Human-Computer Interaction

History of HCI

Professor Bilge Mutlu

Today's Agenda

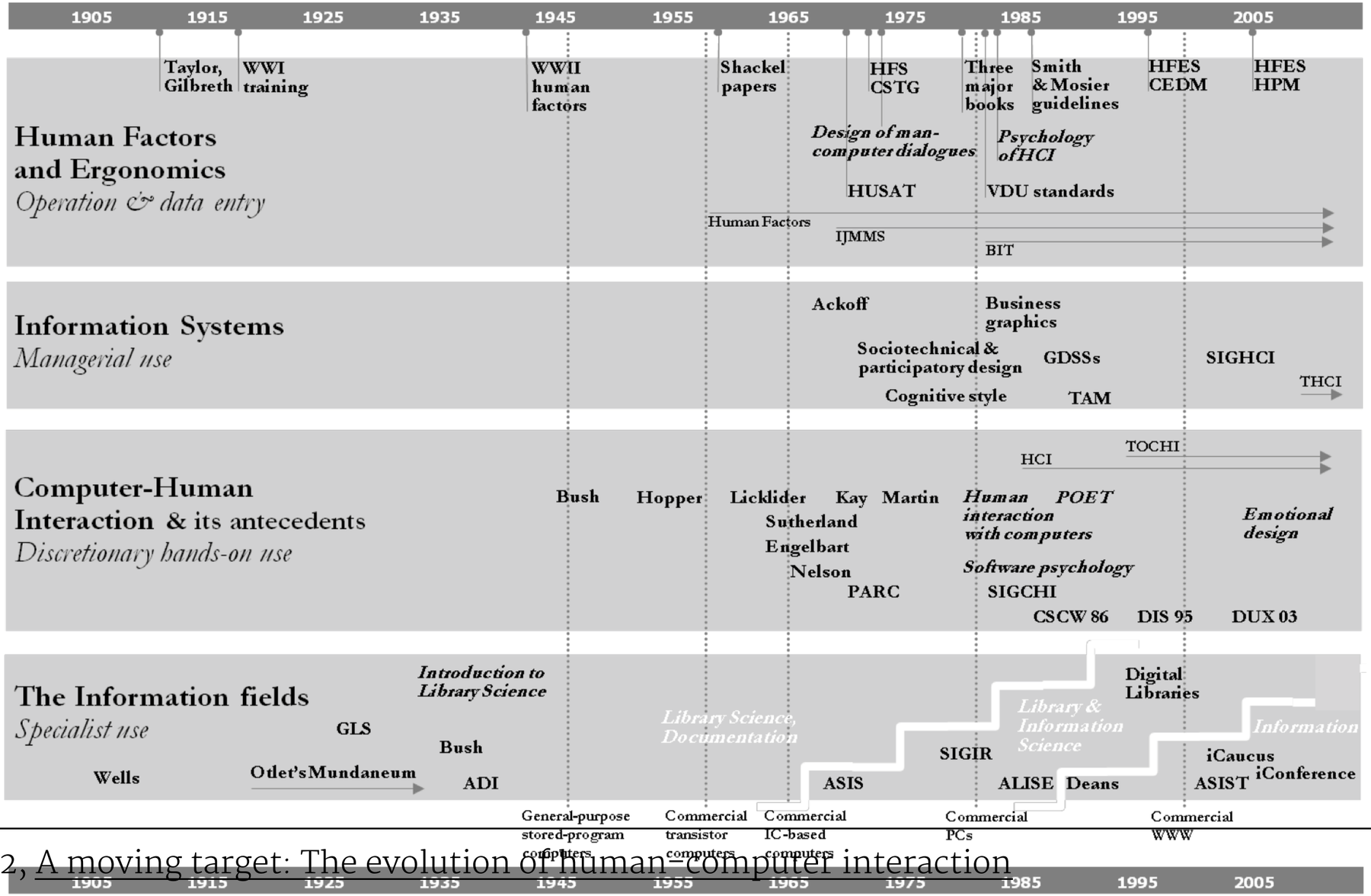
» Topic overview: *History of HCI*

» Discussion

» Project overview

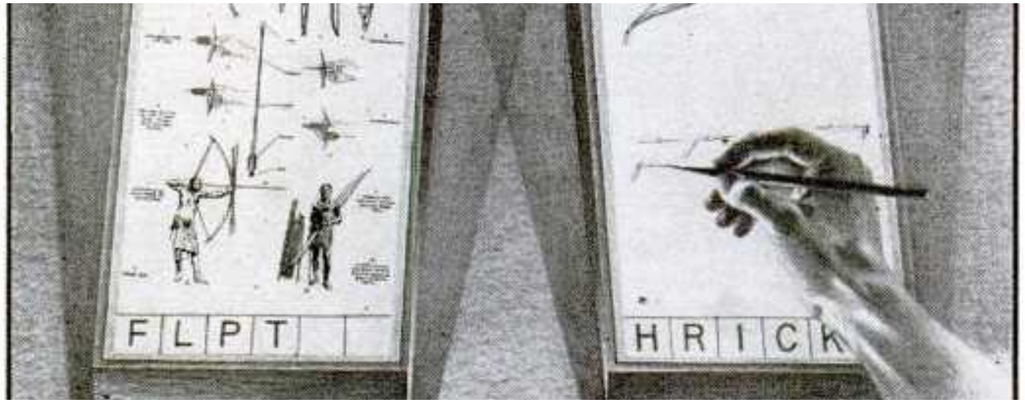
Topic overview: *History of HCI*

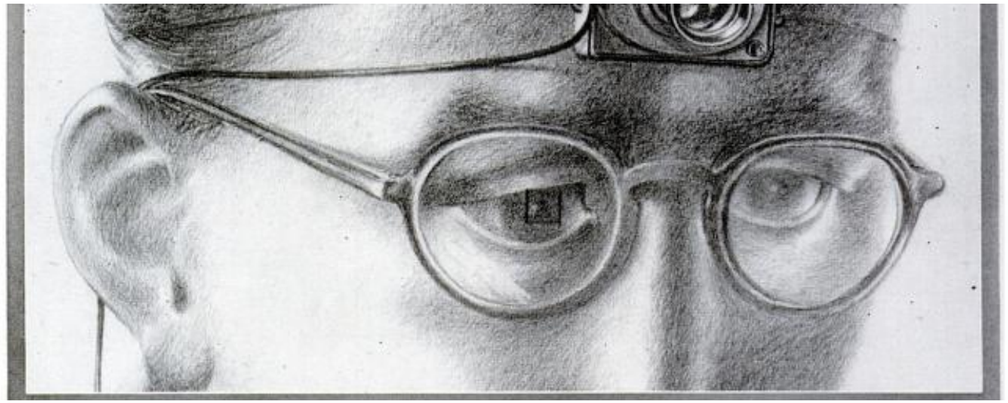
1



[1] Grudin, 2012, A moving target: The evolution of human-computer interaction

1945 (Vannevar Bush)[2]





2011 (Microsoft)

[2] Wired, Microsoft

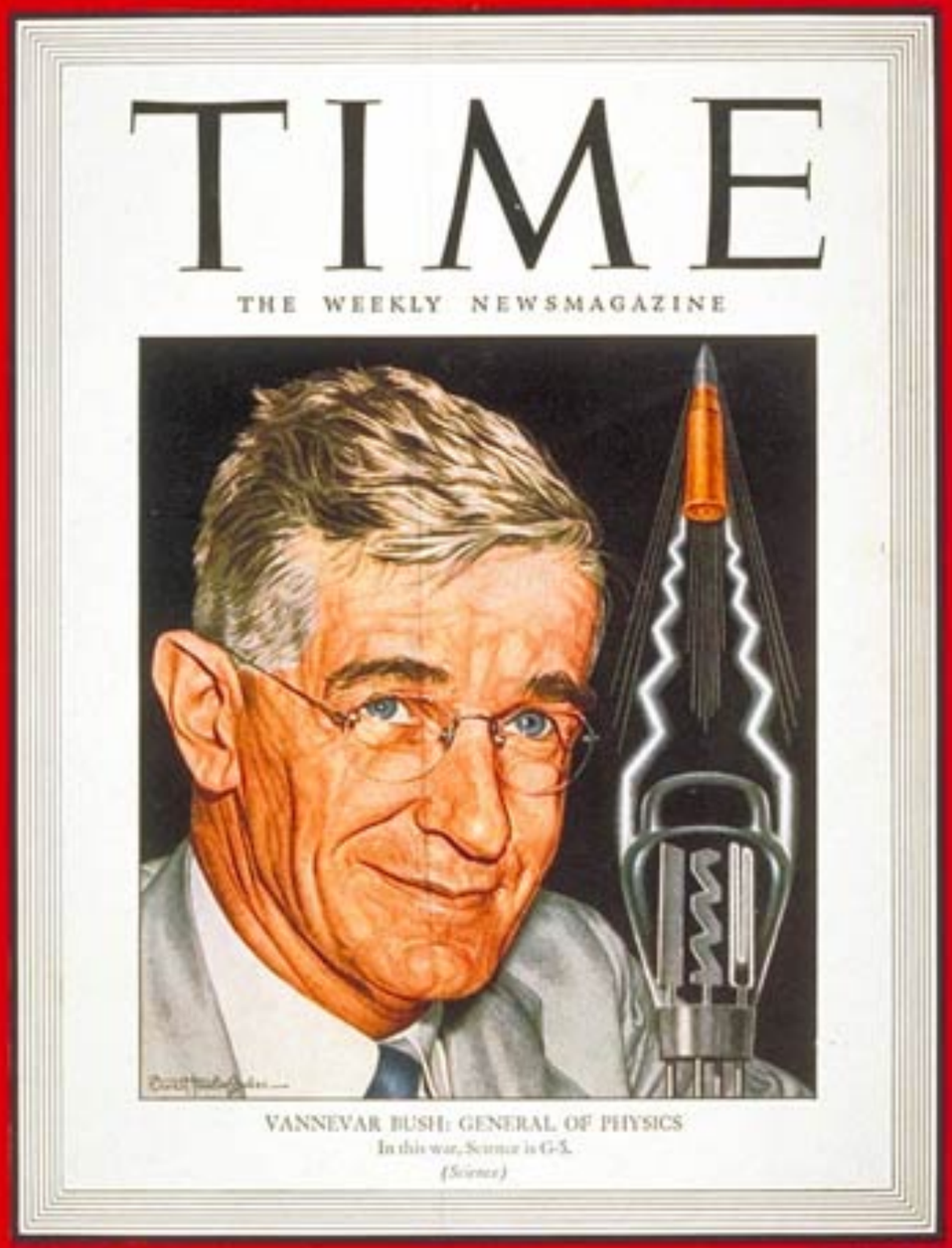
1940s[3]

Memex, 1945, Vannevar Bush, OSRD

» Stores all records/articles/ communications

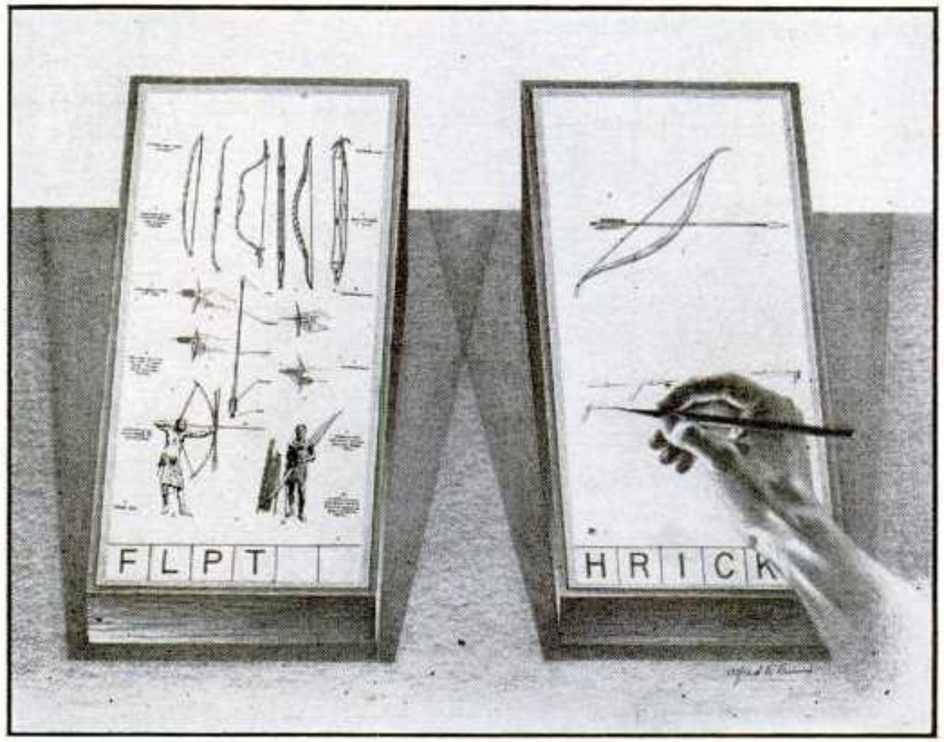
» Items retrieved by indexing, keywords, cross-referencing

» Information linked through associative trails

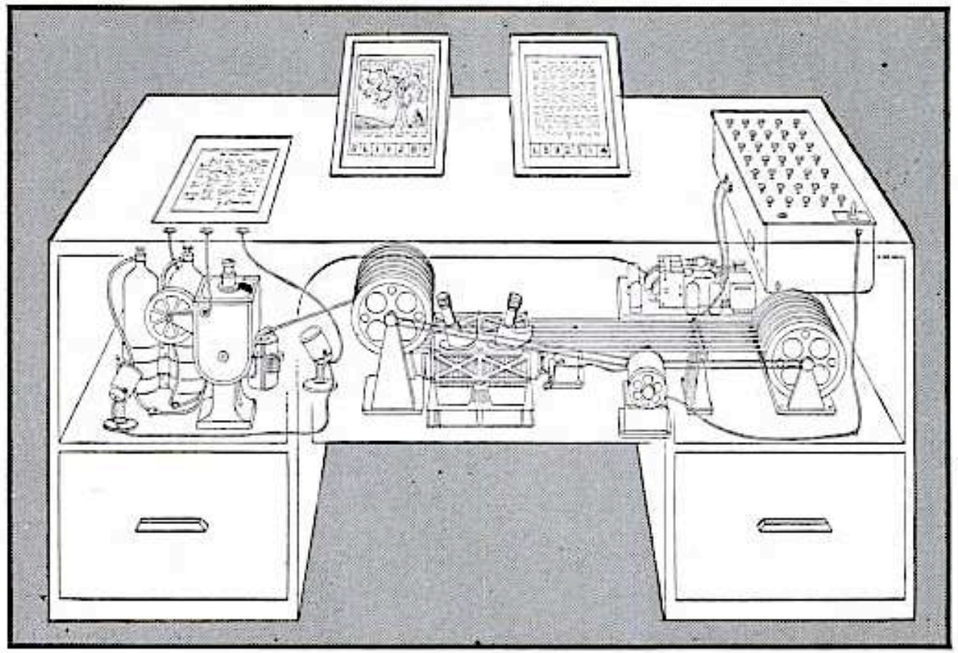


[3] Image source

4



MEMEX IN USE is shown here. On one transparent screen the operator of the future writes notes and commentary dealing with reference material which is projected on the screen at left. Insertion of the proper code symbols at the bottom of right-hand screen will tie the new item to the earlier one after notes are photographed on supermicrofilm.



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.

AS WE MAY THINK CONTINUED

[4] Image source

1960s[5]

Man-Computer Symbiosis, 1960,
Joseph Licklider, ARPA

"Men will set the goals, formulate the hypotheses, determine the criteria, and perform the evaluations. Computing machines will do the routinizable work that must be done to prepare the way for insights and decisions in technical and scientific thinking."

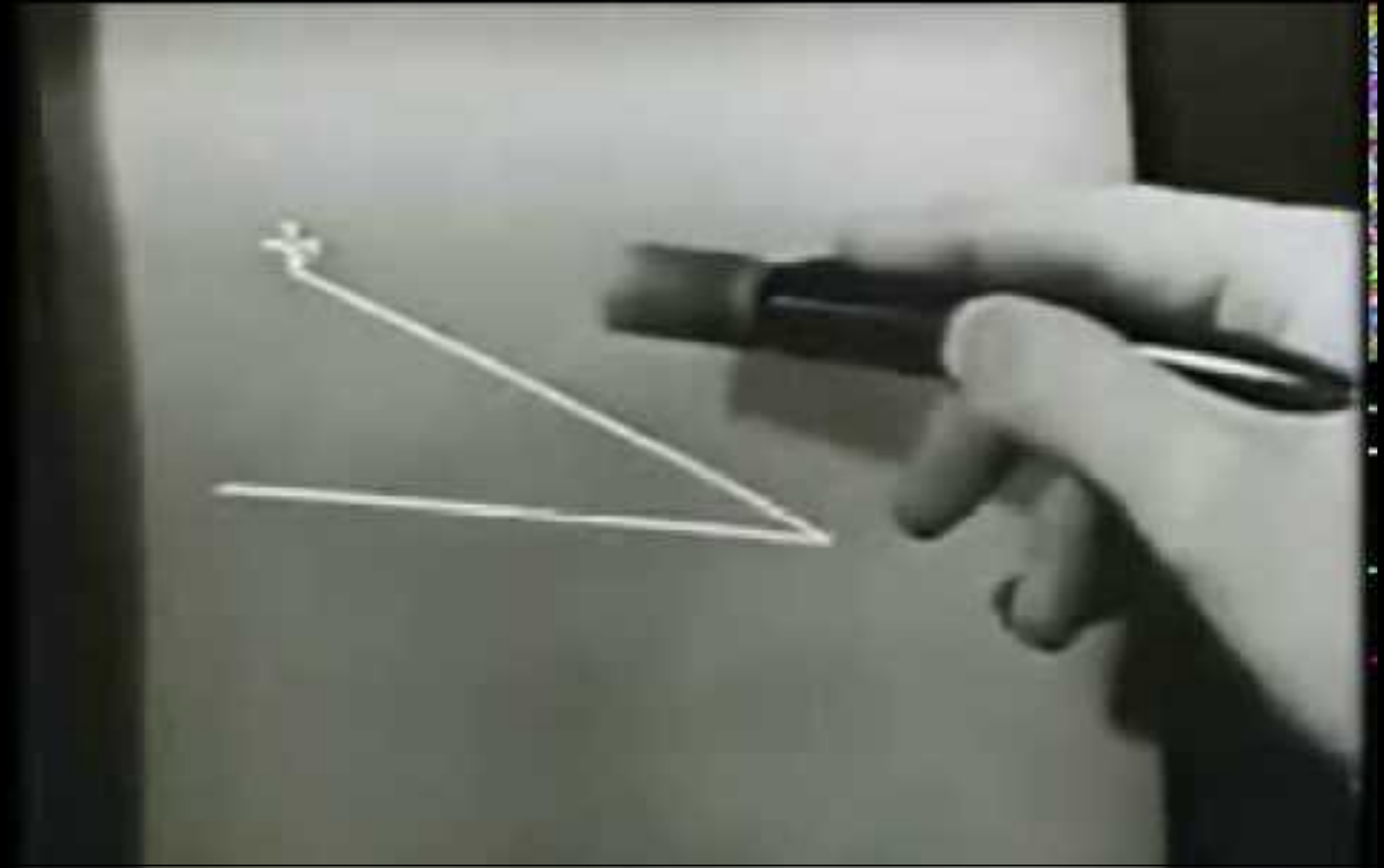
[5] Image source

1960s[6]

SketchPad, 1963, Ivan Sutherland, MIT

"Sketchpad: A Man-machine Graphical Communications System" introduced hierarchy, object-oriented graphics, constraints, icons, copying, light pen as input device, recursive operations

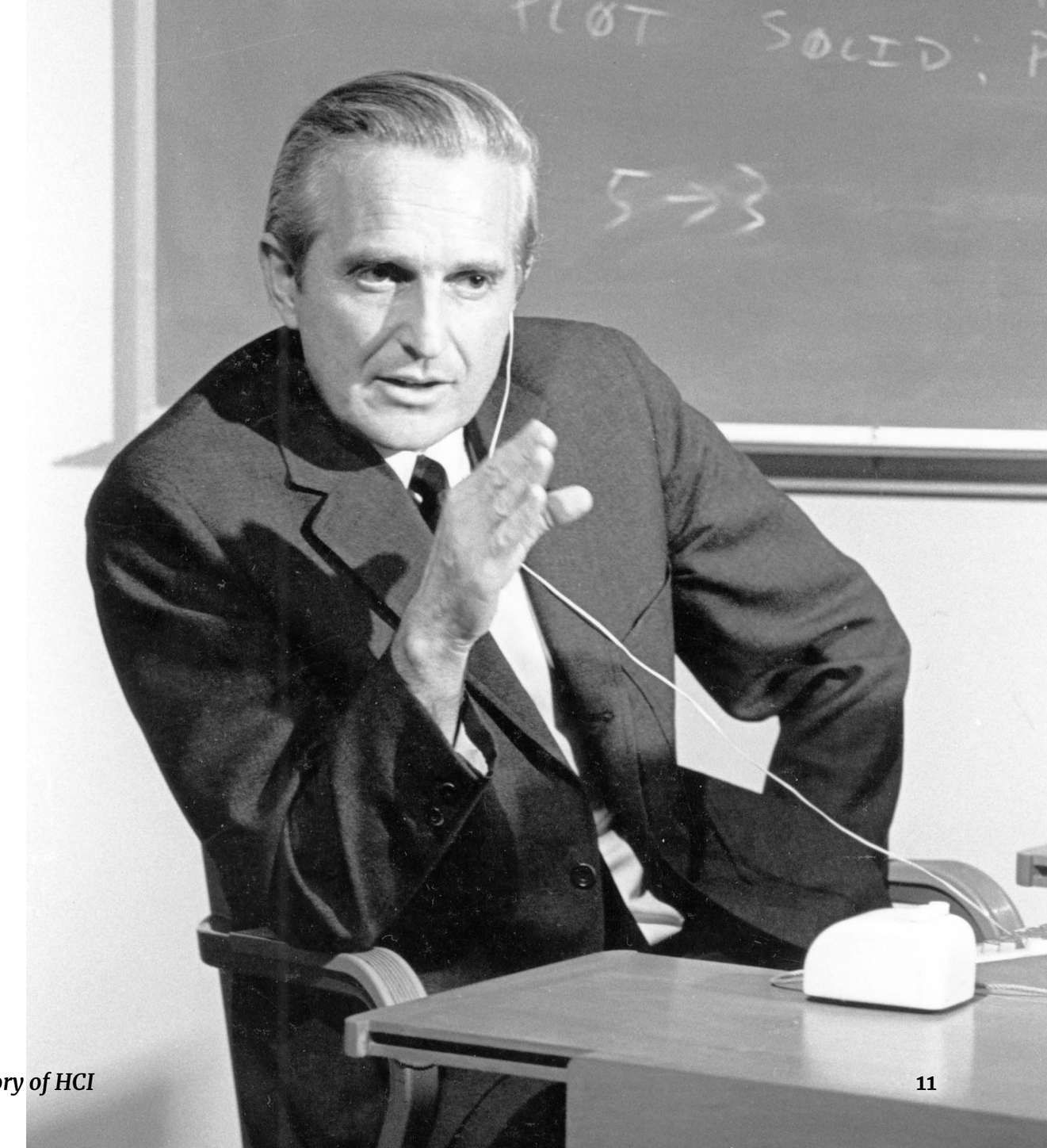
[6] Image source



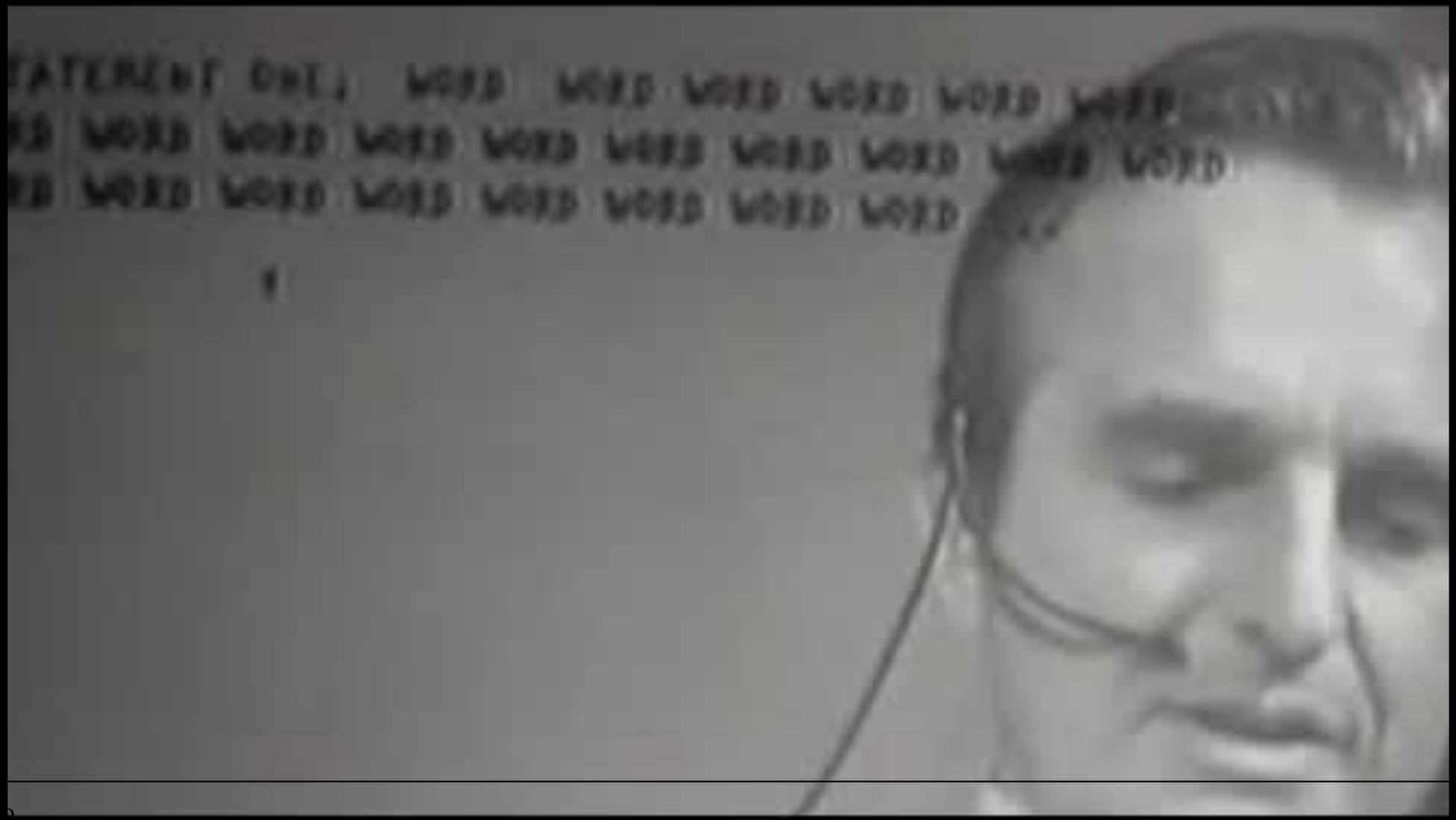
1960s[8]

The Mouse, 1968, Douglas Engelbart, Stanford Research Institute (SRI)

"Mother of all demos" introduced *hierarchical hypertext*, *multimedia*, *windows*, *shared files*, *electronic messaging*, *video conferencing*



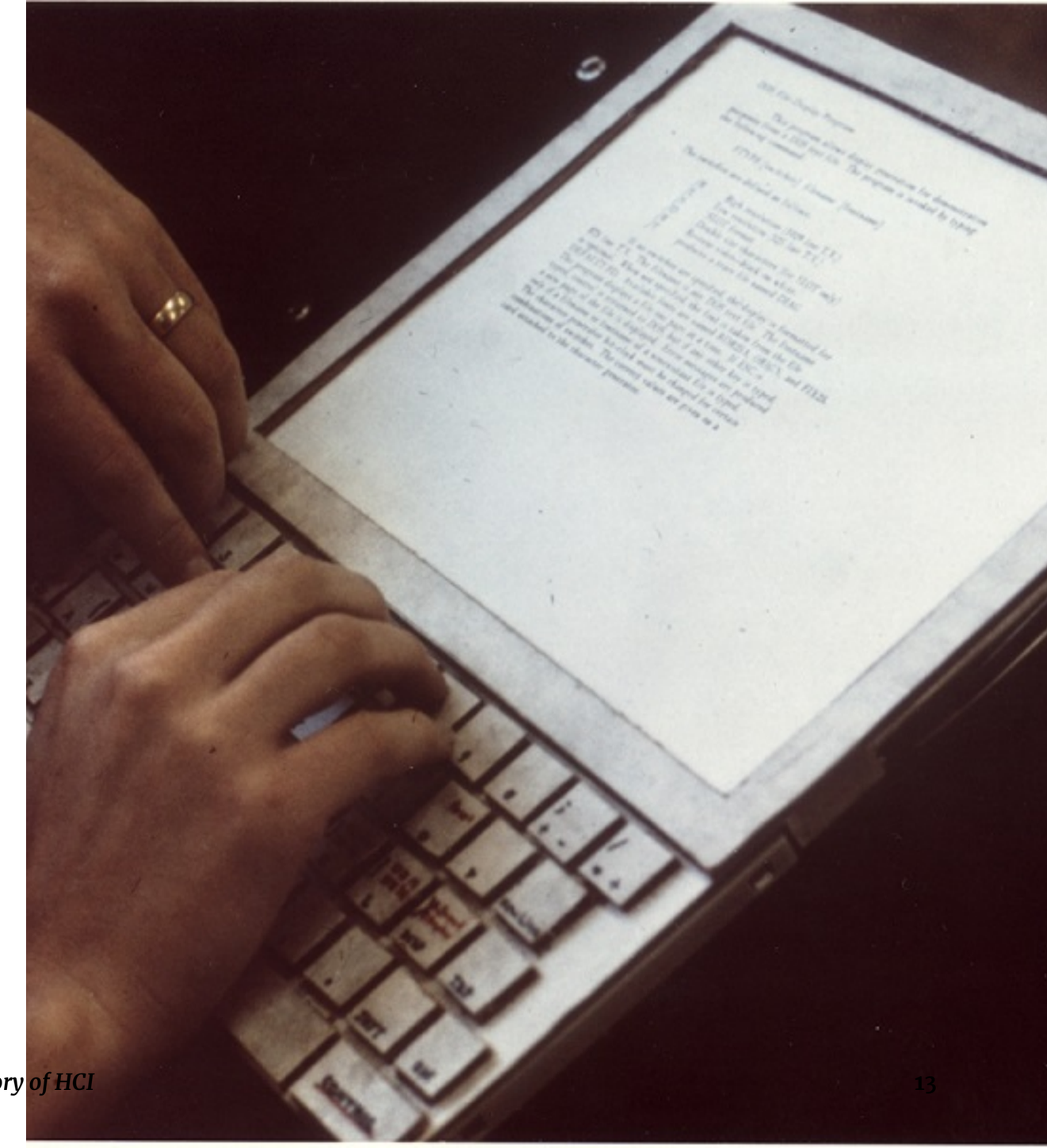
[8] Image source



1960s[10]

Dynabook, 1968, Alan Kay, Xerox PARC

The Dynabook mockup introduced *personal computer*, *desktop interface*



[10] Image source

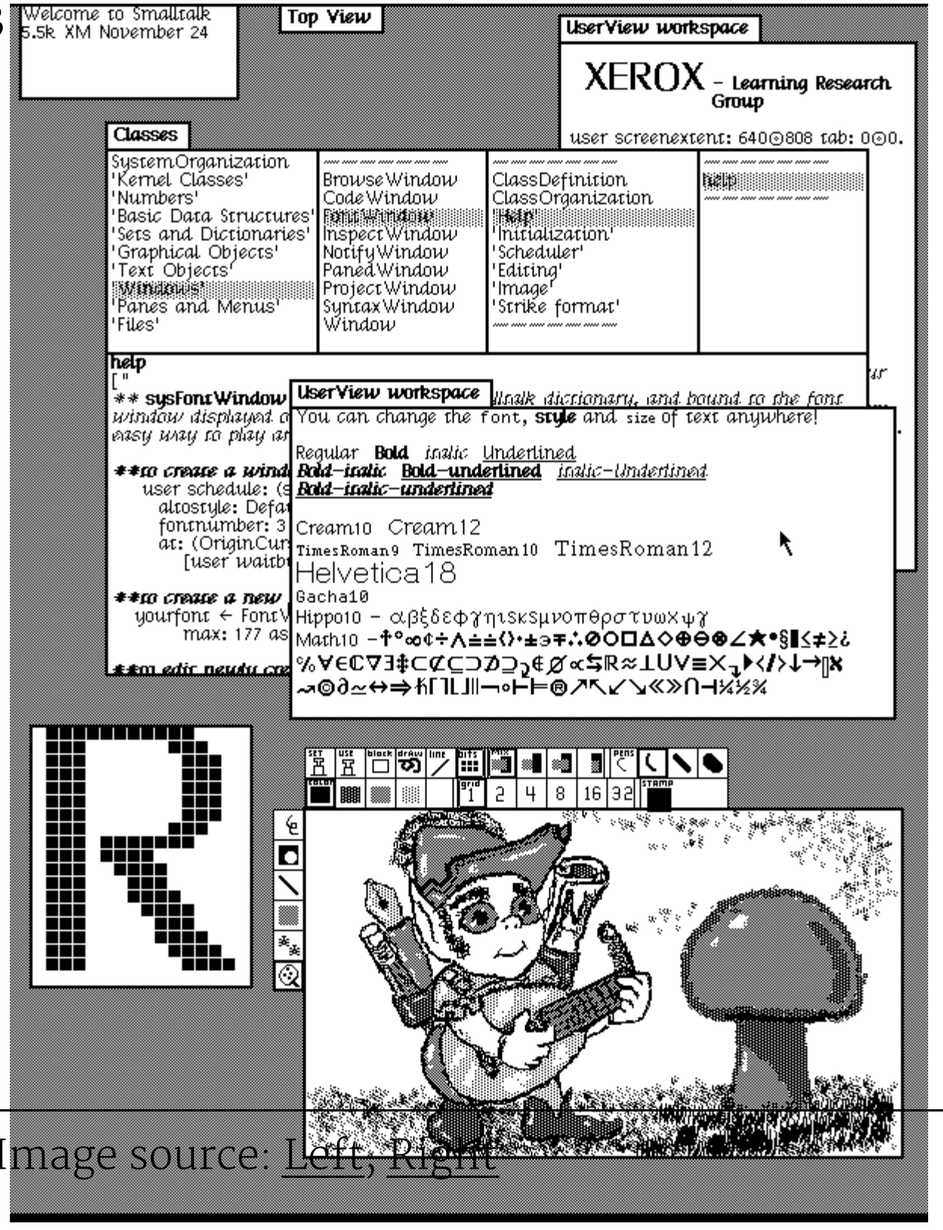
1970s

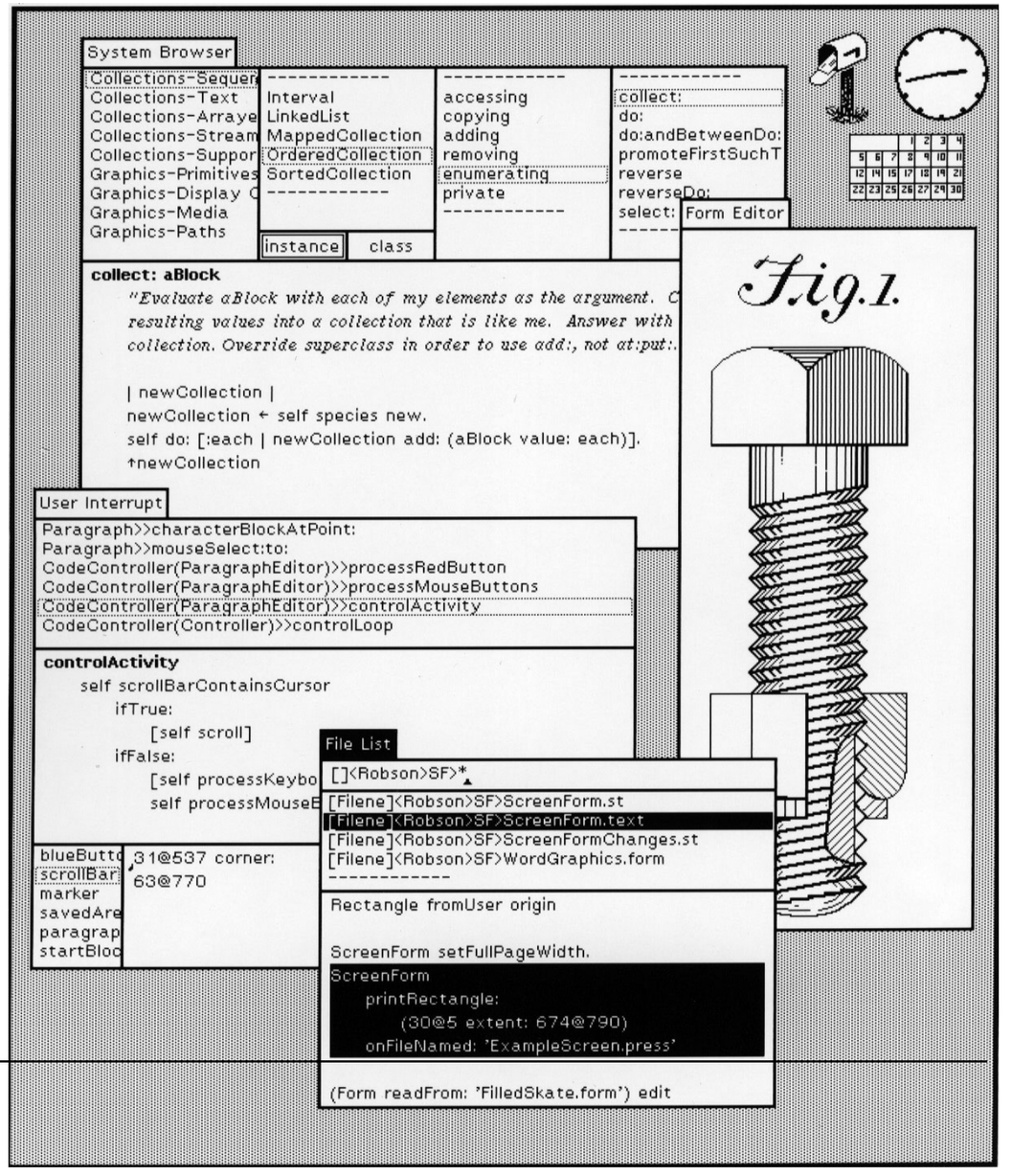
Xerox Alto, 1973, Xerox PARC[11] [^12]

The first computer to support an OS based on a GUI that integrated the ideas developed for Dynabook: the *desktop metaphor*, *GUI*, *ethernet*

[11] Wikipedia: Xerox Alto
[^12]: Image source

13





[13] Image source: Left, Right

1970s [14]

Apple II, 1977, Apple

Personal computer that was first mass production, color graphics

[14] Image source

1980s[15] [16] [17]

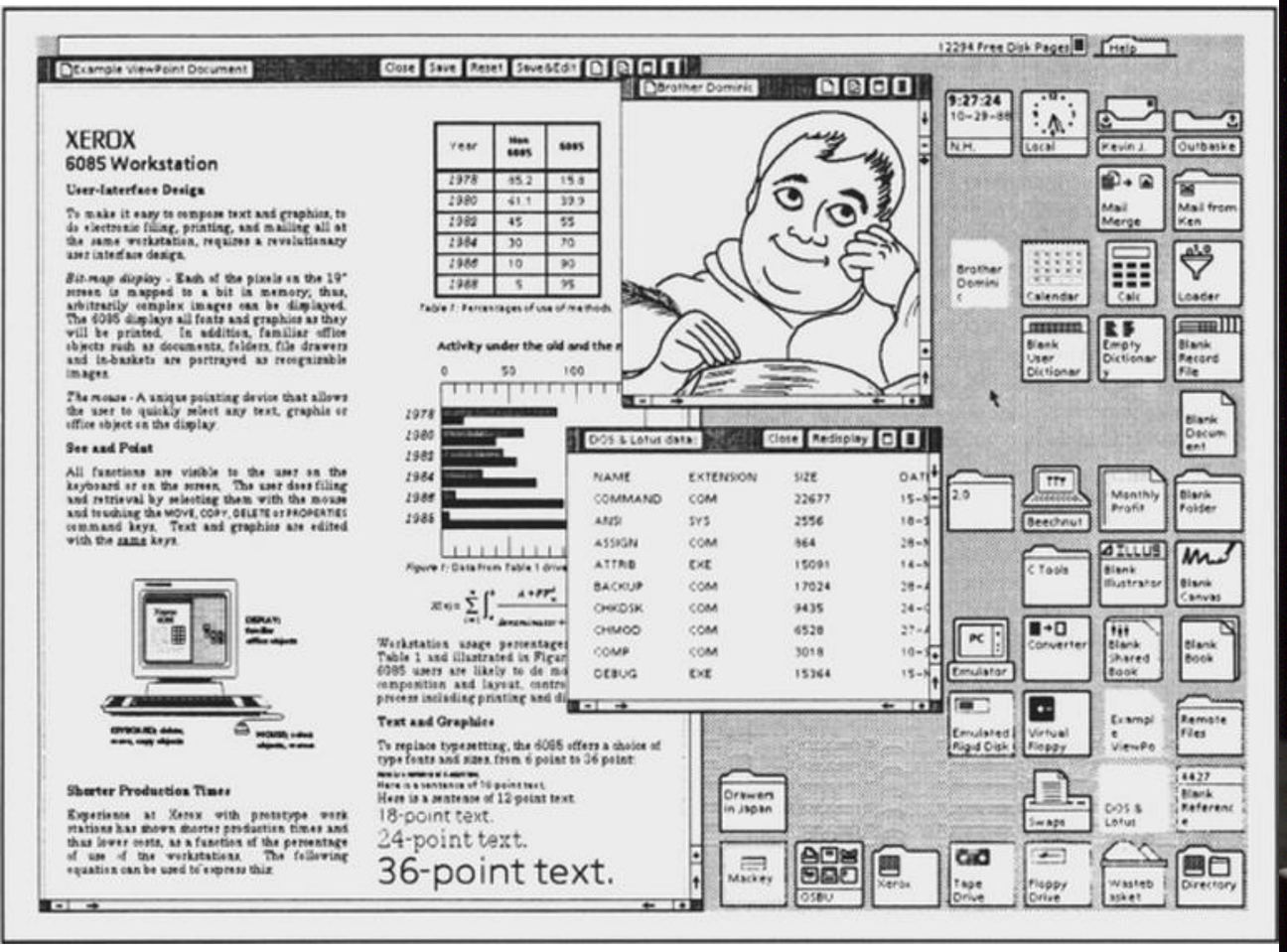
Xerox Star, 1981, Xerox PARC

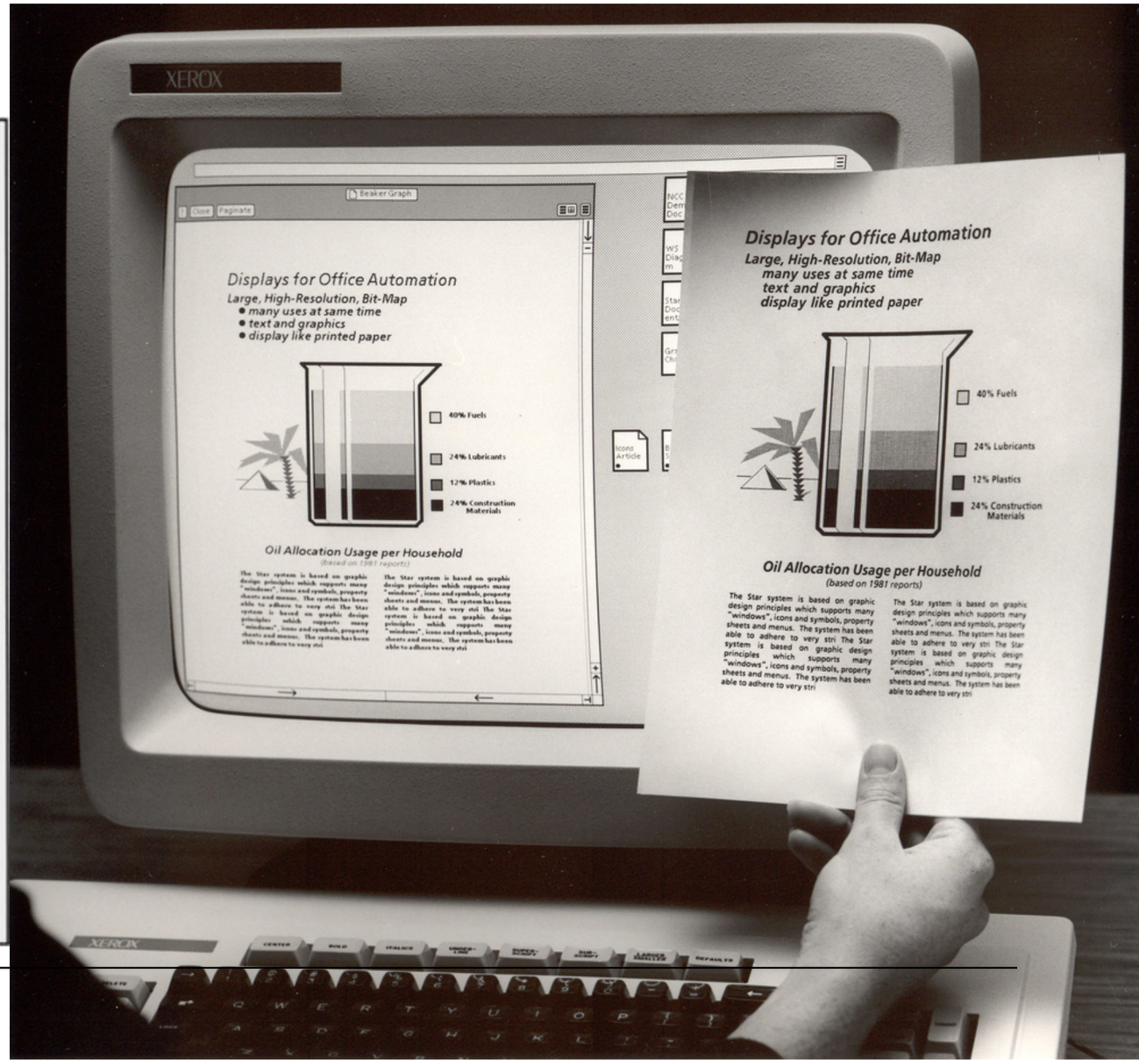
First commercial system with a user interface that integrates today's technologies, including *windows*, *icons*, *folders*, *mouse*, etc.

[15] Wikipedia: Xerox Star

[16] Videos of the Star Interface: Part 1, Part 2

[17] Image source





[18] Image source: Left, Right

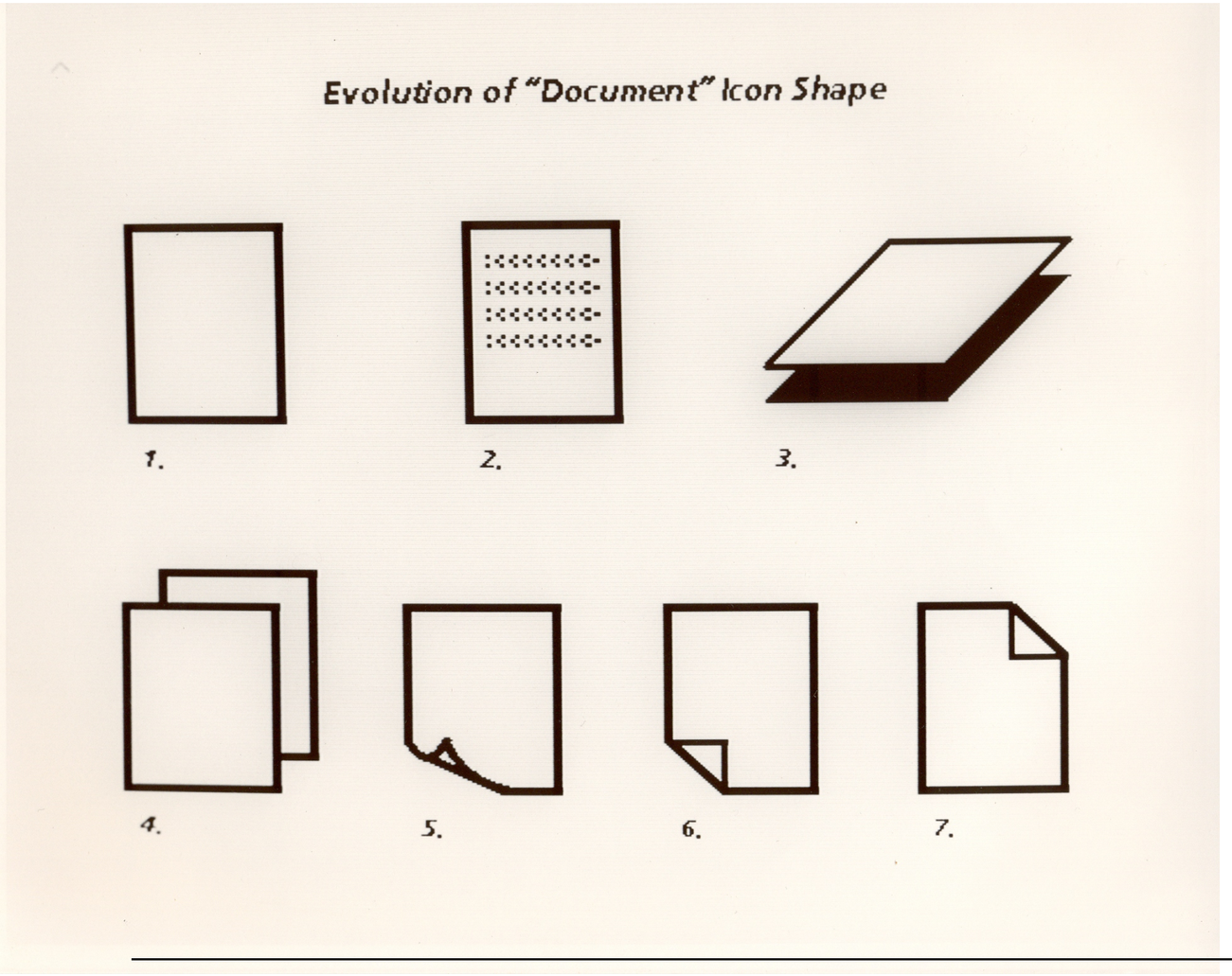
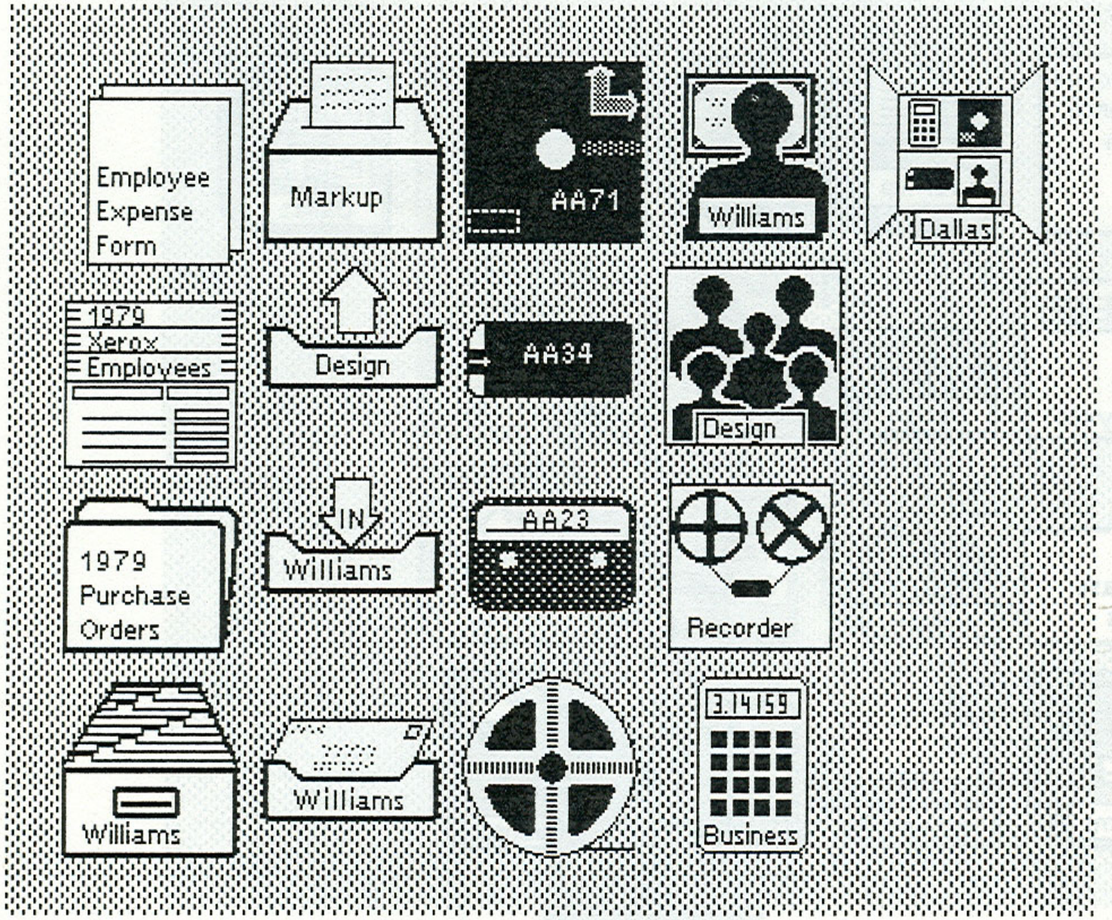


Figure 4.
Set 4 (Judd)



document	printer	floppy disk	user	directory
record file	out-basket	mag. card	group	
folder	in-basket	cassette	recorder	
file drawer	in-basket (with mail)	mag. tape	calculator	

[19] Image source: Left, Right

1980s[^20]

The Knowledge Navigator, 1987, Hugh Dubberly, Apple ATG

Vision introduced *speech interfaces*, *virtual agents*

[^20] : Image source

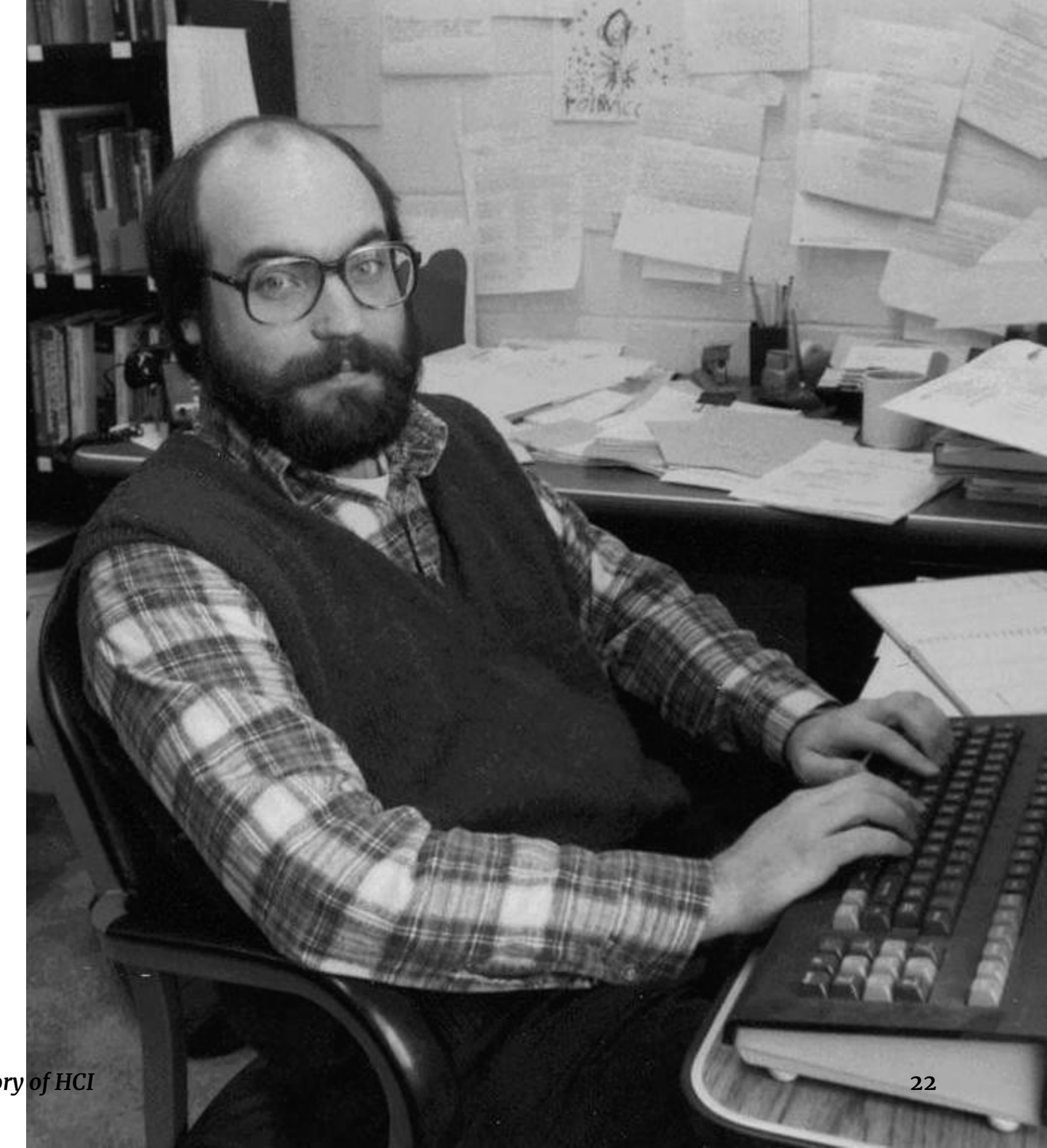

File
Network
Tools
Scheetstyle
Agent
Brazil
Script
Year: 1990

1990s[22]

Ubiquitous computing, 1991, Mark Weiser, Xerox PARC

The Computer for the 21st Century

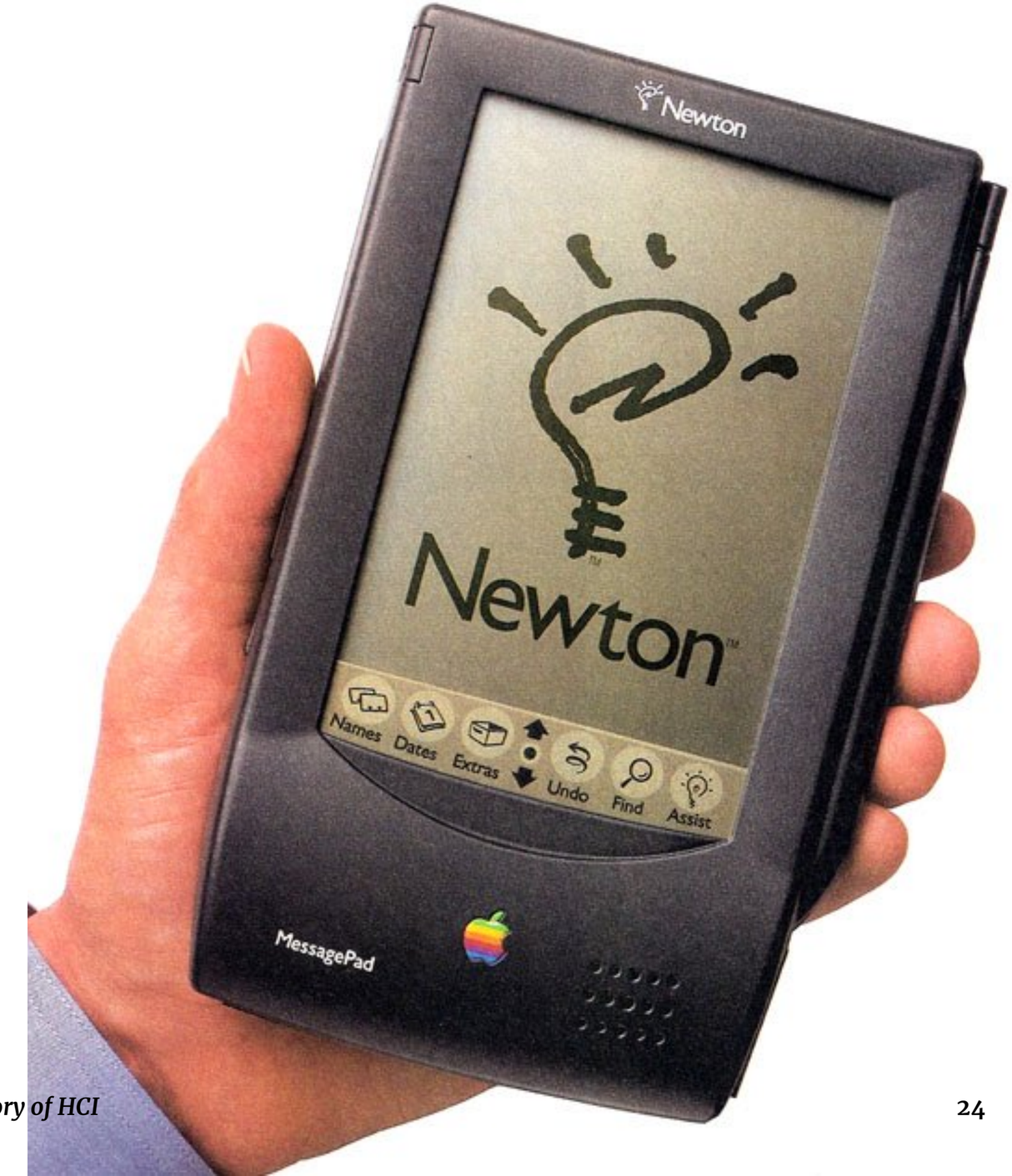
"The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it."



[22] Image source

1990s[24]

Apple Newton, 1992, Apple



[24] Image source

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1990s[26]

Clearboard, 1992, Hiroshi Ishii, NTT

Prototype introduced *shared visual workspace*, *matched reference points*, *videoconferencing*

[26] Image source

Discussion

Some Questions

» What did you take from the history you read?

» What was surprising, unintuitive, unexpected?

» How does what you read change how you see HCI?

» How did external resources challenge/complement?

» …