how much information

what kind of question?
what counts?
when counting began?

Concepts of Information
Tues, Jan 31 2012
down the road

Ann Blair
forth and back

Feb 2 & 7 - GN: History of Information

Feb 9 & 14: - Public Sphere, 18-19c
readers wanted
"And it is there, in the ruck of history, that they are able to locate an information explosion that means something substantive and which has discernible origins and contexts: that these types of information, for those purposes, for those sorts of groups, with those sorts of interest are developing ..."

--Frank Webster, *Theories of the Information Society*, 2009
<table>
<thead>
<tr>
<th>Year</th>
<th># sci journal</th>
<th># books, \textit{Johns Hopkins}</th>
</tr>
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<tbody>
<tr>
<td>mid 17c</td>
<td>2</td>
<td></td>
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<tr>
<td>mid 18c</td>
<td>10</td>
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<tr>
<td>1800</td>
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<tr>
<td>1850</td>
<td>1000</td>
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<tr>
<td>1900</td>
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</tr>
<tr>
<td>1950</td>
<td>30-100,000</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>1,500,000</td>
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</tbody>
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- **1945** Bush, "As We May Think"
- **1960** Toffler, "The Quantity of Culture"
- **1962** Machlup - information/knowledge economy
- **1963** de Solla Price, \textit{Little Science, Big Science}
- **1973, 1979** Bell - post-industrial society
- **1977** Porat - \textit{The Information Economy: Sources and Methods for Measuring the Primary Information Sector}
Information: there's growing agreement it's the name of the age we live in.

Human history has long been described in terms of Ages whose names reflect the stages of development through which mankind has passed: the Stone Age, the Bronze Age, the Iron Age and so on—down to the Industrial Age, which established the foundations of our modern society.

Today, there is growing agreement that we have entered a new era—a post-industrial stage of development in which the ability to put information to use has become critical, not only to the essential production of goods, but to efforts to provide a better life for the individual, as well.

This new era is being referred to with increasing frequency as the Information Age.

Information in the Information Age

Changes in our perception of information itself—its nature as well as its scope—have accompanied this profound shift of emphasis in our society.

Much has been written about the so-called “information explosion.” It has been pointed out, for example, that the number of technical journals published throughout the world today exceeds 100,000, and that the total body of technical information is now doubling every ten years.

At the same time as the volume of information has been increasing dramatically, our understanding of the meaning of the term information itself has also broadened—to encompass a wide variety of timely data relating to “how things really are” across the whole spectrum of human activity.

A heartbeat, for example, can be extremely meaningful information when recorded and analyzed on sophisticated electrocardiogram equipment. So can electrical impulses reflecting the load level in a power network, or numeric digits representing the availability of a seat for you on an airplane—when processed by a modern computer.

These and a wide range of similar types of data are clearly recognized today as information, the kind of information on which we increasingly depend for the growth and health of our economy, the smooth functioning of our institutions—and, even more important, for the quality of our individual lives.

Information—an inexhaustible resource

Information is one of the few resources not in danger of exhaustion on this shrinking planet. It is unique because the supply is limitless, because it actually becomes more valuable with use and because—when properly managed and applied—it can greatly enhance our use of all our other resources, natural, human and economic.

One reason, of course, that information has proved to be such a dynamic resource is the fact that there exists today a remarkable technological capacity for dealing with it rapidly and effectively.

Through a vast array of electronic tools and techniques, mankind is able to accumulate, organize, store, interpret, retrieve and transmit information on a worldwide scale, in a volume, at a speed, and with an accuracy that would have been impossible barely two decades ago.

It is also a technology that continues to grow and that has proved to be amazingly efficient in economic terms. As advance has followed advance, the cost of processing information has steadily declined. Since the 1950’s, the cost of performing 100,000 calculations on an IBM computer has fallen from $1,260 to less than one cent—and the downward trend continues.

Putting information to work for people

IBM makes many different products—from computers to copiers—but clearly, the essence of our business is information.

As a company, we are committed to exploring the limits of technology to find better, more imaginative and more productive ways to help put the benefits of this uniquely valuable resource to work for people.
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“Fold all these, stuff all those, stamp them all, then take a letter?? Mr. Smith... I just got Paperalysis!”

SYMPTOMS: FOLDING AND STUFFING
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SYMPTOMS: LICKING AND STICKING
STAMPS. Treatment: Meter stamp with a Pitney Bowes postage meter mailing machine. It’s faster. And you can’t lose a meter stamp.

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BY HAND. Treatment: Make 37 clean sheets, then copy each sheet and then collate the copies. Faster than you could by hand with a Pitney Bowes automatic collator.

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The course of spending by G.N.P. sectors

Consumer services

Consumer goods (except food)

Government: nondefense

Food

Government: defense

Business: capital goods

Home-building

Business: inventory accumulation

Net exports

Prospects for 1978: After a slight offset of 3 percent in 1977, growth will remain about 2.5 percent. Some predictions of a recession are looking about slightly above that, due in 1978. A major challenge will be to stay within the growth.
more recent

1996 Lesk - How Much Information in the World

1999, 2003 Lyman & Varian - HMI

2009, 2011 Bohn & Short &c - HMI

2009 Mayer-Schönberger, Delete
Three years ago, the world's 27 million business servers processed 9.57 zettabytes, or 9,570,000,000,000,000,000,000 bytes of information. Researchers at the School of International Relations and Pacific Studies and the San Diego Supercomputer Center estimate that the total is equivalent to a 5.6-billion-mile-high stack of books stretching from Earth to Neptune and back to Earth, repeated about 20 times. By 2024, business servers worldwide will annually process the digital equivalent of a stack of books extending more than 4.37 light-years to Alpha Centauri, the scientists say."
Can we get that in a proper measurement like Libraries of Congress.

still climbing
"All claims of this sort have their historical specificity, and one must always ask: who has to gain from assertions that information is chaotic, overwhelming, and out of control? The answer is usually found in the expert groups who offered solutions."

--John Agar, Government Machine, 2003
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toxic terabytes

"This year [2006], electronics manufacturers will produce more transistors ... than the world's farmers grow grains of rice ... four years from now, the world's information base will be doubling in size every 11 hours. ... kilobytes .. megabytes ... gigabytes ... terabyte .. petabyte .. exabyte ... zettabyte .. yottabyte ... when terabytes turn toxic ... no amount of disks will be enough to soak up the deluge ... taming the data beast ... data detox"
"whether accurate ... the [population counts] were usually precise."

--Andrea Rusnock

the longer view

Blair and the ruck of history ...