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**Introduction to “The First Draft Report on the EDVAC”**  
**by John von Neumann**

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Normally first drafts are neither intended nor suitable for publication. This report is an exception. It is a first draft in the usual sense, but it contains a wealth of information, and it had a pervasive influence when it was first written. Most prominently, Alan Turing cites it, in his Proposal for the Pilot ACE,\* as the definitive source for understanding the nature and design of a general-purpose digital computer.

After having influenced the first generation of digital computer engineers, the von Neumann report fell out of sight. There were at least two reasons for this: The report was hard to find and it was very hard to read. This is where its first draft quality resurfaced. The draft was typed at the Moore School from von Neumann’s hand written manuscript. It is clear that the typescript was never proof read. There are numerous typographical mistakes, and serious misunderstandings about the intended use of mathematical symbols and Greek letters. There are also a considerable number of errors which may have been in the manuscript. (Efforts to locate the manuscript have failed.)

In addition, throughout the text von Neumann refers to subsequent Sections which were never written. Most prominently, the Sections on programming and on the input/output system are missing. It would have been wonderful if somehow von Neumann had found the opportunity to write those sections.

I undertook the task of carrying out a careful proof reading.\*\* Initially, this was in order to fully understand the Report. However as the effort became increasingly time-consuming, I realized that the result could usefully save time and effort for others. It seemed reasonable to create a machine-readable copy and to use T<sub>E</sub>X to make the editing easier and more effective. Here is the final result. I have taken great pains NOT to modify the intended expression, nor to editorialize on the original work. The report is still not easy reading, but to the best of my ability this version is a correct rendering of what von Neumann wrote.

A careful reading of the Report will be instructive to anyone with an interest in the past, present, or future of computing.

This report has been published in: *IEEE Annals of the History of Computing*, Vol. 15, No. 4, pp.27-43, 1993.

On 17 November 2010, Sunit Mahajan sent an email pointing out that many (actually most) of the intended exponents had lost their exponentiation. Thus,  $2^{13}$  appeared as 213. This was due to the fact that at some point after the T<sub>E</sub>X files had been prepared for the IEEE publication, all of the ^ characters had disappeared from one of the source files. In the late 1990’s the files were transferred between machines. In any case, I have put back the exponentiation as it was in the published version. And, I apologize for this undetected error. Sunit also did a careful proofreading and found a few more cases deserving clarification. I have taken this opportunity to update the files in other minor ways, including hyperlinks for the Table of Contents and Figures. The final result is the current version dated 10 January 2011.

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\* A.M. Turing, “Proposals for Development in the Mathematics Division of an Automatic Computing Engine (ACE),” presented to the National Physical Laboratory, 1945. Reprinted as Com Sci 57, National Physical laboratory, Teddington, UK, 1972.

\*\* See also M.D. Godfrey and D.F. Hendry, “The Computer as von Neumann Planned It,” *IEEE Annals of the History of Computing*, Vol. 15, No. 1, 1993, pp. 11-21.