

Medical Education Using Internet

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Abstract

There is a great wealth of information out there on the Internet for medical researchers, students and practitioners alike. In this article, I give a few examples of the use of Internet. Even though most of the information physically sits in the United States, it is at the virtual doorstep of everyone with an Internet connection.

Introduction

Use of Internet, the so-called Information Superhighway, has become a cliché. However, for education and research, the Internet is a very useful tool. For medical research, the Internet will become indispensable over the next decade. The reason is simple: it is easy to access up-to-date and accurate information on the latest discoveries and methods for medical research. Physical distance will become meaningless. You will need a computer, a phone line and an Internet connection and you are as close as the doctor or medical researcher in the same institution where the discoveries are being made!

In this article, I will demonstrate what you can do using concrete examples. The important thing to remember is this: what I have done did not require any special computer. You can do all of this at a very modest budget (these examples were created using a Macintosh SE/30 I bought in August 1995 for \$800).

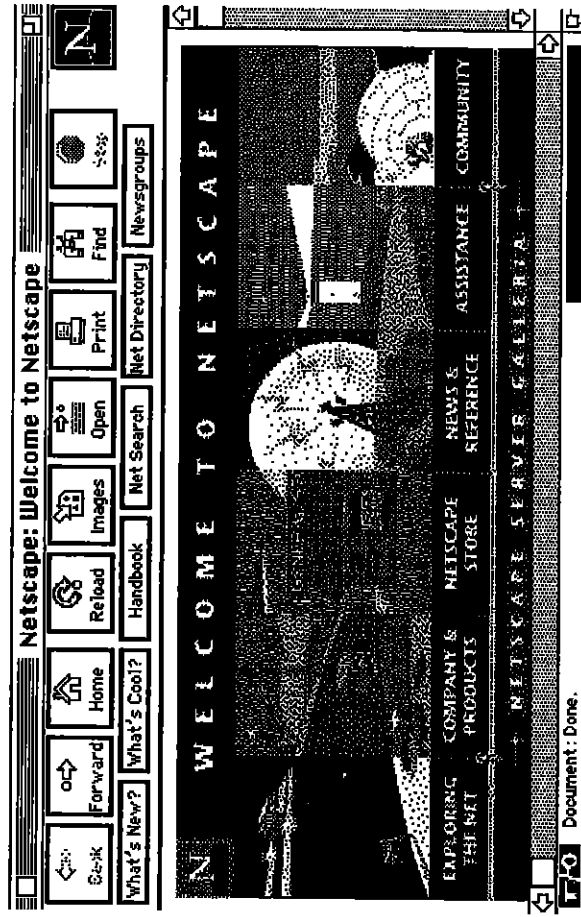
In January 1994, I was going to go to a conference in Honolulu, Hawaii. Using Gopher, an Internet tool, I was able to get a bus schedule to go from Waikiki to the University of Hawaii. I was also able to find out whether a particular book was still in the shelf before I left Australia. All of this was done without leaving my office in Gold Coast, Australia!

Now the use of Gopher has become archaic! The reason is that even though Gopher can handle text very well, it is no good at showing pictures or retrieving sound. New technology has made it possible to transfer picture or sound files in compressed form (called "zipped" files if you speak the Superhighway language!) cheaply even at very long distances.

There is now a computer language that handles pictures/sound/text even video clips within reason. This is the language of multimedia. One product has very successfully demonstrated it, the Netscape. In all the examples below, I have used Netscape. This version of Netscape was freely available from the Internet (version 1.1N, dated April 1995). A later commercial version has recently been shipped to the stores. Based on this software alone, Netscape company launched itself as a publicly traded company in August 1995. It became the darling of the investment community. The share price went from US\$20 to US\$70 in the first two hours of trading!

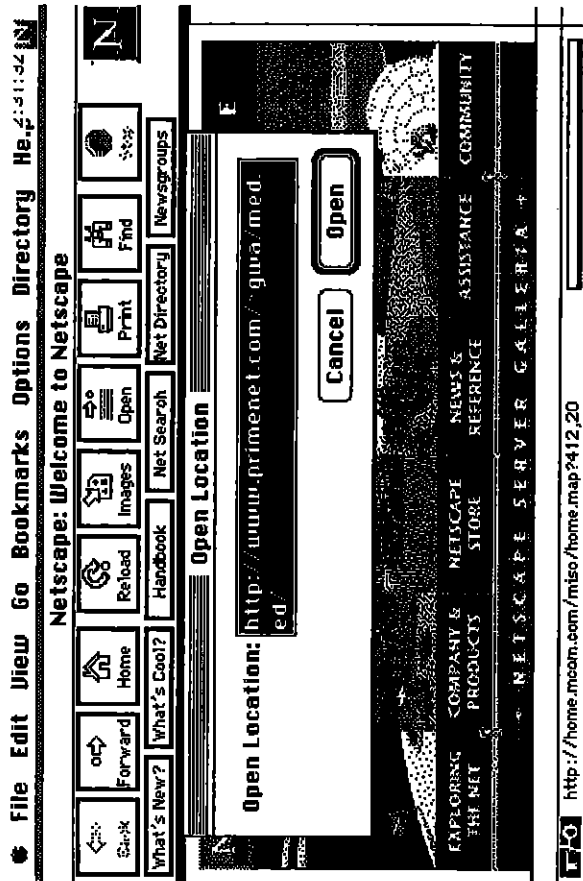
Wonderful World of Internet

When you launch Netscape, it looks like this:

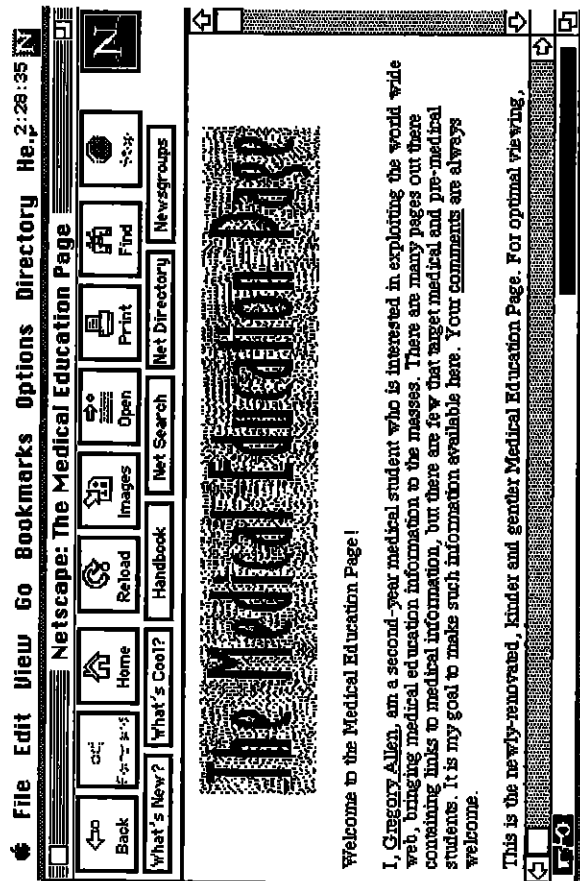


Here I have simply copied what my computer screen looked like after successful launch of the program. You get a menu of choices. It is possible to search using a set of keywords and Netscape will dredge up a slew of sites in which those keywords appear. Before I started this session, I already knew (from my previous adventures!) that there was a location called <http://www.primenet.com/~gwa/med.ed/> where some person is putting together medical education related links.

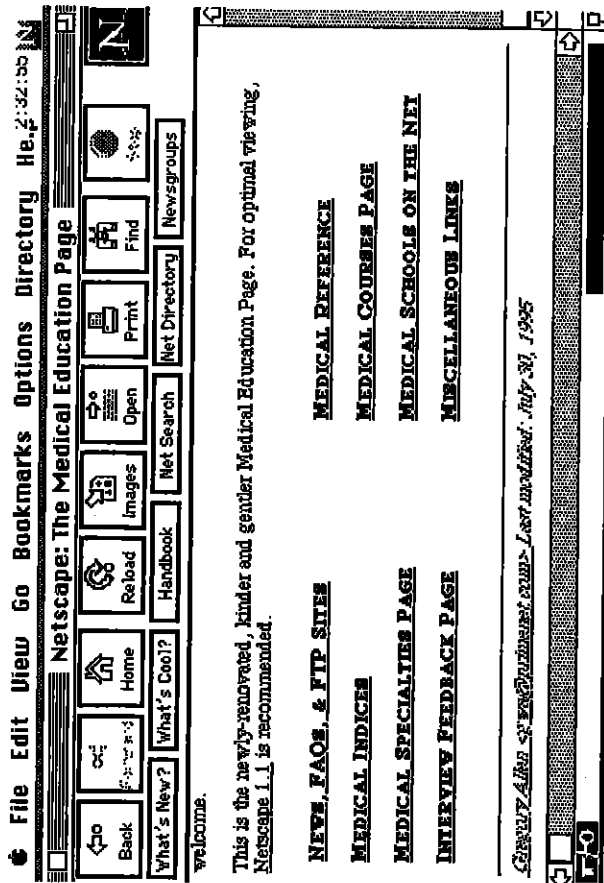
The following screen shows what I searched:



The result of this search produced the following screen:



Anything that appears on the screen with underline allows you to go one level down. Thus, if I clicked my mouse on the Gregory Allen, it will give me a short bio of Gregory Allen, who put up this page (called "home page" for Gregory Allen). Similarly, if I clicked on comments, it will allow me to send a note to the author of the home page (here, Gregory Allen). When I went to the bottom end of the same home page of Gregory Allen, I got the following screen:



Remember that everything that is underlined allows me to go one level further.

I clicked on Medical Indices which took me to the following screen:

File Edit View Go Bookmarks Options Directory Home: 2:36:56

NetScape: Medical Education Indices

Back Home Reload Images Open Print Find NewsGroups

What's New? What's Cool? Handbook Net Search Net Directory

Medical Education Indices

- [Einet Galaxy Medical index.](#)
- [HospitalWeb:](#) a list of all the hospitals on the web.
- [Hyphet](#) listing of medical libraries.
- [Inter-Links](#) medicine resources.
- [Library of Congress](#) medical index.
- [Medical Education Network](#) (Loyola University).
- [MedWeb](#) Resources from the University of Calgary.
- [The Mother-of-All EBS](#) medicine pages.
- [Virtual Reference Desk:](#) massive list of gopher resources. See the [medical school](#) listings.
- [Yahoo](#) medicine index.
- [WWW Virtual Library](#) medicine index.

Back to the [Medical Education Home Page.](#)

62% of 13K (at 191 bytes/sec, 26 secs remaining)

Now I was in a page called [Medical Education Indices](#) and not [Medical Indices](#) as promised! When you are searching the Internet, you have to gloss over such minor details! At this point, [The Mother of all BBS medicine](#) page looked interesting. So, I clicked that. It took a long time (several minutes) before I got to a very long list of sites. When I scrolled down the list, I became curious about [SimBioSys: Medical Education Software](#). Unfortunately, many people were doing the same thing at the same time. I could not get into that menu at all. This is also quite common on the Internet. Some sites are very popular. Therefore, they are very hard to get at.

File Edit View Go Bookmarks Options Directory Home: 2:41:27

NetScape:

Back Home Reload Images Open Print Find NewsGroups

What's New? What's Cool? Handbook Net Search Net Directory

[Penn State Department of Radiology \(5\)](#)
[Penn State University - Children's Hospital \(62\)](#)
[Penn State University Hospital \(61\)](#)
[PREMATURE BABIES: Answering Questions Regarding Their Problems & Care](#)
 [54]
[Renaissance Medical Home Page \(37\)](#)

[SimBioSys: Medical Education Software](#)

(49)
[Stanford Med Ctr \(28\)](#)
[The Milton S. Hershhey Medical Center \(56\)](#)

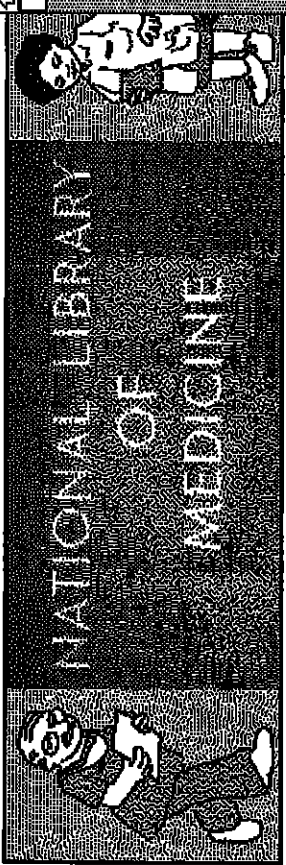
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File Edit View Go Bookmarks Options Directory Home: 2:41:13

NetScape: NLM HyperDOC: World-Wide Web (WWW) server of the U.S.

Back Home Reload Images Open Print Find NewsGroups

What's New? What's Cool? Handbook Net Search Net Directory



Welcome to HyperDOC

<http://www.nlm.nih.gov/images/air/nlm.gif>

More Serious Netsurfing

I opened a new site called (see the picture above, the address appears in the bottom left corner) <http://www.nlm.nih.gov/images.dir/nlm.gif>. All the sites on the World Wide Web starts with <http://>. Most of them have www or w3 extension to signify it is a World Wide Web site. In the US, government sponsored sites end with .gov (as it is, in this example).

I went into the National Library of Medicine, it gave me a bit of background about itself. Since most of that information is text, I copied the information as text as appears below. When you actually look at on the screen, it looks much better formatted.

About the NLM

- The National Library of Medicine (NLM), located on the southeast corner of the campus of the U.S. National Institutes of Health (NIH) in Bethesda, Maryland, is the world's largest library dealing with a single scientific/professional topic. It cares for over 4.5 million holdings (including books, journal, reports, manuscripts and audio-visual items). The NLM offers extensive on-line information services (dealing with clinical care, toxicology and environmental health, and basic biomedical research), has several active research and development components (including an extramural grants program), houses an extensive History of Medicine collection, and provides several programs designed to improve the nation's medical library system.

- If your computer is able to view mpeg files, you can see a computer-generated full-motion simulation of a hummingbird's visit to the NLM building complex:
[Image]

- ◆ Large version (MPEG, 477237 bytes)
- ◆ Small version (MPEG, 244604 bytes)

- You may also wish to view a gallery of photographic images associated with the NLM and NIH.

National Network of Libraries of Medicine (NN/LM):

The NLM is the hub of a National Network of Libraries of Medicine (NN/LM), consisting of:

- 4000 "basic unit" libraries (primarily in hospitals),
- 125 Resource Libraries (at medical schools),
- 8 Regional libraries (covering all geographical regions of the U.S.)

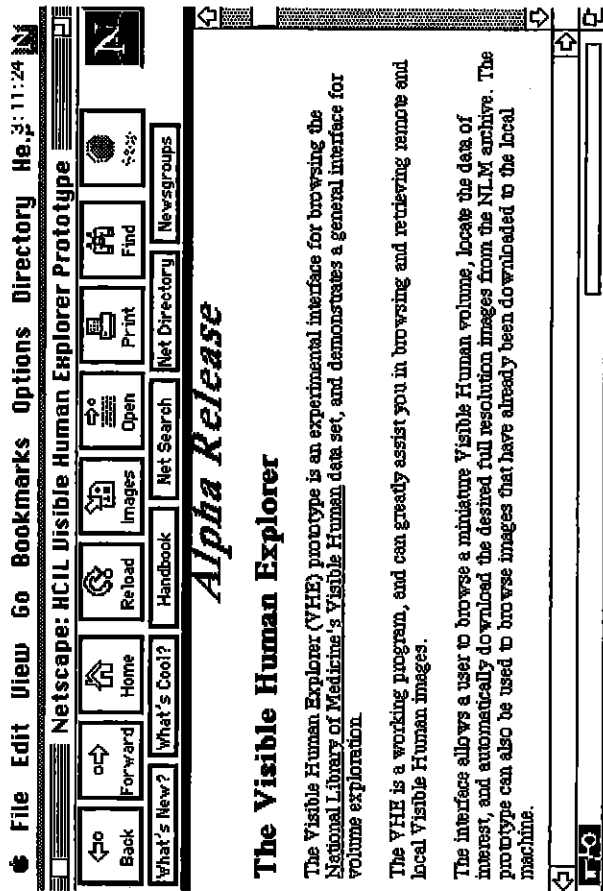
Approximately 2 million interlibrary loans are fulfilled annually through this system. The library's Medical Literature Analysis and Retrieval System (MEDLARS), a pioneering effort in rapid on-line bibliographic retrieval first devised in the 1960s, continues to provide an avenue for preparing bibliographic publications such as *Index Medicus*, as well as providing access to on-line bibliographic retrieval.

Statistical Profile of the NLM (as of 30 September 1994):

- Collection (book and non-book): 5,029,000
- Appropriation (FY 1994): \$118,019,000
- Staff (full-time equivalents): 614
- Serial titles received: 23,250
- Articles indexed (all databases): 368,600
- Journals indexed (for *Index Medicus*): 3,127
- Budget for purchase of publications: \$4,456,000
- Circulation requests fulfilled: 410,000
 - ◆ For interlibrary loans: 230,000
 - ◆ For readers: 180,000
- Computerised searches (databases): 6,866,000
- Grant awards (new and renewal): 129
- Amount obligated for grants: \$28,420,000

In the information above, there is a blurb about some mpeg file. This is a compressed movie format. In this case, if you clicked on there, it gives a (virtual) helicopter tour of the National Library of Medicine! In a segment entitled "What's New HyperDOC?", I found the following description of a software package called Visible Human Explorer. The description of the program appears over the page:

File Edit View Go Bookmarks Options Directory He.2:51:56 N
Netscape: HCIL Visible Human Explorer Prototype
http://www.nlm.nih.gov/images.dir/nlm.gif
Back Forward Home Reload In-Page Find Print Stop
What's New? What's Cool? Net Search Net Directory News Groups
Visible Human Explorer
Alpha Release
The Visible Human Explorer
The Visible Human Explorer (VHE) prototype is an experimental interface for browsing the
4096 of 11K (at 303 bytes/sec, 22 secs remaining)



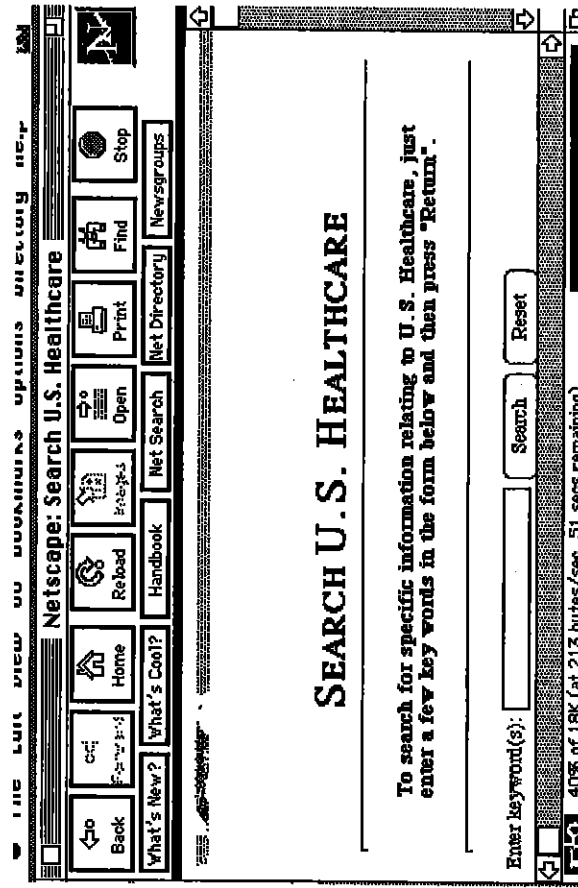
It sounded fascinating. I was going to download the entire program until I read the full description. The whole thing is zipped at about 20 megabytes. To download one megabyte from Australia takes 15-30 minutes. The program runs on a upscale Unix based machine (such as Sun Sparcstation). It will require harddisk space of about 50 megabytes. My *entire* harddisk is 40 megabytes! Someday, when I have enough computer muscle I will try it.

Who Visits the National Library of Medicine?

I gathered information on the use of National Library of Medicine. Here is the summary. The maximum use came from educational institutions in the United States. Among foreign countries, Australia was the third largest user. That is remarkable! Use by people in the UK with a much larger population base is only 2.5 times as large as Australia.

Other Sources of Information

There are many other sources of medical information on the Internet. There is a source called US Health Care. If you supply some key words, it produces a series of articles dealing with that keyword. I have given an example below with the keyword "skin cancer."



Executive Notes

Meeting two of the ANZAME Executive was held at the School of Medical Education, The University of New South Wales on the 13-14 October. There was a long agenda with a number of important items to be discussed. Some of the more important issues are set out below.

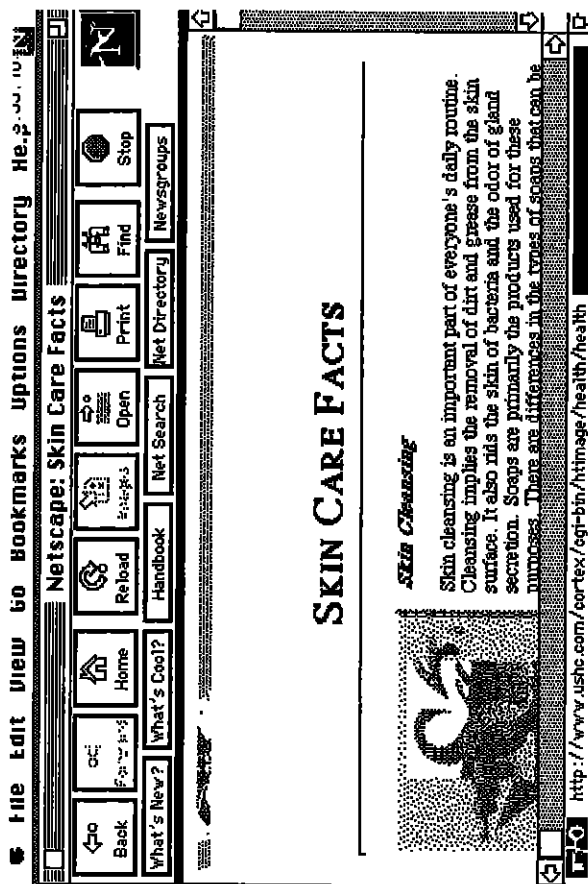
The audited statement of accounts for the 1994-1995 year was presented by the Treasurer, Neil Paget. The statement is reproduced in this issue of the Bulletin.

Many ANZAME members will know that 1997 marks the 25th anniversary of the Association. There will be several commemorative activities culminating in the Annual Conference in Melbourne. Paul Finucane is coordinating the work of the Executive and other members in producing a history of ANZAME. The Executive decided on a working title of 'From Cocktails to Bush Dances' to reflect the changing nature of ANZAME's social and professional ethos. There will be chapters on the founding of ANZAME and its early years, the membership profile, Executive activities, Annual Conferences, awards and prizes and the future of ANZAME. Suggestions from members are welcome. They can be forwarded to Paul via the Honorary Secretary.

Photographs of ANZAME activities are required for the book and for the 1997 Conference. If you have any suitable (embarrassing or otherwise!) photographs of any ANZAME activity of any vintage could you please drop a line to Ken Jones, the 1997 Conference Convenor. His address is on the back of this Bulletin. The Executive can arrange for the photographs to be copied and returned to you.

There were reports from the various office holders on the Executive. Charne Turner was nominated as the Student Liaison Officer. This position was left vacant following Meeting one of the Executive in Queenstown.

Tony Buxton of the Australian Society of Medical Radiations joined the Executive for part of the meeting. There is a small but growing and active group of educators in medical radiation departments around Australia. Members of the group are interested in developing links with health professional educators in other disciplines. The Executive is pursuing ways of welcoming the group into the ANZAME community.



National Institute of Health also have lots of information for doctors and other medical personnel.

The best way to find out about the information on the Internet is to explore the Internet yourself.