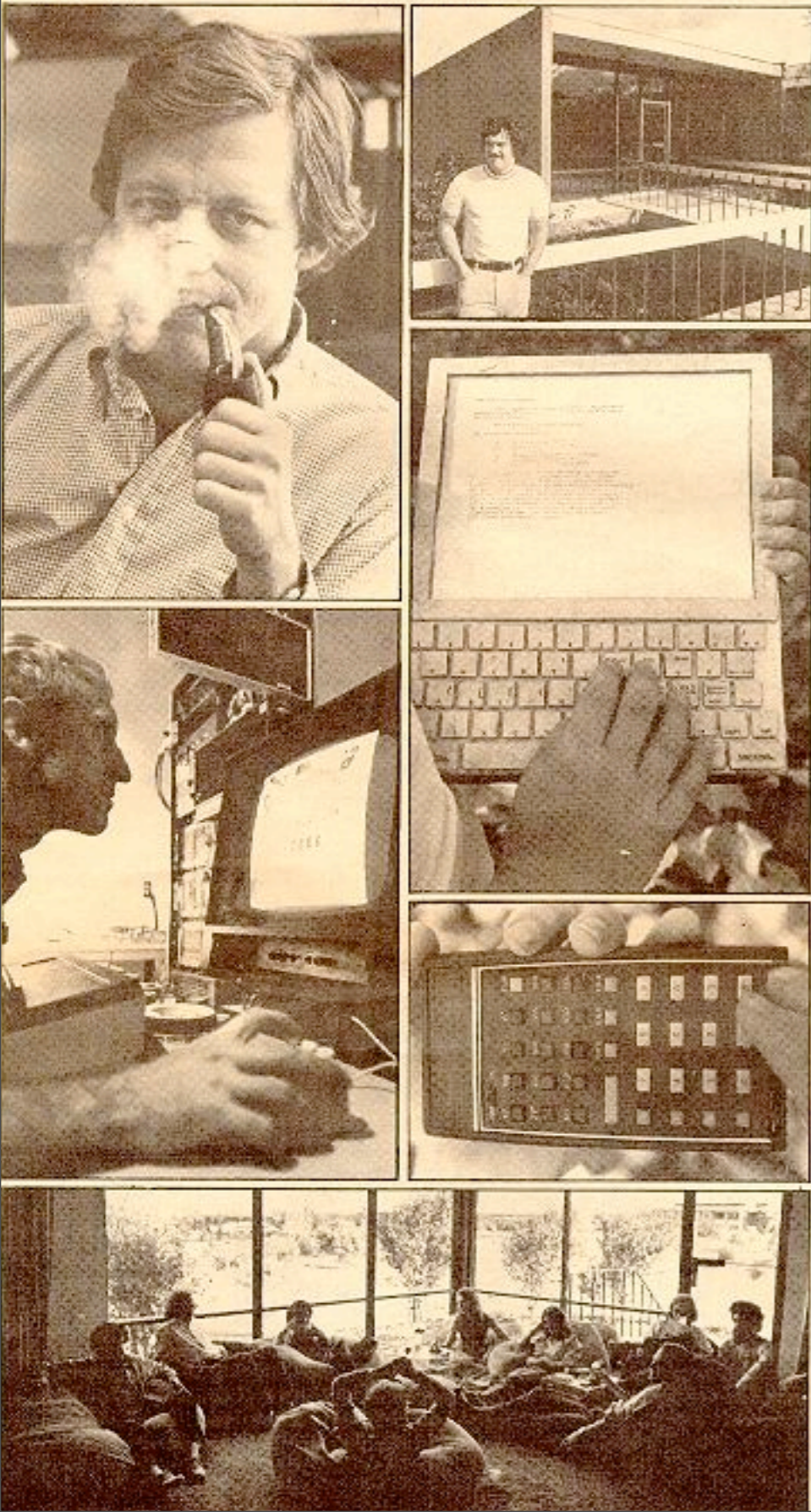




# computers to *personal* computers

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LEO 1



# Xerox does it all

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**1973:** Xerox Alto  
GUI

wysiwyg

mouse

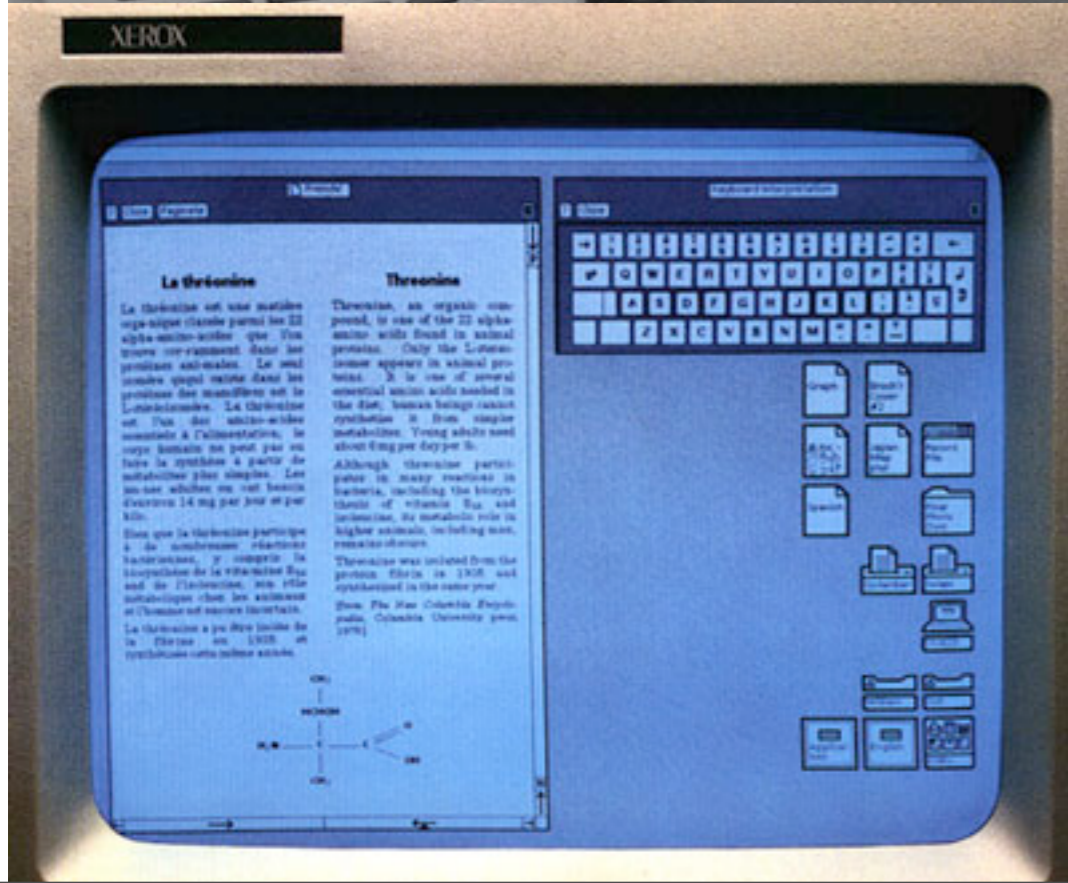
ethernet

laserprinter

smalltalk, impress, postscript

**1979:** Steve Jobs tours PARC

**1981:** Xerox Star





# breaking down the computer





# through thick and thin

"What we wanted to preserve was not just a good environment in which to do programming, but a system around which a fellowship could form. We knew from experience that the essence of communal computing, as supplied by remote-access, time-shared machines, is not just to type programs into a terminal instead of a keypunch, but to encourage close communication".

--Ritche

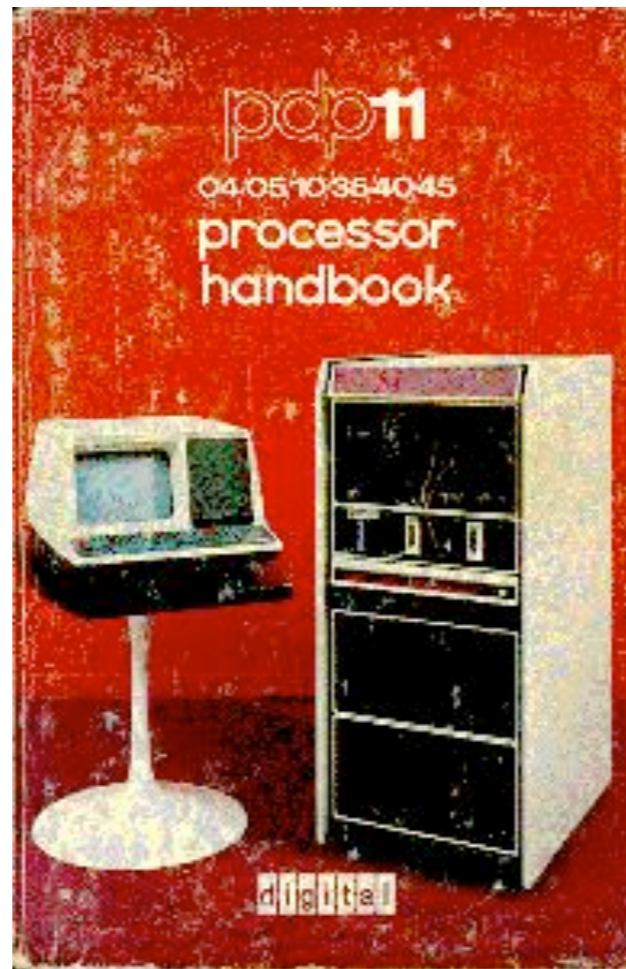
## Thompson, Ritchie, & AT&T

**1965:** AT&T, MIT & GE work on multics

**1968:** DEC's 16-bit PDP 11

**1969:** multics to unix

**1971:** first unix release





# unix at ucb

---



**1973:** Thompson at Berkeley

Bill Joy develops em editor

**1977:** 1BSD released

**1979:** 3BSD (for Vax)  
SCO founded

**1981:** 4.1BSD

**1983:** 4.2 BSD (with tcp/ip stack)

1-800-ITS-UNIX



SO ...

**1982:** Reagan Doj releases AT&T

**1991:** Networking release 2; 386 BSD

**1992:** AT&T sues UCB

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY

\_\_\_\_\_  
UNIX SYSTEM LABORATORIES, INC. )

Plaintiff, )

vs. )

BERKELEY SOFTWARE DESIGN, INC., )  
and certain named individuals in )  
their collective capacity as The )  
Regents of the University of )  
California, )

Defendants. )  
\_\_\_\_\_ )

Civ. No. 92-1667

O P I N I O N



# settlement

## 1994 settlement: USL, UCB, Novell

### SETTLEMENT AGREEMENT

This Settlement Agreement is entered into between UNIX System Laboratories, Inc. ("USL"), a Delaware corporation, and The Regents of the University of California (the "University"), a California corporation.

### Recitals

1. USL contends it is the owner of the intellectual property rights in portions of certain computer operating system software (the "UNIX System").

2. USL and USL's predecessor in interest, the American Telephone and Telegraph Co. ("AT&T"), have licensed the University to use certain versions of UNIX® system software,



# hobbyists



## homebrew

Jobs

Wozniac

Osborne

## business-brew

Gates

Allen

traffic control





# open or closed?

LEN SHUSTER

NEWSLETTER

Issue number one Fred Moore, editor, 2100 Santa Cruz Ave., Menlo Park, Ca. 94025 March 15, 1975

## AMATEUR COMPUTER USERS GROUP HOMEBREW COMPUTER CLUB . . . you name it.

Are you building your own computer? Terminal? T V Typewriter? I/O device?  
or some other digital black-magic box?

Or are you buying time on a time-sharing service?

If so, you might like to come to a gathering of people with likeminded interests.  
Exchange information, swap ideas, talk shop, help work on a project, whatever . . .

This simple announcement brought 32 enthusiastic people together March 5th at Gordon's garage. We arrived from all over the Bay Area--Berkeley to Los Gatos. After a quick round of introductions, the questions, comments, reports, info on supply sources, etc., poured forth in a spontaneous spirit of sharing. Six in the group already had homebrew systems up and running. Some were designing theirs around the 8008 microprocessor chip; several had sent for the Altair 8800 kit. The group contained a good cross section of both hardware experts and software programmers.

We got into a short dispute over HEX or Octal until someone mentioned that if you are setting the switches by hand it doesn't make any difference. Talked about other standards: re-start locations? input ports? better operating code for the 8080? paper tape or cassette or paper & pencil listings? Even ASCII



February 3, 1976

An Open Letter to Hobbyists

To me, the most critical thing in the hobby market right now is the lack of good software courses, books and software itself. Without good software and an owner who understands programming, a hobby computer is wasted. Will quality software be written for the hobby market?

Almost a year ago, Paul Allen and myself, expecting the hobby market to expand, hired Monte Davidoff and developed Altair BASIC. Though the initial work took only two months, the three of us have spent most of the last year documenting, improving and adding features to BASIC. Now we have 4K, 8K, EXTENDED, ROM and DISK BASIC. The value of the computer time we have used exceeds \$40,000.

The feedback we have gotten from the hundreds of people who say they are using BASIC has all been positive. Two surprising things are apparent, however. 1) Most of these "users" never bought BASIC (less than 10% of all Altair owners have bought BASIC), and 2) The amount of royalties we have received from sales to hobbyists makes the time spent of Altair BASIC worth less than \$2 an hour.

Why is this? As the majority of hobbyists must be aware, most of you steal your software. Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid?

Is this fair? One thing you don't do by stealing software is get back at MITS for some problem you may have had. MITS doesn't make money selling software. The royalty paid to us, the manual, the tape and the overhead make it a break-even operation. One thing you do do is prevent good software from being written. Who can afford to do professional work for nothing? What hobbyist can put 3-man years into programming, finding all bugs, documenting his product and distribute for free? The fact is, no one besides us has invested a lot of money in hobby software. We have written 6800 BASIC, and are writing 8080 APL and 6800 APL, but there is very little incentive to make this software available to hobbyists. Most directly, the thing you do is theft.

What about the guys who re-sell Altair BASIC, aren't they making money on hobby software? Yes, but those who have been reported to us may lose in the end. They are the ones who give hobbyists a bad name, and should be kicked out of any club meeting they show up at.

I would appreciate letters from any one who wants to pay up, or has a suggestion or comment. Just write me at 1180 Alvarado SE, #114, Albuquerque, New Mexico, 87108. Nothing would please me more than being able to hire ten programmers and deluge the hobby market with good software.

*Bill Gates*

Bill Gates  
General Partner, Micro-Soft

LEN SHUSTER

NEWS

Issue number one Fred Moore, editor, 2100 San

**AMATEUR COMPUT  
HOMEBREW COMPU**

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ports? better operating code for the 8080? paper to



# here comes microsoft

---

Software	IBM
OS	IBM
CPU	IBM
Hardware	<u>IBM</u>





# here comes microsoft

Software	IBM	DEC (Unix libraries)
OS	IBM	DEC/VAX (3BSD-Unix)
CPU	IBM	DEC/CVAX
Hardware	<u>IBM</u>	<u>DEC</u>





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# here comes microsoft

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OS	IBM	DEC/VAX (3BSD-Unix)	Apple
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CPU	IBM	DEC/CVAX	Apple/MOS Motorola	Sun/SPARC	IBM [Intel]
Hardware	<u>IBM</u>	<u>DEC</u>	<u>Apple</u>	<u>Sun</u>	IBM





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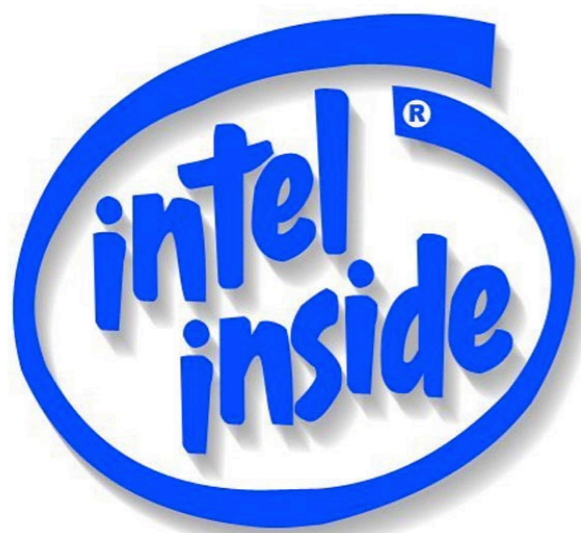
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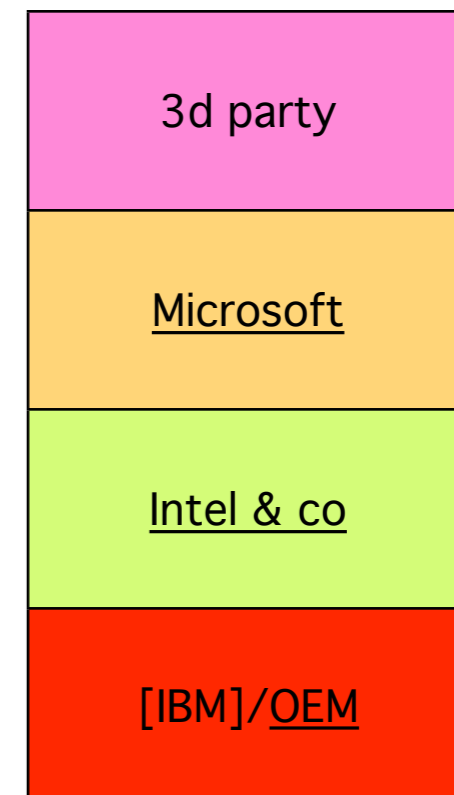


# name recognition



**decline of IBM  
monopoly:**  
"nobody ever lost their job ..."

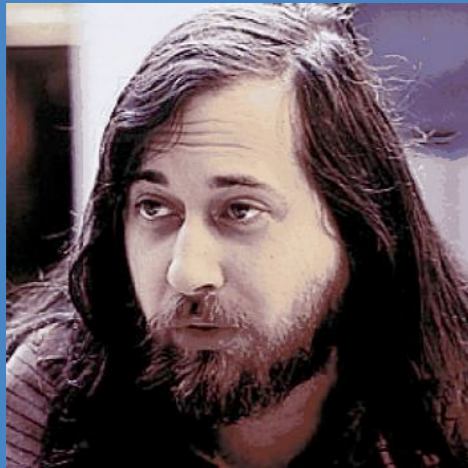
**rise of the "PC":**  
"compatibles" to "clones"  
whitebox worries





# challenges to chokehold

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**1982:** Richard Stallman & MIT  
GNU



**1991:** Linus Torvalds, Helsinki

Hello everybody out there using minix -

I'm doing a (free) operating system (just a hobby, won't be  
big and professional like gnu) for 386(486) AT clones.

--Linus Torvalds



# back to thin clients



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