Prologue: This article came to me, Lowell, from Warren Burrell. James Ketchum passed away in 2007 without doing any more writing than this first chapter. Even though Jim was rather a caustic individual and critical of UNIVAC management, I've decided to include this with other Legacy Project articles. It is an example of one man's opinion that everything wasn't ideal within the companies. On pages two and three of this paper, Mr. Ketchum raises several questions which he never got around to answering. LABenson

When Computers came to Minnesota – By Jim Ketchum (deceased).

Three IBM retirees with whom I volunteer at SCORE have asked the same question: "Univac had it all. What happened?" {editor's note: *Senior Core Of Retired Executives. Jim was a systems engineer at UNIVAC/Sperry so volunteering at SCORE after retirement must have been a belated ego trip.*}

> The answer is simple, "It knew how to develop technology, but didn't know hot to market (apply) its technologies. It was a captive, custom-design shop which couldn't evolve into a free-standing business."

Boslaugh's book[1] describes the development and deployment cycles of NTDS – a suite of Combat Information Center computer aids to for naval units. {Editor's note: *Naval Tactical Data Systems.*}

Boslaugh's book is divided into two sections:
   A) Developing technology to satisfy user's (customers') needs, and
   B) Introducing the technology to users (customers).
In the first book section, ERA/UNIVAC was one of the sponsored job shops for development of aids for naval combat direction systems to deploy aircraft to deal with aircraft threats to fleet units. (All three organizations contracted by the Navy for NTDS made major technologic strides, but the ERA/UNIVAC efforts were most pervasive in development of the information age.)

In the second section, deployment, the same system was modified and expanded to deal with missile threats, and also control radar and other sensory systems to greater effect.

During the span covered by Boslaugh's book;
   a) there were significant technological advances,
   b) there were expansions and modifications to original specifications, and
   c) there were significant cultural and institutional modifications in the "user" community.

---

[1] WHEN COMPUTERS WENT TO SEA The Digitization of the United States Navy – David L. Boslaugh, Copyright 1999 by The Institute of Electrical and Electronics Engineers, Inc.

During both development and deployment phases: the basic marketing impetus came from the Navy (which had to internally reorganize to gain the advantages of the technological advances.)

The only ERA/UNIVAC person who took the technology "to market" to any extent was Cray, although it wasn't clear how far he was removed from being a "job shop" for Livermore or how much algorithmic depth he had. (He was not much more catholic in his views of the digital computer than was Turing. Neither one was aware of the changes a sharp stone made to cultures!)

One could make a similar analysis of Eckert and Mauchly (whose machine was a digital descendant of the Differential Calculator) and of the census tabulator.

It was Watson, a cash register salesman, who morphed the tabulator into a tool for corporate controllers. I point out to my IBM buddies that Watson (a cash register salesman) provided the entry point for "a business machine company" which he created out of a tabulating company. After all, he could always buy technology to satisfy his customers "needs" – so why sweat?

Note: the major customers for his "business machines" were corporate controllers (some of whom still called themselves comptrollers!) But IBM fouled up big when they went after the "personal" (*vice* corporate controller) computer market. To a large extent, non-controller users were the engineering and marketing departments (who had to be content with second and third shift operation on the bean-counter machines.) (("You can't go wrong with IBM"--- the controllers understood the double entendre, and used it in their internal politics until the president of City Bank New York blew the whistle! It was the younger Watson who changed the position description of "account representative / manager.))

Guess where – and why – Sun, Apple and Microsoft got their starts!!! (But, at least, IBM had a marketing presence!)

- What happened to ERA's magnetic recording capabilities? Who made a killing on it?
- Why? What was the key software skill that Univac translated From NTDS to Air Traffic Control, but which Honeywell couldn't duplicate and which Loral, IBM Federal Systems, Lockheed-Martin and Raytheon can't upgrade? Where did the algorithms for that skill come from?
- Why Univac was stopped from exporting digital control of hydraulic equipment to its sister division Vickers?
- Why was Univac stopped from developing speech input?
- Why did Univac's digital signal processing disappear into the depths? Why was Univac frozen out of that area when Bell Labs was told that Nyquist's book overlooked the difference between analog and digital signal processing?

- What retarded—and in some cases, stopped—the improvement of and development/ deployment of additional software technologies, such as signal processing?
- What happened to the Internet and server markets which NTDS validated? (Univac was not the only institution that didn't realize that they were beginning to work with *distributed institutional information systems*, not just *localized processing of numbers and representations of physical quantities.)*

Precursors to ERA/Univac developments can be found in code breaking, and the piecemeal automation of combat direction systems and weapon delivery systems. The interactive development of the technologies, their applications to, and effect upon the users, and dispersal to other users, is still evolving. It is known as the Information Revolution.

What are the interactive effects of the Hayes Evaluation System (and its equivalents) and Executive Stock Options?

There is a growing effort to expand Minnesota' business endeavors into non-agricultural and non-medical fields. Mistakes and blunders will occur—but we don't want them to Recur!!—we'll make new screw-ups, no doubt; but they might be useful also. And they are not confined to technology!

> *"The moving finger writes,*
> *And, having writ,*
> *Moves on.*
> *Nor all they piety or wit*
> *Can lure it back to cancel half a line."*

This was the 1st installment of what we thought was going to be a book by Jim Ketchum in about 03. He had a low regard for the U of M and Univac 'Mismanagement.' He stated that he recommended that RE MacDonald point out to the CEO of Sperry (complaining) that the LOST market of Sperry went to Univac under the same umbrella company.

Warren P. Burrell
01/03/07