

”The History of The History of Software”

Introduction to Scientific Working

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1 Introduction

This document is a short summary of the article “The History of The History of Software” by Martin Campbell-Kelly [1], a professor in the Department of Computer Science at the University of Warwick. It was published in 2007 in the

IEEE Annals of the History of Computing. The keypoints of Campbell-Kelly's work are outlined in section 2 followed by a summary of Donald Kunth's critical review performed in 2014.

2 The History of The History of Software - a Short Summary

In the introduction of his article, Campbell-Kelly wrote about his academical education. Mainly about his doctoral study on the early development of computer programming in Britain he started in 1976, and his dissertation about code and texts, which can be found in [2].

2.1 The Evolution of Software History

First of all important publications on software history since 1967 are listed. As reason why choosing exactly this publications, he mentioned that they were useful to his own writings on software. He classified them into "technology", "software industry", "applications" and "institutional, social political" to show how writing about software has changed over the time. In the remaining part of the article he focused on the following specific issues in software history.

2.1.1 A Lack of Proportionality

Campbell-Kelly designated the disproportions in publications in the field of software history and demonstrated this by the following examples:

1. Until about 1990 most scholarly work in this area was about programming languages and systems. In his opinion this had two reasons:
 - most of the material was written by practitioners
 - there were several hundred programming languages in use
2. Results of his research about the business history of software showed that much more studies of the 100 biggest companies, especially Microsoft, existed than of the very high number of small companies.

According to Campbell-Kelly in the 1980s people started to write about the software industry. This was mainly done by journalists, company founders and business school academics, but not by professional historians.

2.1.2 Voids in Software History

This section deals with missing parts in software history. In April 2000, Campbell-Kelly was a member of the organizing committee of a conference called *History of Computing*. The main idea of this conference was to complete these parts.

The following five topics were covered in this conference:

- Software as Science
- Software as Engineering
- Software as Reliable Artifact
- Software as Labor Process
- Software as Economic Activity

After the conference he realized that they had unfortunately forgotten to include such important topics like application software and cultural aspects of software.

Later that year a second conference with the name *Unbundling History* took place in Palo Alto, which focused on the enterprise software product industry. Speakers from academia and the industry joined the conference in equal numbers, which should bring these two communities closer together.

2.1.3 Software History Records

This part of his article is about the records of software history. In the early 1980s there existed the so called “manuals problem”, which was the indiscriminately collecting of computer manuals. In Campbell-Kelly’s opinion this could not be the answer to software history.

He also mentioned that when he was involved in a case, he found out that the high number of documents - like testimonies - were digitized and stored in a database in Los Angeles. When he recognized that these documents were easily accessible via the internet, he realized that all modern-records archives will have to make their documents available in a way like this.

2.1.4 Emulation and Simulation

Finally, the possibility to execute old software on new machines, which is called emulation, is discussed. But the only use for - as he called it - restored software is in museums. In his opinion this has no impact on the greater historical project, but is only a hobby of retired software engineers, computer preservationists and video game collectors.

2.2 Outlook - What Software History May Become

According to Campbell-Kelly the state of software history shows a deficit in both quantity and quality. The social historian Harold Perkins provided a possible reason for that in his review of Campbell-Kelly’s history of the software industry *From Airline Reservations to Sonic the Hedgehog*:

Campbell-Kelly is a master of technical detail and the alphabet soup of acronyms but, like most specialists in an arcane activity, he has tunnel vision and provides little social context[. . .]The impact of the

computer industry on society, on the way people live and communicate, is largely left to the reader's imagination [3].

Although he thought that Perkins was not the right reviewer of this book, Campbell-Kelly admitted that he had defined the problem rather well.

At the end of his paper he made a comparison of the history of software to the history of offices and office-based information processing. It took 70 to 80 years of cumulative historical activity to write holistic literature about offices. He claims that in software history it is not yet possible to do so, but it is heading in the right direction.

3 Knuth's critical review on the article

In 2014 when Donald Knuth was invited to the "Kailath lecture" at Stanford University, the only thing he focused on was this article of Campbell-Kelly. He mentioned that reading it had deeply saddened him, and he finished reading it only with great difficulty because of his tear-strained glasses [4]. More detailed information about his reaction can be found in [5].

4 Conclusion

Campbell-Kelly's reprocessing of the history of software revealed some important points like the disproportions and the incompleteness of it. However, most of his arguments are comprehensible only for historians.

References

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