Computer science and technology: historiography V (7 - part five)

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Machines with souls: metaphysics and managerial class in *Halt and Catch Fire*
Class issues, along the feminist themes more agreeable to and compatible with liberal values, are also highlighted:

Cameron keeps company to the Clarke girls, from a middle lower-middle household, who reveal a conversation they overheard their parents having:

- Well, Dad said to Mom that you were just like white trash.
- Yeah, they were joking.
- How do you know they were joking?
- 'Cause they were laughing.

Donna is able to recover Cameron's work, and Cardiff’s asset..., due to the FAT (File allocation table) being "intact", "not lost":

*Not if the FAT’s intact.*

That way, aside from the fried files, I can reassemble the BIOS by deduction.

and

Well, we’re just lucky the file allocation table wasn’t lost.

Once I found that, I was able to write a program to help reassemble the data sectors.

[segments 21m; 30m]

Again not credited properly, as a pseudonymous, simple "debugger" instead, Donna doesn’t try anymore. The men are interviewed/profiled for the story.

"She’s one of our debuggers. Thanks, Susan. Nice work.

Hey, guys. How about showing Ron here how you cracked the problem? You really got in deep there, right?"

Being too intelligent for her own good, in a world not prepared for her, also discovers MacMillan’s half-smart plan (he "demagnetized" old floppies containing e.g. spreadsheets, and passed them off as back-ups):

It was all a publicity stunt to create interest in the PC: better than nobodies, Cardiff’s PC division are now ‘outsiders who almost crashed’. A type of origin story loved by tech, where fiction is often better than reality, Aussenseitertum is a real obsession of that world.

For who wants stories about sons of academics, bankers, doctors, engineers, upper-middle class upbringing and inherited wealth? Anything, even the ridiculous garage stories - with their evocative airs of marginality - are better than the boring truth, in this case.

Ep. 5, opening scenes: "innovation" talk, (uncertain) physics metaphors, Doherty mumbo jumbo and all the rest of tech spectacle is now gone.
Buyers, specifically retailers, during a meeting want to know how well the PC is going to "compare with the IBM XT", and MacMillan says they are now "going with an eight megahertz 8086" which has cost benefits and he describes as being "almost twice as fast as any PC on the market". [The Intel 8086, or simply 86 is predecessor to 186 and 286.]. To this specific public, MacMillan presents the PC as perfect for "the third shelf": first one is IBM, second one is "where [their] brand name computers goes", "the one [they] have manufactured in Taiwan and slap [their] insignia on".

At least they have marketing "packets" ready and a presentation poster - consisting of a drawing of a businessman using the PC in an airplane [which mimics the real ads for portables of the time cf. TRS], label "The Cardiff Electric Portable PC" and motto "Going to work just became work to go."

II. HCF s1e5 : Cardiff’s portable PC in a suitcase design

The men from the hardware team are now debating how to call the creation: one of them brings up "Death Star" and "George", another argues for "Khan" - In other words, the show is highlighting the big debate among computer experts and wider sci fi or pop culture fandom between Star Wars and Star Trek [note : the second Star Trek movie, The Wrath of Khan, came out in the Summer of 1982 and was a big success]. At least this is a concern for a certain demographic of that profession, but not everyone:

Cameron doesn’t care about any of this: "I wrote the BIOS, I name it." She prefers "Lovelace", the men start grinning in approval, they think she means the pornographic actress from the 1970s [instead of the 19th c. countess...]. She corrects: "as in the first programmer ever", to less enthusiastic response.

On the software side of things, a major change has been introduced: a team of programmers has been hired as well as a manager, "Steve" - Cameron is baffled, who up to then had worked alone.
Il.  

**HCF** ep. 3 - Cardiff's hardware team, l-t-r, first row: Stan [2], Larry [3]; second row: Ed [6] Brian [7]; Gordon near off-screen

<table>
<thead>
<tr>
<th>Cardiff’s hardware team</th>
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<tbody>
<tr>
<td><strong>Gordon</strong></td>
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<tr>
<td><strong>Ed</strong></td>
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<tr>
<td><strong>Stan</strong></td>
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<td><strong>Larry</strong></td>
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<td><strong>Brian</strong></td>
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<tr>
<td><strong>Randy</strong></td>
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<tr>
<td><strong>(Donna)</strong></td>
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Changes introduced to software development by new management style are gigantic: Cameron has a cubicle along with colleagues, must follow a "flowchart", do documentation consistently, is assigned a delimited task, and belong to a sub-group (i.e. they are not part of the other, better team doing prestigious stuff).

Manager - I assigned you to write print drivers ...
Cameron - What, when?
Manager - Well, didn't you check the flowchart?
        I mapped out all the subroutine assignments and which order to do them in.
Cameron - Print drivers are remedial. Why aren't I working on a compiler?
Manager - Because I already have a team on it, number one. Number two, I hear you can't be trusted to document your code (...)

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HCF ep. 5: flowchart details, and (new) software team

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<tr>
<th>TASK</th>
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<th>SPECIFICATION</th>
<th>DESIGN</th>
<th>FIRST CHECK-IN</th>
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<tr>
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<td>6/2/[n v]</td>
<td>[n v]</td>
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<tr>
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<td>Character and Aux I/O</td>
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<td>TSR Management</td>
<td>[n v]</td>
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n v = not visible

This is Steve, our software development manager.

- What, when?
- Well, didn't you check the flowchart?
Business over golf:

Gordon uses his father in law’s connections, (a catalog business owner), to a Japanese maker of electronics called Kazoku. In his infernal quest to bring the weight of the portable down, he now has turned to replacing the CRT screen with an LCD one.

The sub-text of the discussion, and cause for his father in law’s hesitance is an event simply called ”the last time” - i.e. the failed P.C. project - and its impact on Donna.

It’s all different Gordon swears. His arguments : ”Kazoku has the best technology”, the project is led by MacMillan ”He’s got over a decade at IBM under his belt”, it’s backed by ”a solid company” (Cardiff) etc. Gordon’s f-i-l agrees reckoning ”The Japs love me” But a face to face meeting is needed.

A brief glimpse of MacMillan’s father is had, who fits expectations: in the lobby of an upscale hotel, sitting on a Chesterfield, gold watch, suit and blue-red stripe business power tie.

Back at the office, Cameron is getting along with her cubicle neighbors in particular Yo-Yo who is - second position on the flowchart...- in charge of ”printer queue” while they are - first - responsible for ”printer support.” But they have adapted far less well to having a ”developer manager” (from Stanford’s Business school, which he does not miss out on mentioning first occasion come..).

Previously he had recognized they were playing Adventure [title ep.] by keystrokes alone, ”Took out my graduate seminar the night before our final”.

Yo-Yo - Check this out [computer input]
Cameron - Oh, no, the printer only prints text.

   Wait : you added a graphics mode? And auto grayscale conversion?!
[interrupted]
Steve - Now, how are we doing over here?
Cameron - I’m finished.
Steve - Did you check off your module on the flowchart?
A typical business scene with Japanese partners follows ("I read that they don’t expect Westerners to bow, but you’re supposed to receive business cards with both hands. It’s a sign of respect." according to Gordon’s research...). They ask for a display similar to that on the watches made by Kazoku but without the downsides that come with bigger screen sizes...

Godon takes care of the technical side:

G - The one question I have is how do you scale this to a bigger size without the display blurring?
- Oh, we make the voltage higher. Five volts usually enough, yeah.
G - But if you zap a pixel with a voltage that high, the adjacent pixels twist, too. Don’t you get ghosting?
[silence]
What if you laid in a third layer of microcapacitors?
Aren’t you experimenting with that technology already? Sony is.

By now a well functioning duo: MacMillan takes over the business side,

Here’s our offer: You take a lower margin on the individual screens, we’ll give you a percentage of our profits on the back end.

(Kazoku is either a company that existed but went down, or a Casio proxy?)

In the mean time, MacMillan senior has met Cameron, who shows no interests; but the experienced businessman from IBM knows to get what he wants and charms her with "a modern Ada Lovelace" compliment. Previously Cameron had wondered how he was able to get inside his son’s apartment (evocative of social engineering):

"I showed the super my license.
You say something with the right authority, you generally get what you want."

Bosworth is turning into a nerd and wants to know how to play Adventure...

II. HCF ep. 5 : MacMillan sr. / Bosworth turning full nerd
IBM, MacMillan senior says, hired him after World War II, (where he had served in the Navy – a significant place for the development of computing, where Hopper had the rank of rear admiral), and he not only was he at the company during some of its glory years but also participated in them.

MacMillan sr. - ... they recruited me in 1945 to work on the Mark I.
Cameron - With Grace Hopper? Did you meet her?
MacMillan sr. - Oh, sure.
Cameron - Did it really weigh 4 tons?
MacMillan sr. - 5. We used it in the Navy to calculate artillery firing.
        I knew right then I wanted to work for Big Blue when I got out.
        Best company in the world.

This gets Cameron excited, but still does not make her want to join the company today.

Apart from learning that MacMillan is a legacy student (which like everything he says is unreliable information, but in this instance may be believed), Cameron references a classic computer book, Mythical Man-Month:

Cameron - Do you want all your software programmed in 11 weeks
         for half of what you’re spending?
J     - Is this a trick question?
Cameron - Brooks’ Law, "The Mythical Man-Month".
         The one useful book I read in college.

Brooks said that adding programmers to speed up
         a software project only makes it later.

The first person fired is middle management Steve.

Cameron’s way to determine who to keep was to have everyone play the
video game Adventure (which they had put on the mainframe) and see who
cheated by figuring out a way to break the code, rather than solving puzzles
"fair and square", because, according to them, this was a better indicator for a
coder’s mind.
Ep. 6 starts with another strong philosophical opening:

A nightmare for a computer engineer, but a nice metaphor for everyone else: a flower has begun growing on a circuit board, in-between chips.

This scene, a late night office hallucination of Gordon’s, the personal computer’s designer, is later echoed when Cameron - the software engineer - says that a machine “needs a soul” [13m]

Ep. 6 marks the successful booting up of the first prototype (to a “hello world” display) – hence maybe the sudden conscious and unconscious preoccupation with the creation’s metaphysical aspects.

These concerns come also to expression, on a third level, in private between Cameron and MacMillan: they tell him that people long for authenticity, which he does not offer. Best signified when the company’s staff choose Bosworth over the latter to launch the machine, while MacMillan was already preparing for it in one of his habitual tech prep talks - this time in a discourse complete with empty Henry Ford quotes about success...

In fact, when Cameron finds no acceptance of their ideas of an operating system “with a personality” from Gordon, on computer engineering grounds, and is also rejected by MacMillan, this time based on commercial principles they conclude, (attacking him personally and simultaneously the business environment) : “I thought something around here should have a soul.”

Donna, finally, who perhaps knows more about computers than everyone else, longs for something more...

Il. Cameron, the software engineer vs. Gordon, the hardware designer