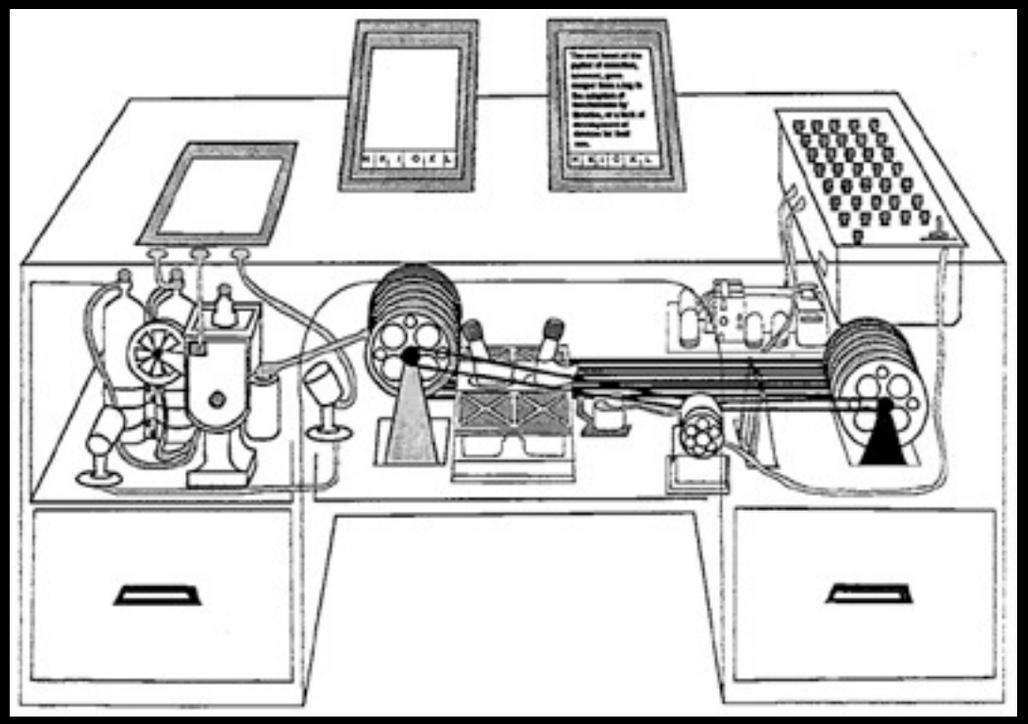
An Instrument whose Music is Ideas

Smalltalk, eToys and the Idea of the Children's Machine

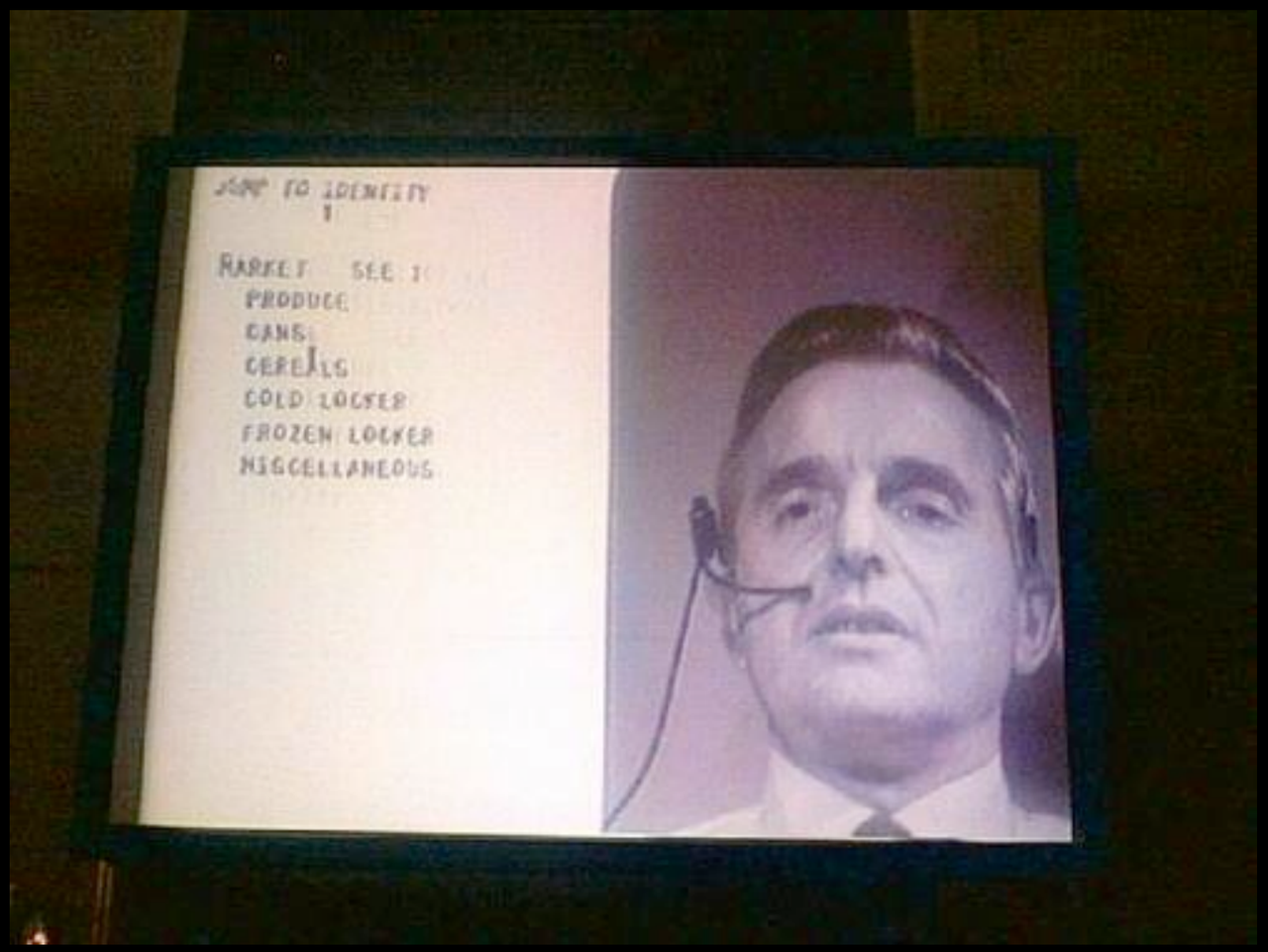
New Media

Paul Otlet
1868-1944



1948

Vannevar Bush
As We May Think



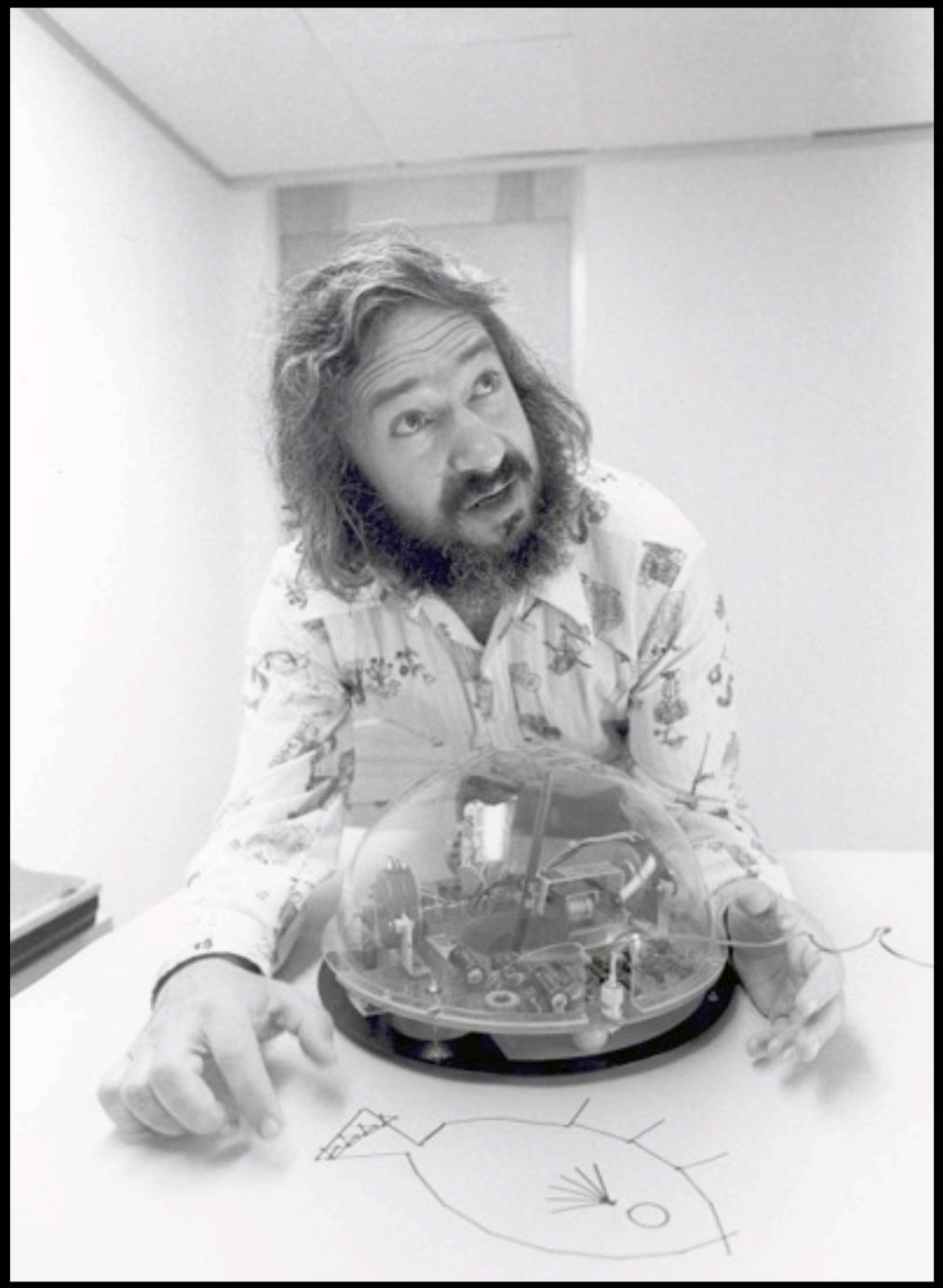
Augmenting the Human Intellect

Hypertext
Mouse

Doug Engelbart 1968
NLS (oNLine System)

The Demo

KIDS



Seymour Paper

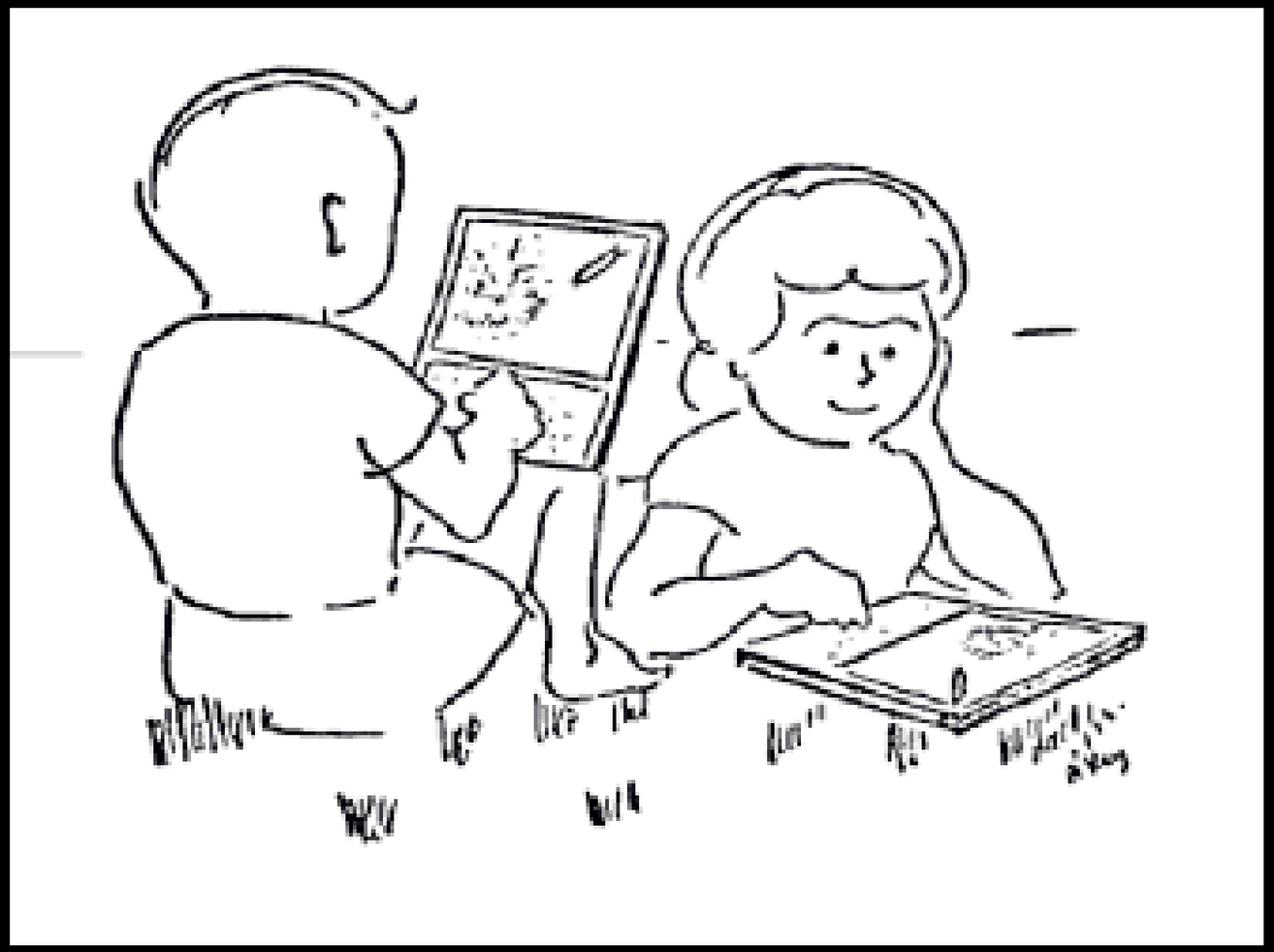
with Jean Piaget

Logo

If the Computer is a universal control system,
let's give kids universes to control.

Ted Nelson (1974)

The Dynabook Vision

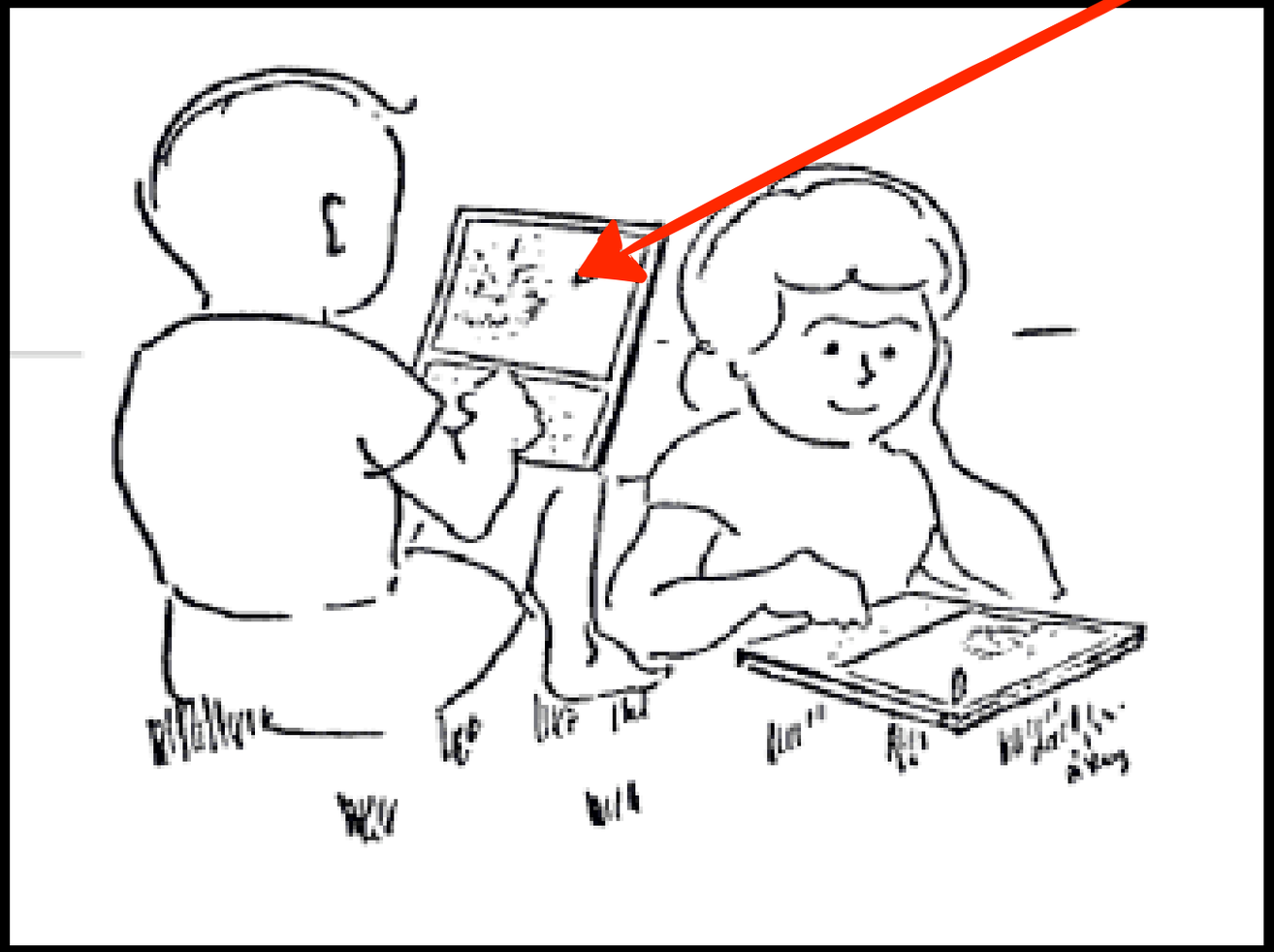


Alan Kay, 1968

The Dynabook Vision

SpaceWar!

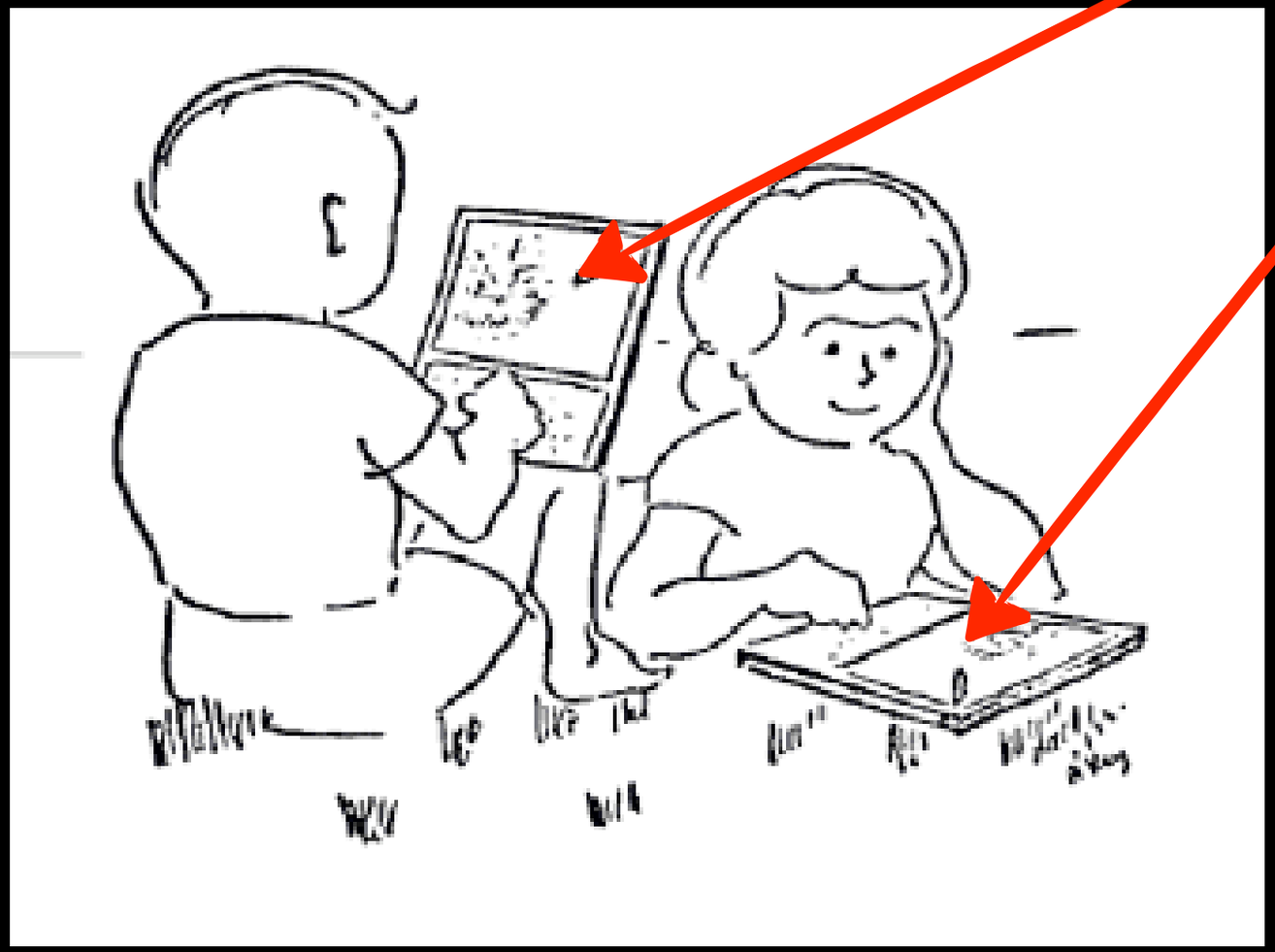
Alan Kay, 1968



The Dynabook Vision

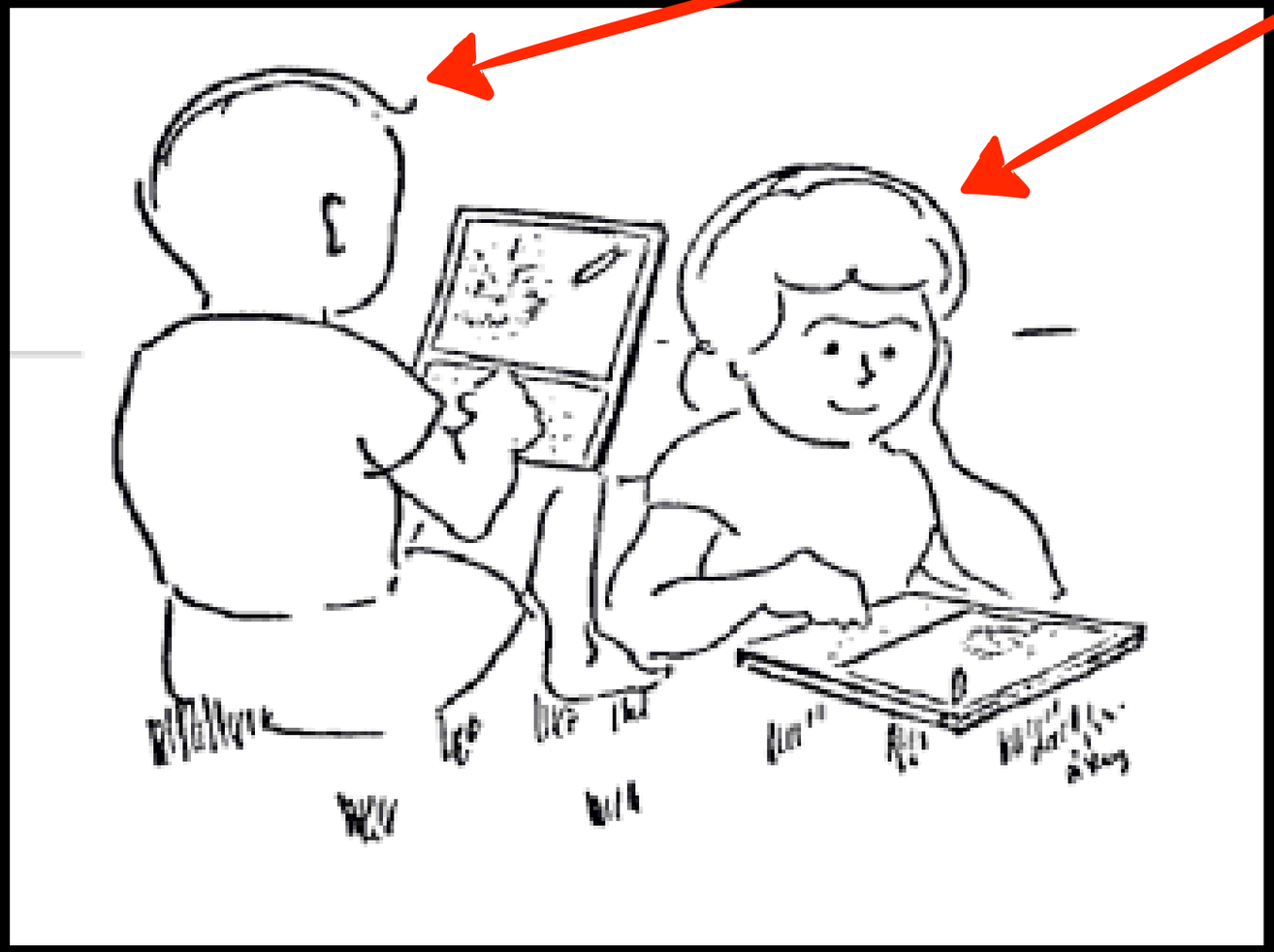
Collaborative
Wireless

Alan Kay, 1968



The Dynabook Vision

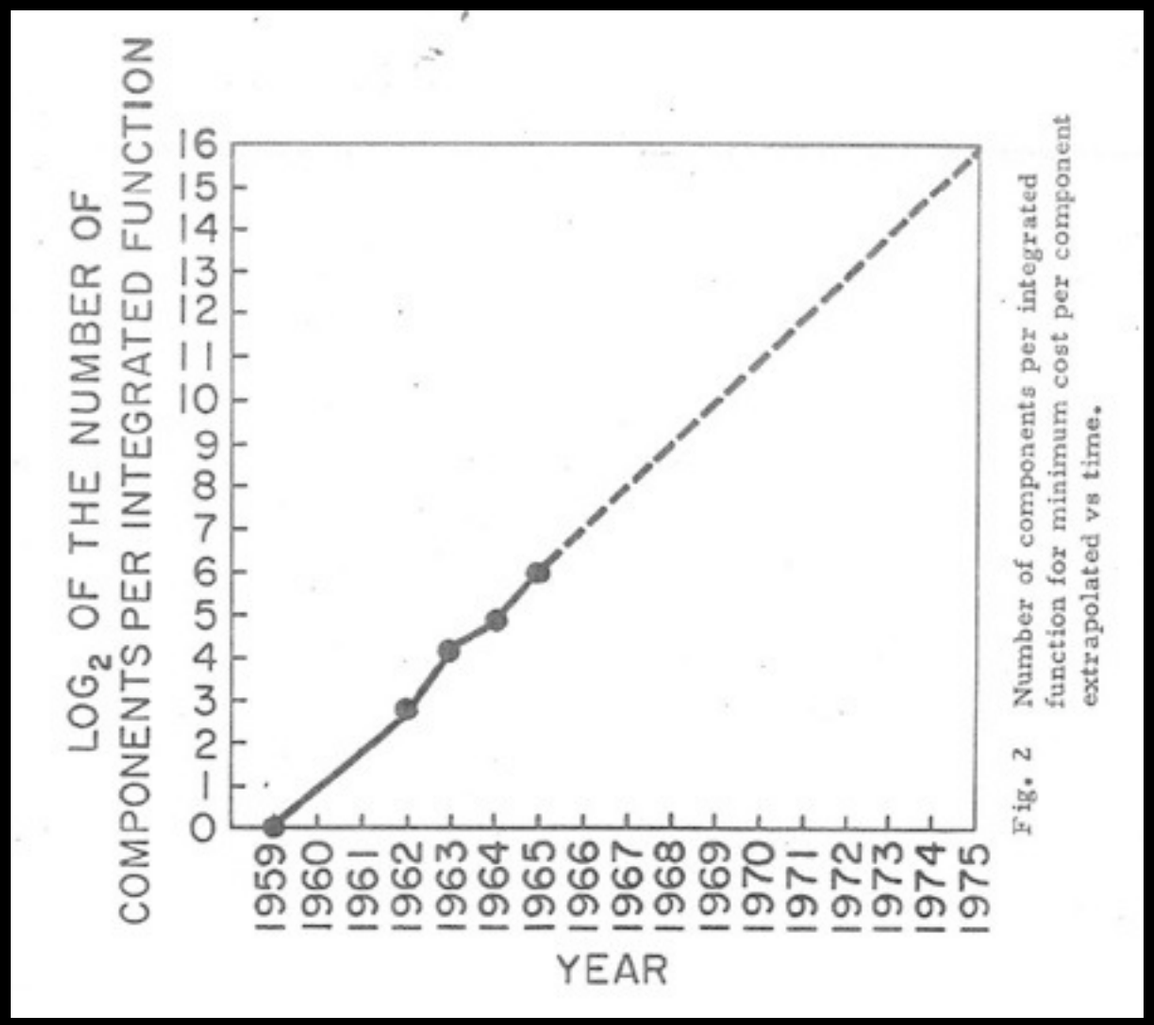
Programmers of the game



Alan Kay, 1968

Moores Law:

Hardware is no Problem!

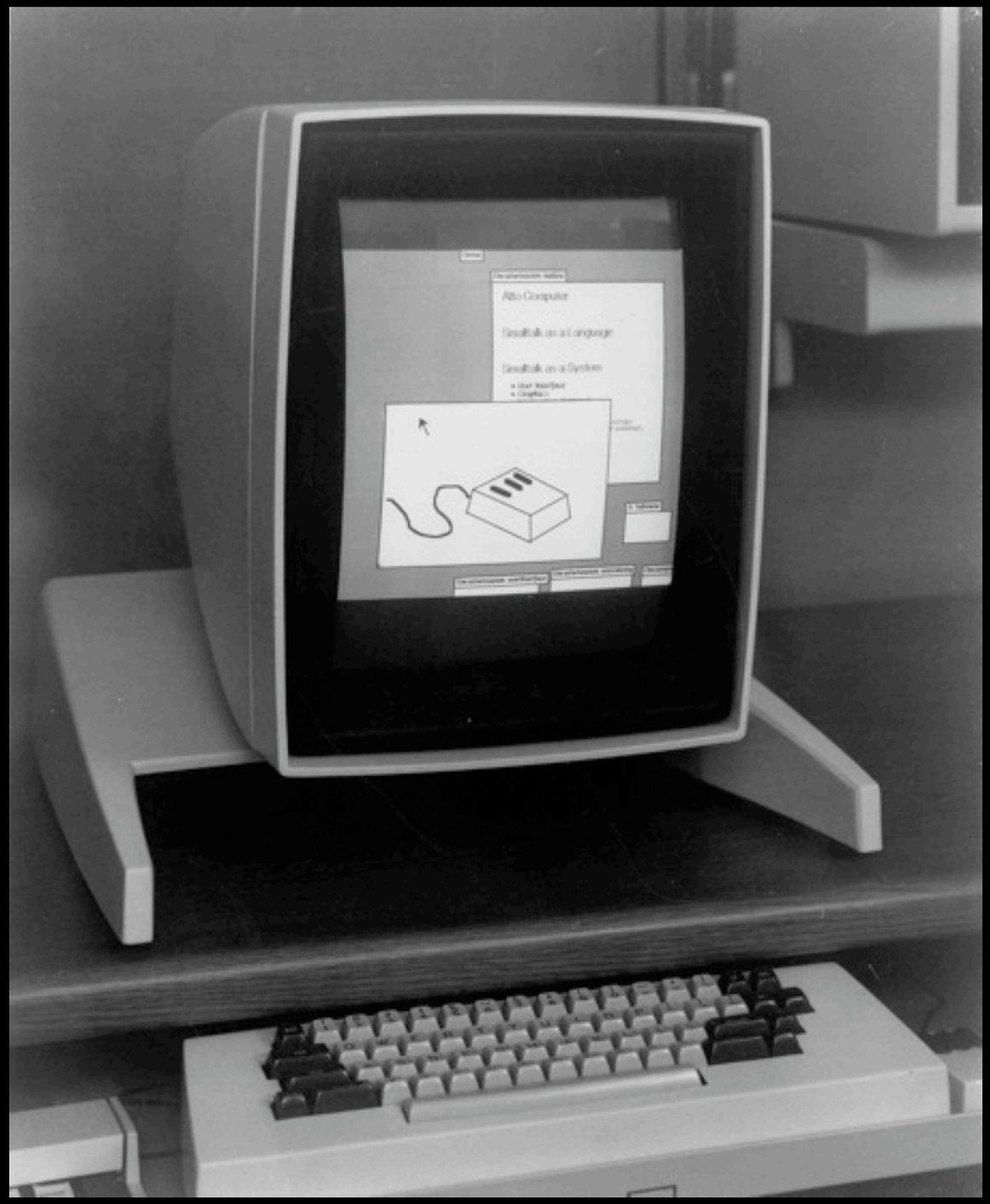


(ca. 1980 it will be good enough)

10 years to do the software

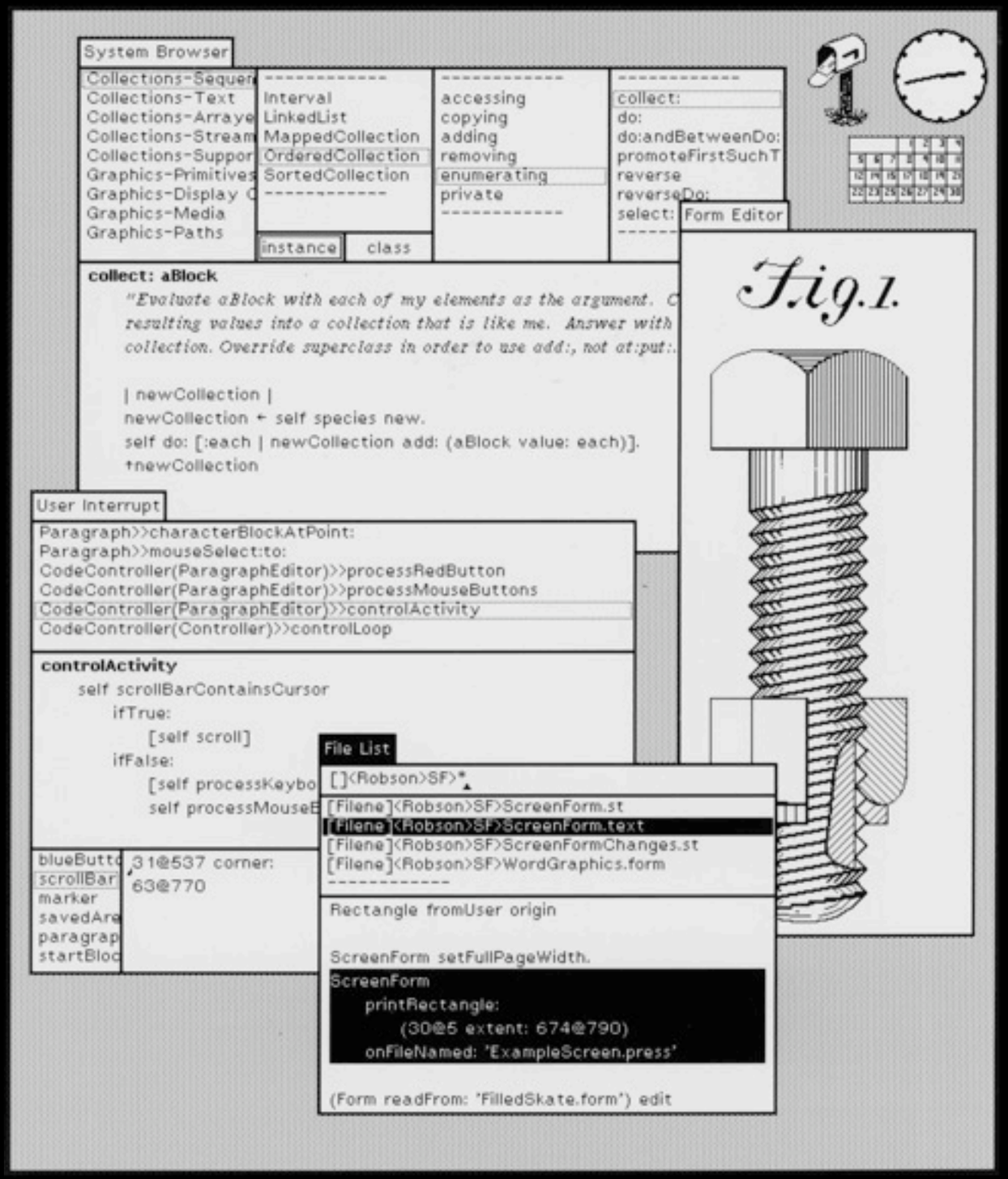
Xerox PARC: Alto
1973

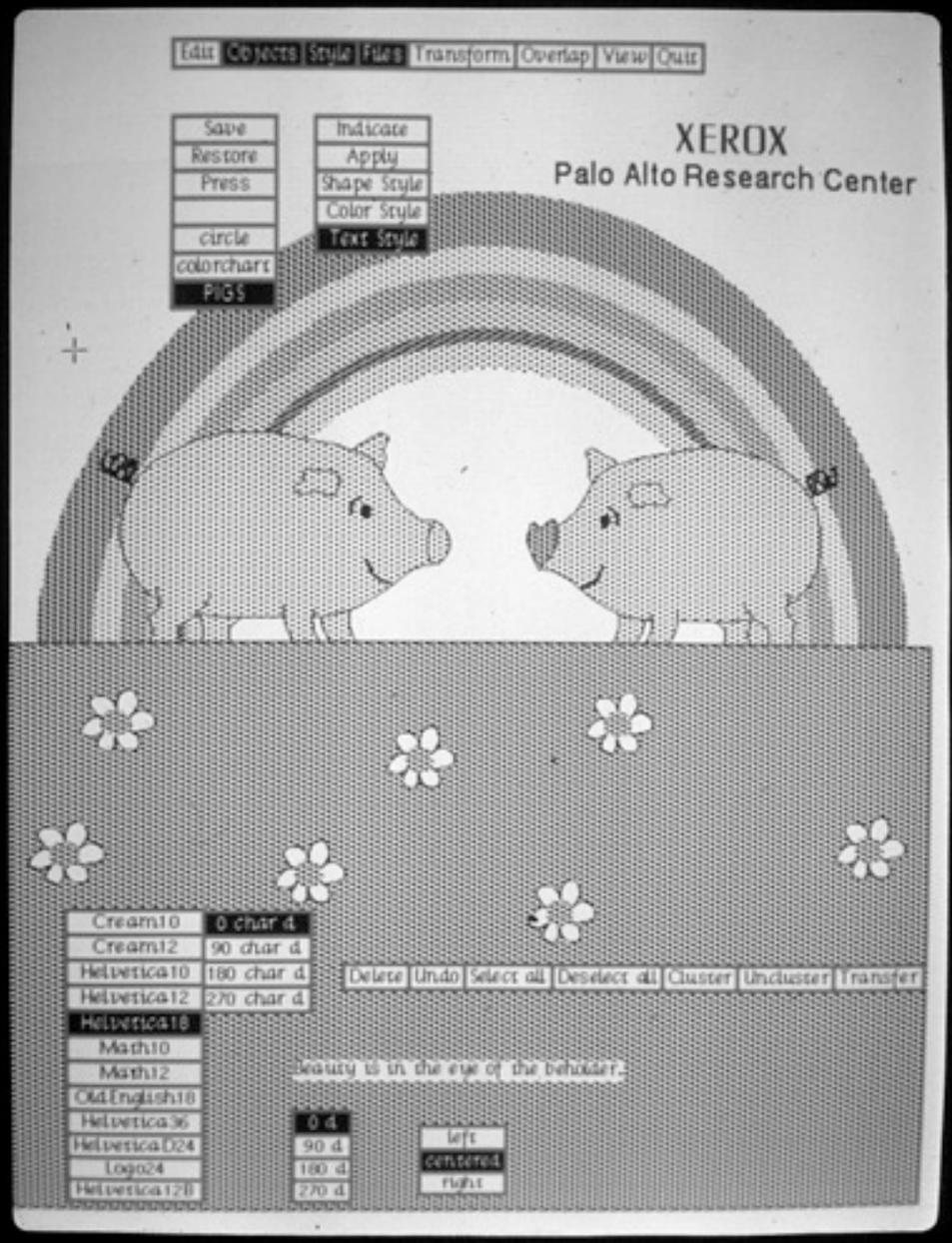
Bitmap Display: ca. 600x800
4Mips Microcode performance
128-512KB RAM, 2.5MB Disk
Ethernet, Laserprinter



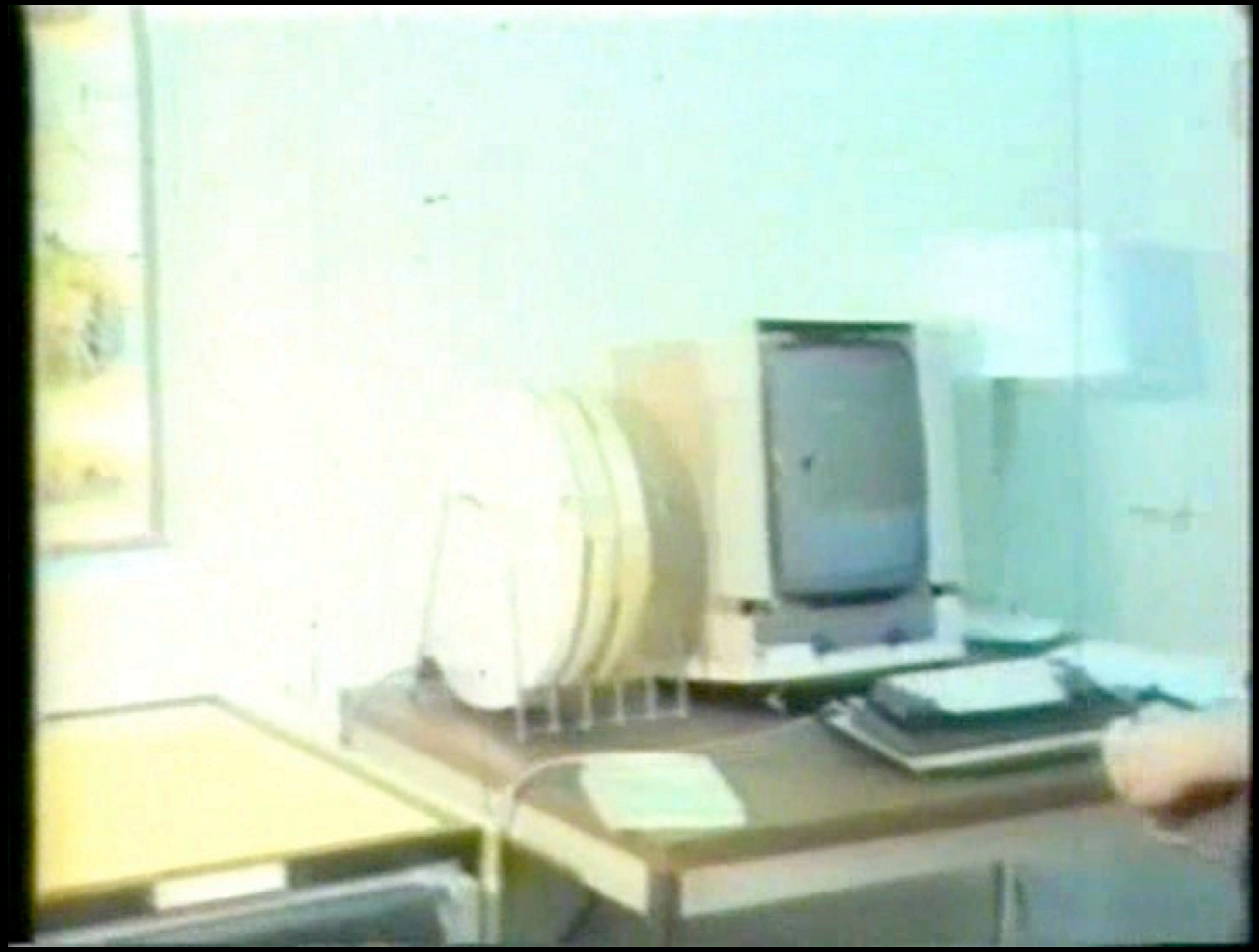
Chuck Thacker

Smalltalk: 72-80



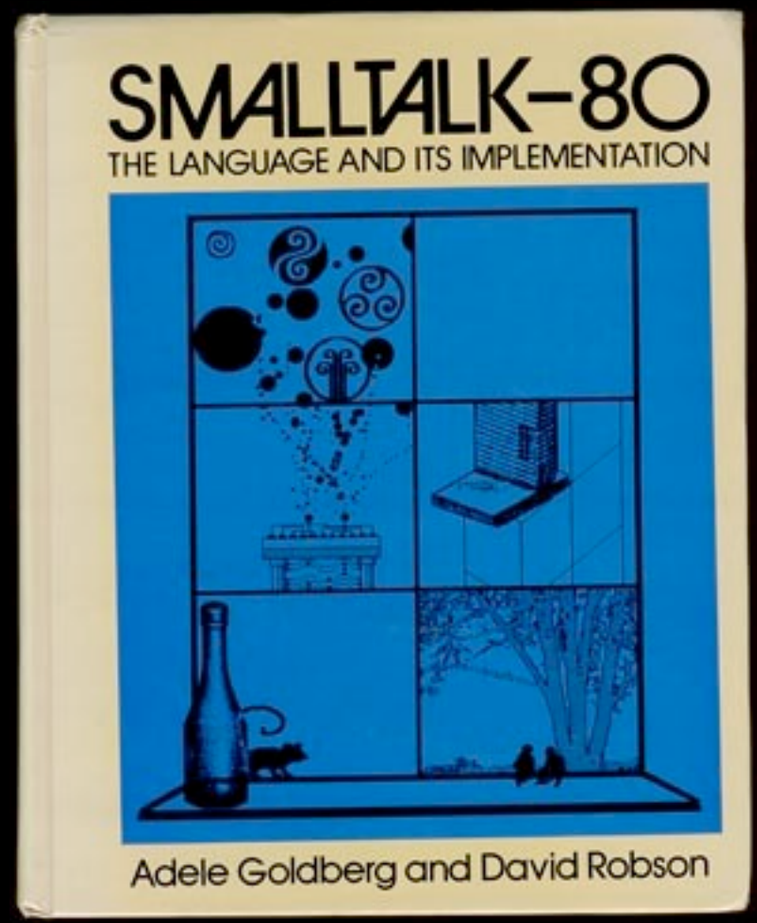


Video: Happy Hacker

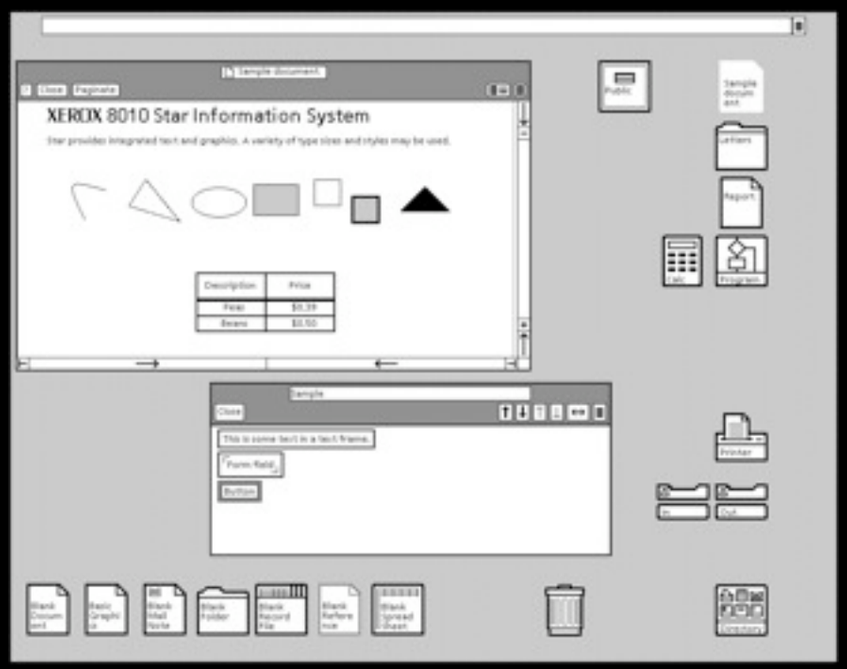


Legacy

OOP
Smalltalk-80



Graphical User Interface



Somebody think about the children!

Squeak

1996 -- 2001

Back to the original Smalltalk

Children's programming and Media Environment

Dynabook, take II

"Our number one commitment is to an exquisite personal computing environment.

Imagine a system as immediate and tactile as a sketch pad, in which you can effortlessly mingle writing, drawing, painting, and all of the structured leverage of computer science."

“Moreover imagine that every aspect of that system is described in itself and equally amenable to examination and composition.“

....

My Research:
Reflection

“Moreover imagine that every aspect of that system is described in itself and equally amenable to examination and composition.“

....

"You get the idea –

it's the Holy Grail of computer science."

Demo Squeak

What is Squeak?

1 Multimedia Authoring

2. Programming for Children

3. Operating System?

4. Development Environment

5. A Community

Lots of cool Experiments

(no time... private Demos possible)

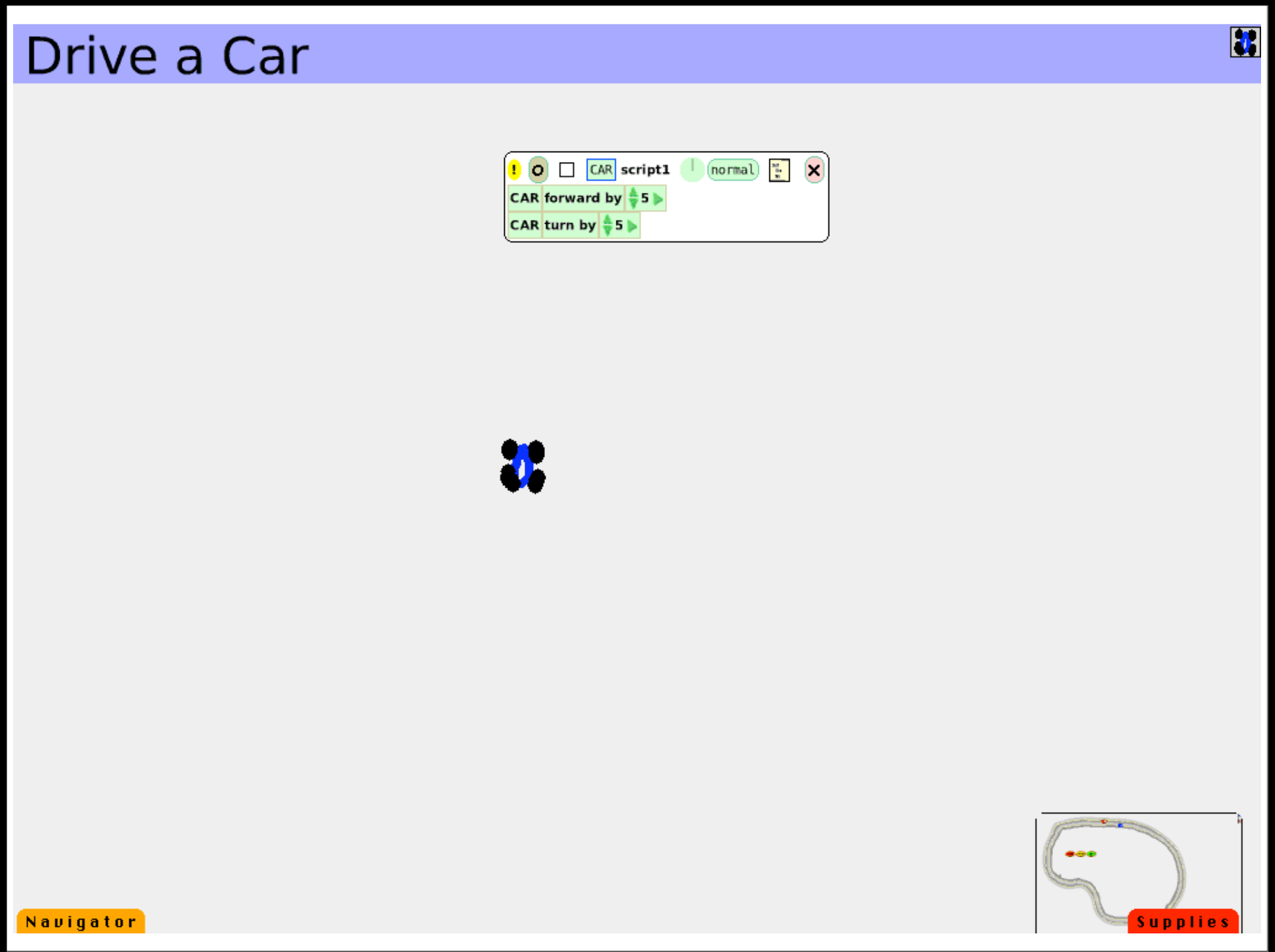
Sadly not many visible results

Two Artefacts/Products:

Etoys

Scratch

Etoys Drive a Car



squeakland.org

Ready to use
Maintained
Course Materials
Examples

Community

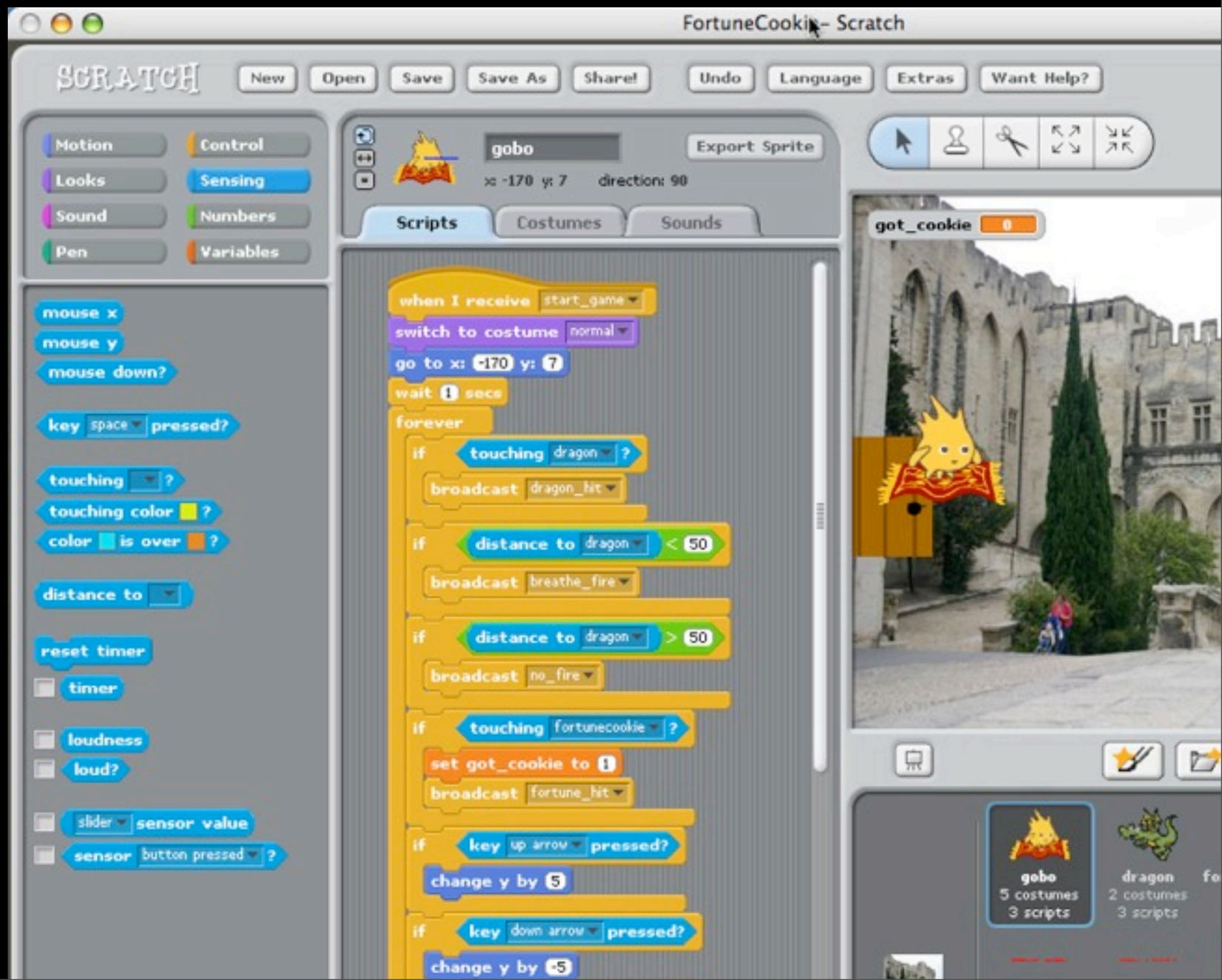
On the OLPC:

scratch.mit.edu

Implemented in Squeak

more constraints than etoys

very well done (design, web-site...)



Questions?

Notes

Slide 14:

"The Computer Revolution hasn't happend yet. Keynote OOPSLA 1997"
(See Links) Starting from 4:33.

Slide 22 and 26:

The Squeak and Etoy Demos were done using the Squeak Image from the Talk at 22C3 (Chaos Computer Club Meeting, Berlin, Germany, 2004)

Squeak Image: http://marcusdenker.de/talks/04Berlin21C3/21c3.zip
PDF of Slides: http://marcusdenker.de/talks/04Berlin21C3/21c3DenkerSlides.pdf
Introduction: http://marcusdenker.de/publications/Denk04bSqueak21C3.pdf

Links

Paul Otlet
Visioning a web in 1934: http://www.youtube.com/watch?v=hSyfZkVgasI
Documentary (available on DVD): http://www.mementoproduction.be/Otlet.htm
Doug Engelbart Demo
http://video.google.com/videoplay?docid=-8734787622017763097
Alan Kay:
"The Computer Revolution hasn't happend yet. Keynote OOPSLA 1997"
http://video.google.com/videoplay?docid=-2950949730059754521
"Doing with images makes symbols"
http://video.google.com/videoplay?docid=-5335373361742048 22

Squeak eToys: http://squeakland.org
Scratch: http://scratch.mit.edu/
Alan Kay's Research Group: http://vpri.org

Book:
Waldrop: "The Dream Machine: J.C.R. Licklider and the Revolution That Made Computing Personal"
http://www.amazon.com/Dream-Machine-Licklider-Revolution-Computing/dp/0142001 35X