longer will our libraries need to stock their shelves with books rarely used. Nor will they need to conserve, in expensively controlled environments, old mass-produced publications that are not unique to their collection. No longer will students have to stand in long lines at issue desks or wait for days before they can consult essential course readings. No more will researchers be forced to travel long distances to glimpse what turns out to be information irrelevant to their enquiry. And no longer will computer services departments need to buy expensive computers or software for use on limited occasions to perform specialized or very speedy calculations. Researchers can simply use the Telnet service to buy access for the time required to extract or manipulate the data. Or, if it is worth their while, universities can buy one and sell spare capacity to potential users from around the globe. It will not be necessary for faculty or students to tediously write down details of books and manuscripts on record cards. Using a Windows interface they will simply copy and paste details or, better still, directly download selected references from a remote vendor, or OPAC, into their own bibliographic database for later selection and manipulation (e.g., to insert as footnotes into text, to generate bibliographies, etc.).¹³ Few would argue that in general it is better to communicate face-to-face than over a network, that it is better to actually see and touch the real thing than view a picture on a screen. On the other hand, something is usually better than nothing, and live moving images are often more informative and remembered longer than static ones printed in books. Being able to project data and then superimpose additional information over it is usually more accurate, effective,

time efficient, and powerful than a mere verbal description. Obviously, it is difficult to predict what the future will hold with any degree of certainty. What is apparent, however, is that life will be different in a scant few years from what it is today, With regard to teaching sport history in higher education, life will be very different.¹⁴

Sport historians will be obliged to teach more students, more part-timers, and more remotely located students as markets globalize and education becomes accepted as part of an ongoing, lifelong process. The only way they will cope with this increased demand and escalated workload is by accepting and employing the new technology. Progress will be through collegial cooperation, the sharing of expertise, and pooled resources. The sport historian should see these developments as opportunities for the future, not tides to resist as did King Canute, nor machines to destroy as did the Luddites.

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1. For a more technical discussion of electronic mail see, R. W. Cox, *The Internet as a Resource for the Sports Historian* (Frodsham, UK, 1995), pp. 3-5..
 2. E. Krol, *The Whole Internet: User's Guide and Catalogue* (Sebastopol, CA, 1994), p. xx.
 3. See, G. Segell, *Guide to IHR—Info Hptertext Internet Server*, IHR Guide No. 4 (London, 1995).
 4. See, Cox, op cit., pp. 24-25 for more information.
 5. See, *ibid.*, pp. 25-26 for more information.
 6. See, for example: Anglia Multimedia, *Ancient Egyptians*; The British Library, *Sources in History Series*; Durham Record Office, *Journeys into History*; YITM, *World War II Series* (CD-ROM); and YITM's *World War I Web Site*. For discussion of the use of such products in the teaching of history, see the National Council for Educational Technology project reports on *History Using IT* (1977); the Historical Association's evaluation report on *Medieval Realms* (1996); and their *Using CD-ROMs in History* (1996).
 7. For an interesting debate on traditional versus modern IT-based forms of learning see, D. Laurillands, *Rethinking University Traditions* (London, 1993).
 8. See, R. W. Cox, The British Society of Sports History World Wide Web Bulletin Board and Information Service, *International Journal of History of Sport*, 14, 1 (December 1996), 206-209; The British Sports History Internet Services, *ISHPES Bulletin* 11 (1996), 17-18; The IT Revolution and The Future of Sports History Teaching and Research with particular reference to Developments in Britain, unpublished paper presented to Sporting Traditions Conference, Perth, June 1997.
 9. Films or parts of films can be easily digitized and made available through a LAN for students to view at their leisure. Two source books worth consulting in this respect are: J. H. Wallenfeldt (ed.), *Sport Movies: A Guide to Nearly 500 Films Focusing on Sports* (Evanston, IL., 1989); and, J. A. Davidson and D. Adler, *Sport on Film and Video: The North American Society for Sport History Guide* (Metuchen, NJ, 1993).
 10. International Olympic Committee, *Olympic Gold: A 100 Year History of the Summer Olympic Games*, CD-ROM (S. E. A. Multimedia, Ltd., 1995).
 11. New products are emerging on a regular basis see: "The Sporting Life," CD-ROM World (July/August 1994), 42-49; "The Best Sporting CD-ROMs of 1996," CD-ROM, 2, 10 (July 1996), 68-79 and more recent reviews.
 12. At the regional level, the Consortium of Academic Libraries in Manchester (CALIM) provides an example of public and private (including university) libraries collaborating

on acquisitions, lending, and document delivery. To do this, they use the GMING Metropolitan wide-band local area network. Rather than each library purchasing the same items, single copies of low-demand publications are purchased and made available over the network. The same applies to expensive items, providing the publishers are prepared to grant a "network license."

13. See, R. W. Cox, "PC Based Bibliographic Database for the Sports Historian," *International Journal of the History of Sport*, 13, 2 (August 1996), 215-219.
14. For a vision of the future, largely from a Vice Chancellor's perspective, see, J. S. Daniel, *Mega Universities and Knowledge Media* (London, 1996); from an academic perspective see, P. Hick, "Re-Engineering Higher Education," (<http://www.umist.ac.uk/future/re-he.htm>).

Appendix 1

Sport Listservs/Mailing Lists of Potential Interest to the Sport Historian

ABC Sports: ABCSPORTSINFOR@LISTSERV.AOL.COM

Australian Society for Sport History: AUS-SPORT-HISTORY@DEAKIN.EDU.AU

British Society of Sports History : BRITSPORHIST@UMIST.AC.UK

Sports Journalism (mainly Canada): CAN-SPORTS-MEDIA@MORGAN.UCS.MUN.CA

H-NET List on Sport Literature H-ARETE@H-NET.MSU.EDU

Sport Documentation List (for IASI members only): IASI-L

International Society for Comparative P.E. & Sport: ISCPES@SJSUVM.I.SJSU.EDU

The Association for the Study of Play: PLAY@LISTSERV.VT.EDU

RPI Sports Information Channel: RPISPORT@VM.ITS.RPI.EDU

Forum sullo Sport en Italia: SPORTFOR@ICINECA.CINECA.IT

ISPHES Sport History Scholars List: SPORHIST@PDOMAIN.UWINDSOR.CA

Sport Law: SPORTLAW@CMSUVM.BITNET

Use of Computers in Sport: SPORTPC@LISTSERV.UNB.CA

Women in Sport, Health, Physical Education, Recreation and Dance: WISHPERD@SJSUVM.I.SJSU.EDU

Appendix 2

Listserv Subscriptions

The procedure to subscribe to most electronic conferences of listservs is standard. That is, send an e-mail message to the server identifying the conference or list you wish to join and your name (or, in some cases, your e-mail address).

Thus, to join the SPORHIST listserv, send the following e-mail message:

```

sub sporthist <first_name last_name>
to
listserv@pdomain.uwindsor.ca
To join the Australian conference, send the following message:
subscribe britsporthist <your e-mail address>
to
majordomo@mcc.ac.uk

```

If your message has been successfully received and accepted, you will receive more information about how to use the service. This will normally include details of how to unsubscribe, how to view archived messages, and so on. It will also explain how to post messages for other subscribers to view.

Appendix 3

The ELib Initiative

Following publication of the Follet Report in December 1993, which made a number of recommendations to address the problem of provisioning libraries in the UK, a £15 million initiative was introduced over three years. To date, forty projects to improve delivery of information through use of electronic means have been funded. The IT recommendations were taken forward by the JISC's FIGIT (Follet Implementation Group on IT) subcommittee, which has funded numerous projects under the eLib banner (details of which are included below). First, however, it is important to appreciate that the program spreads its net more widely than traditional librarianship.

Electronic publishing will also be fostered. The Electronic Journals area will include the development of new titles as well as initiatives with print publishers to provide online versions of their publications. New publications in various disciplines are planned. In addition, a number of projects will develop tools to support scholarly communication, pointing the way to a time when the very notion of a journal may no longer be relevant.

Another major area is "on-demand publishing." Seven such projects have been funded that will realize the objective that libraries have had for many years: to shift their essential service away from "holdings" to "access." No university library can realistically hold all the information its users require, and, in any case, more and more of that information is only available through the use of remote databases and databanks.

Access provision therefore becomes the key aim, and on-demand publishing will create texts that can be read on screen, downloaded to disk, or simply printed out as students require them. A related area is "electronic document delivery." Four projects have been successful here, and the technical, legal, and economic obstacles of this centrally important library service will all be addressed.

Gateway services have already proved their worth in the shared academic electronic environment. ELib is taking forward the gateway concept by funding several subject-based gateway services. Digitization of existing materials is another

program area, allowing eLib to deliver benefits to those whose research involves the use of older printed materials.

Underpinning the whole eLib program is training and awareness, and FIGIT has recognized the importance of this by devoting an entire program area to it, with five projects already approved. As a national program, eLib has succeeded in ensuring that there is as widespread a commitment as possible to the success of the program. As consortia begin their work with launches and early deliverables in the form of Web sites and pages, Chris Rusbridge, program director, expressed satisfaction at the stage the program has reached, comparing the spread of projects to "a shotgun blast across the horizon." But more are to follow. Recently, JISC launched another call, for projects in the area of gray literature, quality assurance, and electronic reserve collections.

Progress reports and products of these are also frequently reported in *Ariadne* (<http://ukoln.bath.ac.uk/ariadne>), an *Internet Resources Newsletter* funded under the eLib initiative (<http://www.hw.ac.uk/libWWW/irn>), *D-Lib Magazine*, a magazine of digital library research (<http://www.ukoln.ac.uk/dlib>), and *EDINA Newslines* (<http://edina.ed.ac.uk/newslines/index/html>).

On-Demand Publishing Projects

EON: Inter-Institutional Networking of Learning Materials—A demonstrator project for the delivery of on-demand publishing to higher education students and staff that makes use of materials produced by the Open Learning Foundation. Lead institution: University of East London

Project Phoenix—A project concerned with the implementation of electronic storage and print techniques to supply text to students. Lead institution: South Bank University

EDBANK—A project to identify efficient methods of creating and running a database of digitized teaching materials to support remote students. Resource material produced will be available to other institutions. Lead institution: Open University

On Connect: An On-Demand Publishing Project in the Humanities—An on-demand publishing pilot project aimed at students in the School of Media, Critical and Creative Arts. Lead institution: Liverpool John Moores University

Scottish On-Demand Publishing Enterprise (SCOPE)—A project to build an electronic resources bank of articles and book chapters in key areas to demonstrate copyright clearance and logistical issues of course-reader publishing and on-line viewing. Lead institution: Stirling University

Electronic Readings in Management Studies (ERIMS)—A project to provide reading materials in electronic form to a cross-section of users in management studies. Lead institution: University of Oxford, Templeton College

EUROTEXT: A collaborative Resource Bank of Learning Materials on Europe—A national electronic resource bank of learning materials relating to the European Union. Lead university: Hull University

Electronic Journals

The CLIC project—A parallel electronic version of an established journal, Chemical Communications. Lead institution: Imperial College

Internet Archaeology—An international electronic journal for archaeology. Lead institution: Council for British Archaeology (with the University of York)

The Super Journal project—An extension of the original SuperJournals project (which was funded by the British Library) to develop and test an infrastructure and tools for refereed electronic journal publishing. Lead institution: Nature (through the Universities of Manchester and Loughborough)

Electronic support for Scholarly Communication—Software tools to support an electronic community, initially in the area of Logic and Theoretical Computer Science. Lead institution: Imperial College

Electronic Seminars in History—Electronic Seminars in History takes advantage of the electronic media's ability to make research instantly available to all without creating additional demands on space or the constraint imposed by geographical location. Lead institution: Institute of Historical Research (with the School of Advanced Studies, University of London)

Electronic Reviews in History—The project informs librarians, students, and historians more efficiently and quickly about important, original, and possibly controversial books appearing across the temporal and thematic range of what is now an ever-widening discipline. Lead institution: Institute of Historical Research (University of London)

The Interactive Electronic Magazine—An interactive magazine with an associated archive (database) to support library staff, educational developers, and computing staff concerned with the innovative design and delivery of courses. Lead institution: London Guildhall University

News Agent for Libraries: a personalized current awareness service for library and information staff—News Agent for Libraries proposes an innovative information and current awareness service for the library and information science community. Lead institution: South Bank University

The Journal of Information, Law and Technology (JILT)—An internationally refereed journal dealing with substantive law implications of IT and implications of IT for legal practice and legal education. Lead institution: Warwick University

An open journal framework: The integration of electronic journals with networked information resources—To investigate novel ways in integrating journals that are available electronically over the network with other journals and information resources using the capabilities of open hypermedia systems. Lead institution: Southampton University

Sociological Research Online—The development of an electronic journal in sociology using multimedia delivery formats and the provision of training to enable users to maximize their use of the journal. Lead institution: British Sociological Association (with the University of Surrey)

Learned Societies Support Service—To define the parameters required for the use of electronic networks by smaller learned society publishers. Lead institution:

Association of Learned and Professional Society of Publishers (with Queen's University, Belfast)

Digitization Projects Internet Library of Early Journals—To provide expanded access to a realistic sample of eighteenth and nineteenth century journals, including *Gentleman's Magazine*, *Notes and Queries*, and *The Builder*. Lead institution: Oxford University

Digitization in Art and Design—The DIAD project is intended to initiate the identification and selection of core art and design journals, arrange for the negotiation of copyright clearance, and investigate the digitization of these journals with a view to production in CD-ROM form. Lead institution: London Institute

Training and Awareness Projects

Educational Development for Higher Education Library Staff—A national program to identify and provide the skills needed by librarians in fulfilling the training roles identified in the Follet Report. Lead institution: Hull University

Network Skills Training for Users of the Electronic Library (Netskills)—A project to provide a comprehensive national network skills training program aimed at shifting the culture within HEIs toward awareness and widespread use of networked information resources. Lead institution: Newcastle University

Networked Learner Support—Create a framework for professional development and training to enable library professionals to acquire the knowledge and skills to successfully develop networked learner support in a wide range of institutions. Lead institution: University of Sheffield

Ariadne—A monthly newsletter in parallel print and electronic form dealing with Internet resources and services in general and the eLib program in particular. Lead institution: University of Central England

SKIP—SKills for new Information Professionals—This project will seek to explore and illuminate the nature, type, and scope of IT skills required by staff in the changing information environment of higher education. Lead institution: University of Plymouth

CINE: Cartoon Images for Network Education—A project to explore the potential of brief animated sequences as a medium for training. Lead institution: King's College London

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