

I WAS A COMPUTER

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When I saw the recent movie *Hidden Figures* about women who did computations for the early American space program I remember a job I had in the summer of 1958. I was studying Engineering Physics at Cornell University and this was during the summer break after my junior year. I worked for a small engineering consulting firm that mainly did contract work for the General Electric jet engine plant.

I was given a desk and a Friden calculator – see figure below. Basically I did numeric calculations for the the engineers on my Friden calculator. I was a *computer* although I don't remember being called such. It was mindless work, but one of my projects you will find amusing.

By 1958 the US had nuclear submarines and nuclear ships, so it was time to think about building a nuclear airplane. Indeed GE was given a large government contract to design and build a nuclear jet plane. One of the engineers told me that it was easy to build a nuclear jet plane, but the hard part was shielding the crew from the radiation. So the engineers were conducting numerous experiments on shield designs.

I was never told the details of the experiments (top secret), but one experiment took radiation measurements at different times and they needed to know the the time in minutes between two measurements. Initially they recorded time as military time, i.e. June 15 at 15:25. How many minutes from June 15 at 15:25 to July 5 at 3:34? – not an easy calculation! Finally they built a clock that directly told the time in minutes from midnight on January 1, so the calculation of the time difference was a simple subtraction. But there was a lot of data in the old system, so I had the task of converting military time to minutes from midnight of January 1. There was a lot of data, so I worked for weeks with my Friden. Soon I could look at my watch and tell you my age in minutes.

The Friden was a four function(+, −, ×, ÷) electro-mechanical machine which did the calculations by spinning gears and levers by an electric motor. It was loud and I would drive my coworkers mad by doing a long division.

It was that summer that I decided to become a mathematician.



Courtesy of James Toth