July 21st

Martin Richards

Born: July 21, 1940;

UK

Dennis Ritchie's [Sept 9] C language extended Ken Thompson's [Feb 4] B, which simplified Richards' BCPL, which began as a small off-shoot of the Multics project [Nov 30].

Martin Richards (2003). (c) University of Cambridge.

The programming language genealogy can be continued: BCPL stands for Basic CPL, with CPL having various acronymic meanings, most commonly "Combined Programming Language", referring to its development at Cambridge University and the University of London. Before the London team got involved, the "C" stood for Cambridge, although unofficially it meant Christopher, since Christopher Strachey [Nov 16] was the lead developer.

An alternative humorous meaning for BCPL is 'Before C Programming Language'.

Richards also developed the O-code virtual machine (VM) in the late 1960s to make the execution of BCPL machine independent. The VM idea was eagerly taken up in many later compilers, notably to run the p-code generated by some Pascal systems [Oct 22] and the bytecodes [May 19] understood by the Java VM.

History has it that the very first "hello world" program was written in BCPL [next entry]. It was also used to implement one of the first MUDs, naturally called MUD1 [April 6]. BCPL was the first language supported by the Xerox Alto [March 1], and the Bravo document preparation system [Oct 00] was written in it.

Aside from being the creator of BCPL, Richards was also head of the team responsible for TRIPOS (the TRIvial Portable Operating System). The first version appeared in January 1978 and originally ran on a PDP-11 [Jan 5]. TRIPOS was utilized by Commodore Amiga in 1985 as part of its AmigaDOS [July 23]; it was also employed as a component of the Cambridge Distributed Computing System.

Hello World

July 21, 1967

The tradition of printing the phrase "hello, world" as a programming example is often traced back to its appearance in the first edition of the textbook, "The C Programming Language" written by Brian Kernighan [Jan 1] and Dennis Ritchie [Sept 9], published in 1978. The code on p.6 reads:

```
main()
{
 printf("hello, world\n");
}
```

However, the book's example was inherited from a 1974 Bell Labs internal memo written by Kernighan, called "Programming in C: A Tutorial". That memo was preceded by Kernighan's 1972 "A Tutorial Introduction to the Language B", where a similar program is used to illustrate external variables:

```
main(){
extrn a, b, c;
putchar(a); putchar(b);
putchar(c);
putchar('!*n'); }

a 'hell';
b 'o, w';
c 'orld';
```

"The Jargon File" [Oct 2] claims that "hello world" originated with BCPL developed by Martin Richards [previous entry]. BCPL can be downloaded from `http://www.cl.cam.ac.uk/~mr10/BCPL23-4-04.html`, and the hello.b program in the demos/ folder is:

```
GET "libhdr"

LET start() = VALOF
$( writes("Hello world*n")
   RESULTIS 0
$)
```

This file is disappointingly timestamped April 4, 1996, but it might be more accurate to date it from the appearance of "The BCPL Reference Manual" as the Project MAC [July 1] memo, M-352, on this day.

For versions of "hello world" written in numerous languages, visit `http://rosettacode.org/wiki/Hello_world/Text`

Mars 4 Glitch

July 21, 1973

The USSR launched Mars 4 on a scientific mission to study Mars from orbit. Unfortunately, after performing a course correction on July 30, 1973, two onboard computers failed, meaning that the probe flew past the planet 2200 km off course.

Soviet engineers had been worried something like this might happen since pre-launch tests of the computers' 2T312 transistors displayed high rates of failure, but the mission planners were eager to go ahead in order to beat the US Viking missions [July 20]. The problem with the transistors was due to their use of aluminum instead of gold-plated contacts.

Nevertheless, the probe still sent back useful pictures and data, including the first detection of Mars' nightside ionosphere.

Xerox Closes XDS

July 21, 1975

Max Palevsky's [July 24] company, Scientific Data Systems (SDS), was bought by Xerox in 1969 for a whopping $918 million. The deal was done in less than two weeks, led by new Xerox CEO, Charles Peter McColough.

It turned out to be an expensive mistake. About 40% of SDS's business came from government contracts tied to the space program, and once Neil Armstrong had walked on the Moon [July 20], NASA funding began to dry up. Before the sale, Palevsky had privately calculated that he would need to pump $250 million into the business to get it through the first half of the 1970s.

Xerox compounded its problems by trying to turn the SDS product line into something that would compete with IBM. Wisely, Palevsky had always steered clear of IBM's business domain, preferring the scientific and educational markets. For example, the company's SDS Sigma-7 was the first machine connected to the ARPANET [Aug 30].

Between 1970 and 1975, Xerox lost some $250 million in its XDS computer division (the renamed SDS) and estimated that it would soak up another $200 million by 1980. On this day, Xerox announced that it was closing the computer division.

On the plus side for McColough, he was also responsible for founding Xerox PARC [July 1] in 1970, which produced such groundbreaking ideas as the Alto [March 1], the laser printer [Jan 22], Ethernet [May 22], and many others. However, this begs the question of why none of PARC's research projects were developed into commercial products. For example, Xerox chose not to market the Alto, either as a word processor or a more general workstation. They even ignored the Alto's successor, the late 1970s Dorado [May 6].

Admitedly, Xerox's withdrawal from computing occurred just before the rise of PCs such as the Apple II [June 5] in 1977 and the IBM PC [Aug 12] in 1981. Xerox eventually realized their mistake in the early 1980s, and belatedly released the Xerox Star 8010 [April 27]. It was too little, too late.

StarMax 5000

July 21, 1997

Motorola began shipping the StarMax 5000 series of Macintosh-compatibles. The systems used IBM-compatible components together with Apple's Power Mac components, to provide excellent performance at a reasonable price. One pleasing feature was the use of SVGA video ports rather than the proprietary port Apple used at the time.

Sadly, the StarMax line didn't last long, cancelled after Apple terminated the Mac clone [Dec 16] licensing program in September.

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iBook G3

July 21, 1999

Steve Jobs unveiled the iBook G3 laptop during his keynote at the Macworld Conference. It was the first mainstream computer sold with built-in wireless networking.

Clamshell iBook G3. Photo by Carlos Vidal (chiste). CC BY 2.0.

The six-pound computer was available in the colors blueberry or tangerine, and later indigo, graphite, and key lime were added. The G3's clamshell design was inspired by the iMac [May 6] line of the time.

After this bold initiative, the next generation of iBooks in 2001 ditched the fancy colors and form-factor. It was available in white only, although it was labeled as "Snow".

Do Fish Drink Water?

July 21 1999

One of the responsibilities of the webmaster at Xerox PARC [July 1] was answering e-mail from the public concerning Xerox products and services.

Bill McLain, aged 66, had become the webmaster in 1995, and usually only had to deal with 20 or so product and services e-mails per day. But one day someone sent him the question:

```
I'm desperate; I need the
Boy Scout lyrics to the
song "Kumbaya." Please
help!
```

McLain looked up the lyrics, and sent them out. Somehow word got around, and soon McLain was receiving a much more varied selection of questions, such as:

- If someone has been blind from birth, do they dream?
- How long would it take to vacuum Ohio?
- What do you say to God when he sneezes?

He was soon working from 6 am to 5 pm every day, and had to hire a support staff of three.

By October 1999, he estimated that he had answered some 350,000 questions from people in 180 countries. McLain saved the best ones and turned them into the book "Do Fish Drink Water?", which was published on this day.

Xerox were supportive of McLain's work, saying "While we would like to claim Bill as a

public-relations coup, it was not originally devised that way. Bill grew organically."