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Engines *of the* Mind

*The Evolution of the
Computer from
Mainframes to Microprocessors*

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Introduction

THIS BOOK IS ABOUT PEOPLE, not machines. The machines are interesting, but the people are fascinating and their story should be told. They changed our world.

I think the three most important inventions of the twentieth century are the atomic bomb, the computer, and the transistor. They have had the greatest effect on our lives. The marriage of the last two, the computer and the transistor, has brought about a transformation unmatched since the Industrial Revolution of the nineteenth century.

Historians have expended considerable energy telling the story of the atomic bomb and of the people who created it. The development of the transistor did not take much time or involve many people, and perhaps historians have believed it was therefore not worth much of their attention. But the computer's antecedents go back to the early ages of humanity; involved in its evolution have been hundreds of men and women, some of them quite extraordinary.

It is hard to know why historians have not been drawn toward the story, for it contains virtually every human trait: genius, stu-

pidity, generosity, avarice, integrity, dishonesty, daring, caution. The people currently involved with computers have probably been too busy building and playing with their machines to pay much heed to the origins; engineers are not noted for their sense of history. But why historians have tended to ignore the story is curious. Maybe they all thought that others had already told the tale. Maybe they have been put off by the bitter men and women, some of whom are still alive, and very angry.

The reader should be forewarned: much of what follows is still hotly debated by the surviving participants. It is no exaggeration to say that some of them continue to be so bitter almost forty years later that they will not even appear in the same room together.

There are several controversies confronting anyone telling this tale. The first concerns an inventor whose claim to priority is recent, John Vincent Atanasoff. Atanasoff has been named by no less than a federal judge as the real inventor of the computer, and his claim is supported by two of the men who participated in the later, more famous events. Atanasoff's story is dealt with in great detail because if he is really responsible for the computer, a grave injustice has been done.

Another, greater controversy is over the role of one of the century's most esteemed scientists, the mathematician John von Neumann. To most people, von Neumann is responsible for the logic that went into the electronic computer as well as for the computer's capacity to remember or alter instructions—in short, for the modern computer. If this is not his work, another injustice may have been committed.

Finally, our story is about two men, J. Presper Eckert and John Mauchly, who seem to have gotten little more than a footnote in the history of the modern world. Both men staunchly believe that they are the inventors of the computer and that they have been grossly mistreated. We shall see whether that is true.

This book, I expect, will not be the final word on the subject. Many of those involved will not like its conclusions and will wish to say more. I hope they do; their contributions to the modern

world are so great that they should get no less than our full attention and respect. I have done the best I can.

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