

The Lives of Dennis Ritchie, UNIX, and C

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Dennis



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Dennis MacAlistair Ritchie (dmr)

- Born Sept 9, 1941 in Bronxville, NY
- Bachelor's and PhD from Harvard
- Dissertation topic: subrecursive hierarchies of functions
- Joined Bell Labs in 1967

- Compatible Time-Sharing System
- Project at MIT
- Fernando J. Corbató (Corby)
- Ran on IBM 7094
- Had batch compatibility

- Follow-on to CTSS
- Computers (Data Centers)
 - Are expensive
 - Require specialized environments
 - Require army of operators
- Future of computing in utilities (subscription services)
- Collaboration of Bell Labs, MIT, and GE

Dennis at Bell

- Worked on Multics along with Ken Thompson and others
- Bell Labs pulled out
- Bell Labs had enlightened atmosphere

Birth of UNIX

- Ken worked on planetary dynamics (space war games)
- Written in GE-635 assembler
- Ported to a little-used PDP-7
- Ken started an OS for PDP-7
- Selective elements of Multics and new innovations
- Named UNICS/UNIX as pun on Multics
- First Edition UNIX 1969

Growth of UNIX

- Collaboration of Ken and Dennis
- Moved to PDP-11
- Evolved through 7 editions through '70s
- Re-written in C in early '70s
- Ported to other machines

Ken and Dennis



Beginning of C

- In the beginning was BCPL
- BCPL was untyped systems language
- B was "BCPL squeezed into 8K bytes of memory and filtered through Thompson's brain"
- Experiments in language design starting with B
- Developed type system '71-'73
- B with types grew into C
- Kernighan and Ritchie wrote the defining book

UNIX and C Escape the Labs

- UNIX available to academic institutions for \$100 with redistribution restrictions
- Commercial licenses very expensive
- During '80s, Berkeley developed major extensions
- AT&T marketed UNIX System V
- SunOS among major commercial versions
- Variations on C created: Objective C, C*, C++
- Several generations of standardization

Dennis in the '80s

- Led research group leading to 8th, 9th, and 10th Editions
- Ken away from OS for a while doing computer chess
- Dennis designed streams
- Research Director as Ken, Rob, etc develop Plan 9 and Inferno

Recognition

- Turing Award, 1983
- IEEE Hamming Medal, 1990
- National Medal of Technology, 1999
- Japan Prize, 2011

National Medal of Technology



Japan Prize



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- USL v BSDi
- SCO v IBM
- RedHat v SCO
- SCO v DaimlerChrysler
- SCO v AutoZone
- SCO v Novell

Unemcumbered Work-Alikes

- Minix
- FreeBSD, NetBSD, OpenBSD, DragonflyBSD
- Linux

```
#include <stdio.h>
```

```
main()
```

```
{
```

```
    printf("RIP Dennis Ritchie, Sept 1941-Oct 2011\n");
```

```
}
```