

literatury

Crisis of scientific communication: Fact or Fiction?

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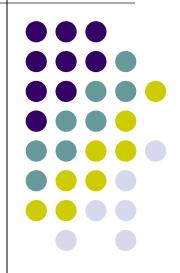
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Crisis of scientific communication; fact or fiction?

R. Hanka Univ. of Cambridge



Crisis, what crisis ?

- Can we still cope with the rate new knowledge is growing?
- Is it all really worth knowing?
- Aren't we keeping more and more to ourselves rather than sharing it?
- Aren't we loosing something we used to take for granted?.





Can we still cope with the rate new knowledge is growing?

The problem



Different rate of expansion of:



our intellectual abilities

knowledge.



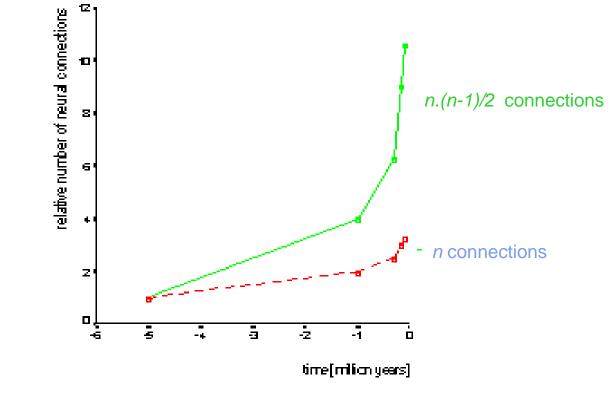


Human Intellectual Abilities

- Over last 5 million years brain volume increased from 400cm³ to 1,400cm³.
- Today 10¹¹ neurons and 10¹⁴ synapses.
- Between *n* and *n.(n-1)/2* connections.



Brain capacity



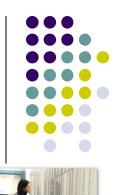
doubling every 1.5 to 3 million years.



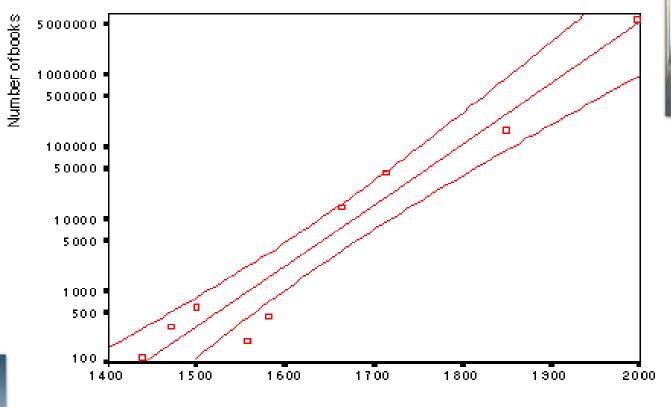
Human knowledge

• impossible to measure objectively

number of books in the Cambridge
University Library used as a measure.



Books in the Cambridge University Library



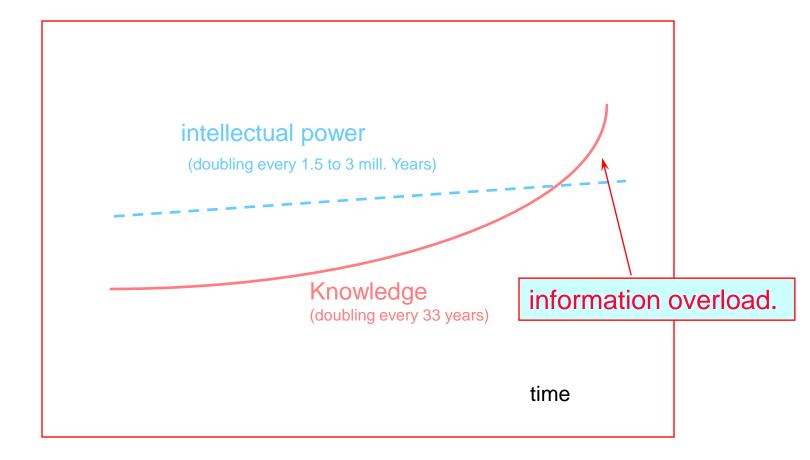




doubling every 33 years !.



Expansion of knowledge and intellect

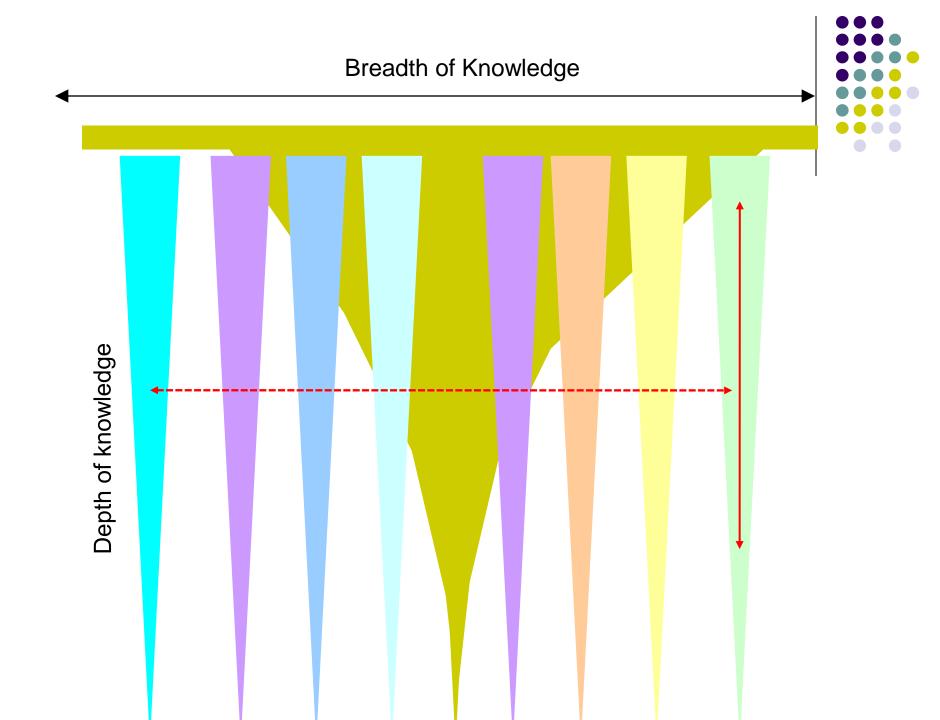


Information Overload



- 15th century
- 18th century
- 20th century
- 21st century

- polymath
- scientist knew all there was to know in his field
- specialisation
- narrow specialisation.







- Knowledge ≠ information
- Overwhelmed with information
- Difficult to find required information
- Difficult to assess quality of the information found.

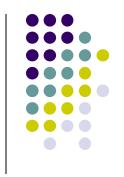


The Size of the Problem



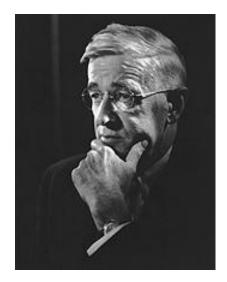


- Decision to pursue information depends on the
 - 1. Urgency.
 - 2. Expectation that a definitive answer can be found.



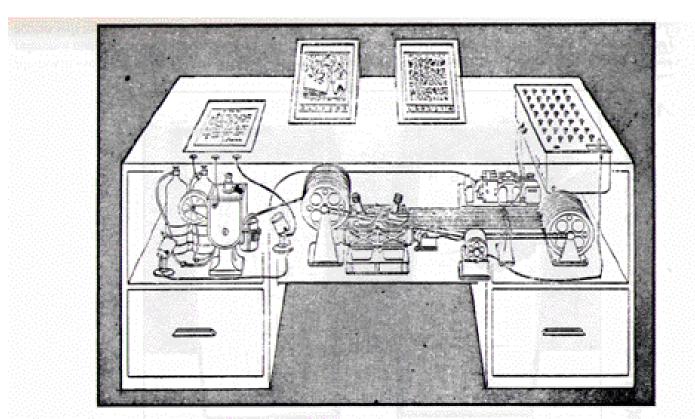
Vannevar Bush "As We May Think" (1945)

- Personal Library (vertical books)
- Trails (horizontal hypertext)
- Updateable
- With annotations.





Memex



Memex in the form of a desk would instantly bring files and material on any subject to the operator's fingertips. Slanting translucent viewing screens magnify supermicrofilm filed by code numbers. At left is a mechanism which automatically photographs longhand notes, pictures and letters, then files them in the desk for future reference (LIFE 19(11), p. 123).



Is it all really worth knowing?

Internet



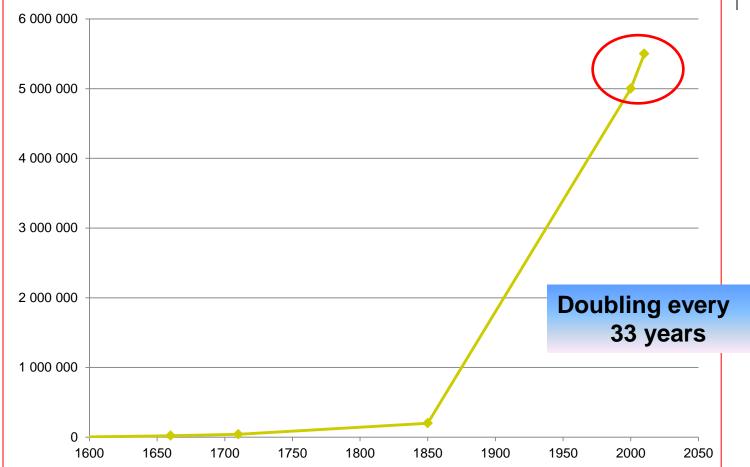
- Information 'pollution'
- Haphazard collection of information
- No structured navigation
- Searches resulting in '64,000' hits
- Long access times
- Is it all really reliable?.



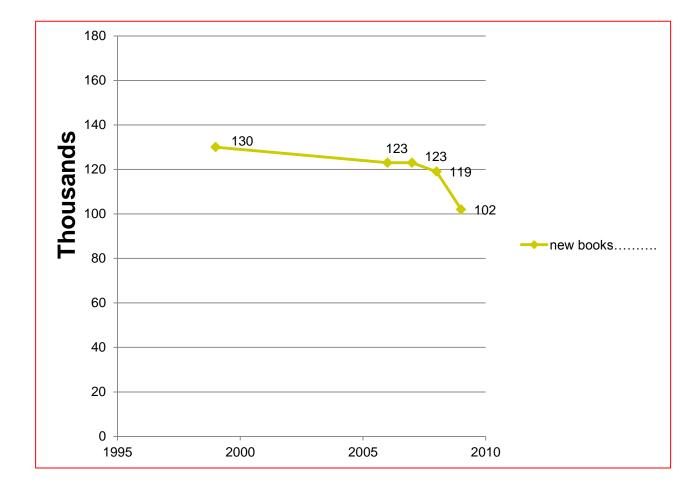


Books in the Cambridge University Library

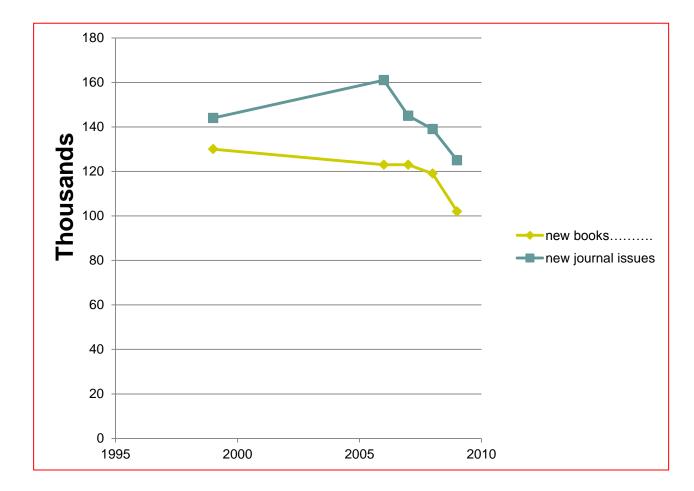














Aren't we keeping more and more to ourselves rather than sharing it?

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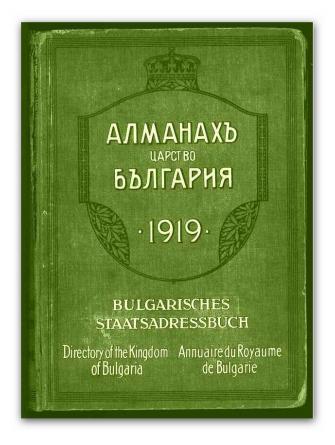
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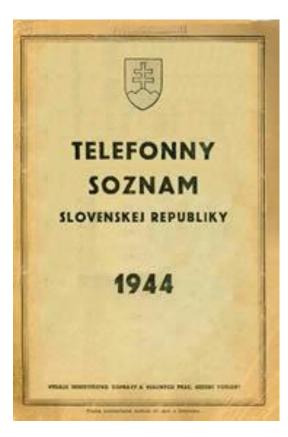
SPENCER & MATTHEWS.

Office open from 6 A. M. to 2 A. M. After March 1st, this Office will be open all night. First telephone directory in the world. New Haven 1878













Last published Moscow telephone directory.

Subsequent editions deemed confidential and not generally available.



- Current telephone directories are getting smaller: .
 - Contain fewer and fewer of last year's numbers
 - Growing number of ex-directory entries
 - Mobile phones replacing some lines.
 - Mobile phones not listed.

Suppressing information



- Political suppression of inconvenient evidence
 - Napoleonic France (Humphry Davy)
 - Stalin's Russia or other communist states
- Security aspects
 - Data encoding, steganography
- Computer software and Pharmaceutical industry
 - Commercial reasons
 - Complete suppression
 - Time limited
 - Overestimating benefits or underestimating risks

Protecting IP



- Current emphasis on links between research and industry (transfer of technology).
 - Need to protect intellectual property (IP)
 - Delaying the publication until the IP rights are secured.
- Recent trend
 - In some areas a deliberate decision not to publicise, or even protect, latest advances in order to secure one's commercial advantage.



Aren't we loosing something we used to take for granted?

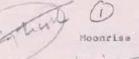
Juno 1682 Sallurday at 1 20 P. M. D. Noch. A. F.R. Sallurday at 1 20 P. M. D. Noch. A. F.R. in a night line. FR way = to twice Fg & tayle pointed to & in y Bears no layle pointed to & in y Bears no layle about 6 Degrees long tracking *nSunday hat 9 \$ 20" lifen midnight fs= Sunday hat 9 \$ 20" lifen midnight fs= SH. If = IS = 12 Sf . It sf= 32 fg. The cuded over against " middle of all produced out of 4 or 5 of Cl lovards Musday & R BO, 40 at night RTV ... at line The Eyer more a bush

Newton's record of observations of the comet of 1682, now known as Halley's Comet, written on a scrap of paper perhaps torn from a letter.



Arabic fragments still to be restored





While my anxiety was phoning you last evening, my simpler self lay marvelling through glass at the full moon marbling a cloud, its flickering him with disk a headlight in an underpass, until it slipped free, wounded, deadly clear, earth's stillborn twin unspoiled by life or air.

> And while our voices huddled mouth to ear, I saw how tenacity of Long imagination still cast it in a film of the old goddess, chaste of the chase, more virgin than the Virgin, lifting herself from that cucked, unfeeling waste as from the desert of her own cuined face.

Such an unhinging light. To see her. To see that. As no one else had seen her. Or might see that.

It that there for sow Sawlemanty of Long incoming Costing her still is a film I me old golders, I still Cart han bleve in a flow of the del sollies (no shills) ---- Like head lamb in an under forse years a beadloor for an under forse

A draft of Anne Stevenson's sonnet 'Moonrise', (from MS Add. 9451).



Emails are generally replacing informal means of communication e.g. letters to colleagues and friends.

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1832.]

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even yet marvellous in my own eyes, and I dare say it is little less so to you, the receiving a letter from a son of yours in such a quarter.

RIO.

Believe me, my dear Father, Your most affectionate son, CHARLES DARWIN.

C. Darwin to W. D. Fox.

Botofogo Bay, near Rio de Janeiro, May, 1832.

MY DEAR FOX,

I have delayed writing to you and all my other friends till I arrived here and had some little spare time. My mind has been, since leaving England, in a perfect *hurricane* of delight and astonishment, and to this hour scarcely a minute has passed in idleness. . . .

At St. Jago my natural history and most delightful labours commenced. During the three weeks I collected a host of marine animals, and enjoyed many a good geological walk. Touching at some islands, we sailed to Bahia, and from thence to Rio, where I have already been some weeks. My collections go on admirably in almost every branch. As for insects, I trust I shall send a host of undescribed species to England. I believe they have no small ones in the collections, and here this morning I have taken minute Hydropori, Noterus, Colymbetes, Hydrophilus, Hydrobius, Gromius, &c. &c., as specimens of fresh-water beetles. I am entirely occupied with land animals, as the beach is only sand. Spiders and the adjoining tribes have perhaps given me, from their novelty, the most pleasure. I think I have already taken several new genera.

But Geology carries the day: it is like the pleasure of gambling. Speculating, on first arriving, what the rocks may be, I often mentally cry out 3 to 1 tertiary against primitive;

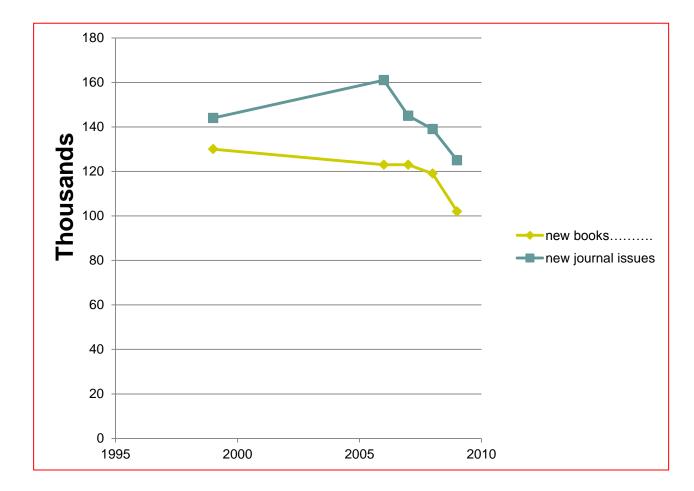
© The Complete Work of Charles Darwin Online

Darwin's correspondence

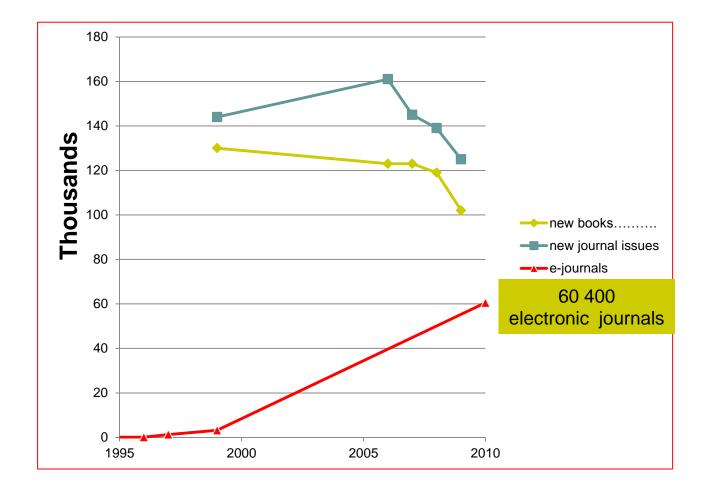


Does anybody keep copies of his emails with colleagues?

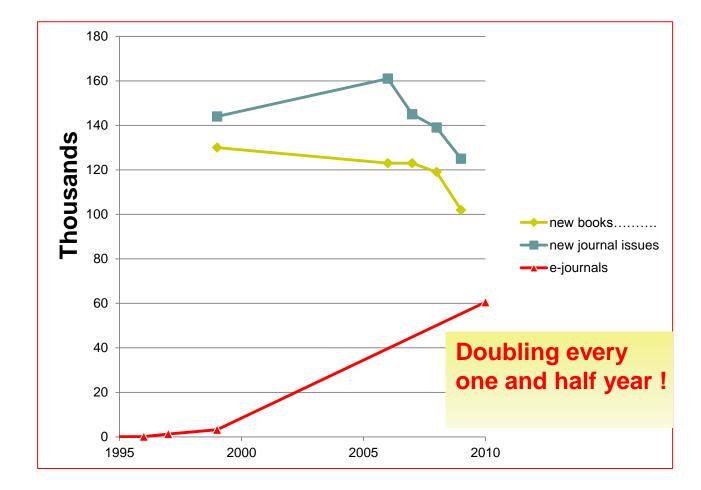














How secure, reliable and technologically up-to-date are the archives of older electronic documents and publications?.







Crisis of scientific communication;

fact or fiction

