Signposts and Omens
Setting the Stage

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Can We Predict 5 Years Ahead?

- **Technology dependent**
  - Tools for production
  - Distribution via the Internet
  - Access and reading
    - Currently depend on available browsers
- **Publisher dependent**
  - Mergers galore - investment opportunity
  - Publisher adaptability, yes – no

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We tend to predict what we know, but this is not effective. The STM industry is strongly dependent upon technology.

Most authors use MS Word for manuscript preparation. The Internet and the Web are used for distribution, and readers use browsers for reading. As these tools evolve, so does STM publishing.

We are also dependent upon the large commercial publishers. STM publishing is seen as a great investment opportunity. The numbers are very favorable, so mergers and acquisitions are being made for reasons which have nothing to do with STM. Our community is also dependent upon the capability of the large publishers to adopt new practices and new thinking. HighWire and the University of Chicago Press adopted e-publishing in 1995. Other major publishers have still not equaled the quality and ease of use of their electronic journals. In such cases, the STM community suffers.

Can We Predict 5 Years Ahead?

- Author dependent
  - Will authors write for electronic media?
  - Take advantage of new capabilities?
- Reader dependent
  - Will reader habits change?
- What indicators can we use to look ahead?
- How successful were we five years ago?

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Other difficulties in making predictions lie with the authors and readers. Will authors change their style of writing to make better use of the expanded capabilities of electronic publishing? Will readers be willing to change from the static printed page interface to the interactive on-screen one?

The goal of this session is to look at what has happened over the past five years, and see if there are indicators of change that we can use to help prepare for the next five years. We all gave our thoughts in 1999, and now it is time to look back and see if we were successful at all.
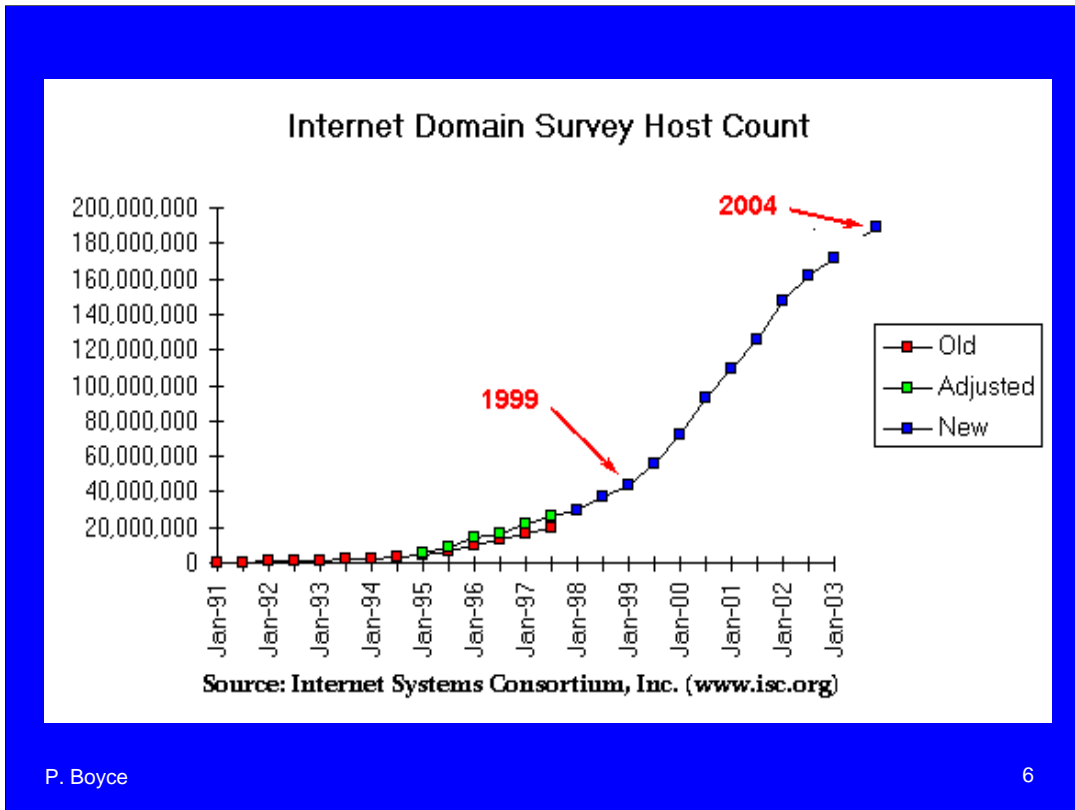
What Actually Happened During the Last 5 Years?

- 5 Years of incredibly rapid growth
- Enormous growth in available bandwidth
- Wireless is now everywhere
  - We did not foresee this

- None of us envisioned just how rapid the growth would be

The first step is to look back five years and recount what has actually happened. The growth has been so rapid, and the changes so profound that we tend to forget just what has happened since we first met here in Fiesole.

Bandwidth has grown beyond expectation. We talked in 1999 about how to get access to Internet II which would have broad bandwidth needed to transmit images. Trans-Atlantic communication was limited. Now, we get rapid access everywhere. No one talks about bandwidth limits and the need for mirror sites.

Wireless is now everywhere, something none of us mentioned in 1999. In fact, the growth of the Internet has outstripped our garndest expectations.
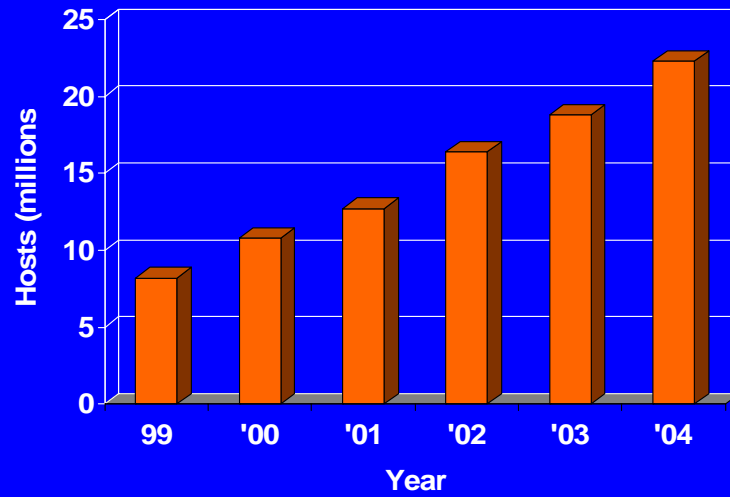
Internet Domain Survey Host Count

Source: Internet Systems Consortium, Inc. (www.isc.org)

AS one indicator, the Internet has grown from 40 million hosts in 1999 to 200 million hosts today

The European network has, likewise, grown rapidly over the last 5 years.

What Actually Happened During the Last 5 Years?

- Dot-com boom and bust
  - Came and went in 3 years
  - Overpromising and underperforming
- The Internet accelerates time
  - Relentless cycles of new software and hardware
  - Changing environment, no permanence
- The Internet has entered everyone's life

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What actually happened since 1999.

We had the dot-com boom and subsequent bust. Companies promised more for the Internet than it could deliver. The need for solid business plans seemed to evaporate in the presences of promised Internet-generated dollars. But, enormous investments were made in infrastructure and bandwidth.

In the Internet era, the cycles of development, use and obsolescence have been compressed into a couple of years. The environment is changing rapidly, leading to a feeling on impermanence. This is not a happy feeling for those of us in the STM field.

And we surely are in the Internet era. It pervades all out lives now.

Bottom Line

- Major influence on STM comes from outside – beyond our control
  - "Disney" drives technology development
  - Dot-com craze drove bandwidth expansion
  - Business needs drive wireless availability
  - Mergers driven by investment bankers

- Difficult to make accurate predictions

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It is incredibly difficult to make predictions about our field when so much of what we depend upon for the preparation and dissemination of our articles comes from outside our field.

Setting the Scene - Five Years Ago

- Google opened 7 Sept, 1998
- Pal-Pal for e-bay opened in 1998
- Napster founded - May 1999
  - Agreed to stop free sharing - Sept 2001
- 1999Technologies of the Year were:
  - E-Trade
  - Online Banking
  - MP3

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Setting the scene in the spring of 1999:

Google had been open for five months, Pay-Pal only slightly longer.

Napster was 2 months in the future – a two year flurry.

The 1999 Technologies of the year were electronic stock trading, Online banking, and the MP3 music format which alloweed Napster to flourish. We think of all these things today as something which have been around forever – the Internet time acceleration effect. But they wer just starting when we met to give our predictions in March 1999.

What Did We Predict in 1999?

- Fewer, but bigger, publishers – Mergers
- More consortia of libraries
- Difficulty in locating information
- More electronic journals
  - Range from slow growth to all electronic
- Inertia and conservatism inhibit change
- Technology will drive change

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Looking over the 5-yearpredictions that we made in 1999, a few common themes emerge.

A lot of us predicted that there would be more mergers and consolidation among publishers.

Library consortia and cooperation among libraries was expected to grow.

Several people predicted that there would be difficulties in locating online information.

The number of electronic journals were expected to grow. One person expected that all journals would be electronic within the five year time frame.

Many people cited inertia and conservatism in the system as factors which would hold back the adoption of electronic publishing.

Quite a few of us acknowledged that technology would be driving changes

Final Thoughts

- Quoting from my 1999 presentation:

  "If it is not on the Web, it does not exist!"
  - This was true for the astronomy community in 1999, and it is true for a broader segment of the public now.

- Everyone uses Google
  - We have a new verb – to Google
  - As we learn from NASA, any noun can be verbed

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As an indicator of how far the Internet has taken over, it is clear that young people expect everything to be on line.

In addition, everyone expects to be able to find everything they want by using Google. They call it Googling information. Is this the end of language as we know it? NASA has led the way to this decline in English usage. From numerous examples of "space engineer talk" we see that any noun can be "verbed."

Signposts and Omens

- In this session we look at four areas
  - Examine what happened and "predict" future

- Linking – Interconnecting good information
- Library Consortia – The good, the bad …
- Europe – Connected, but not monolithic
- The Humanities – Breaking old habits

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This session will look at four areas to identify the predictors we can use to see into the future.

Linking is becoming a more important way of finding information than it was in the paper era. We hope to understand what progress has been made in this area and uncover implications for the future.

Library consortia have grown over the past five years and we will hear about the good points and the difficulties of operating within consortia.

Developments in Europe and proceeding somewhat independently from those in the US, and it is important to understand what is going on here.

Finally, although the science community has been leading the way in the switch to electronic publishing, there are many electronic capabilities which are ideal for the historian. We will hear about a pioneering effort to bring these capabilities to the history community, and their reaction to these novel approaches. Without more ado, we look for Signposts and Omens.