When Did It Happen?

INTRODUCTION

What, **When**, Where, Who, and Why are very common questioning words from news reporters as well as historians. At a Club board meeting 16-years ago, LMCO employee Richard 'Ole' Olson asked the retiree Club's help to document our Twin Cities' legacy. I volunteered to join the board to co-chair a Legacy Committee. Ole and I first met in 1964 when he was a programmer, and I was a computer operator in the plant 1 military computer center. Fortuitously, Richard 'Dick' Lundgren was at that club board meeting and volunteered to set up a meeting with Dr. A. Norberg[1] at the Charles Babbage Institute (CBI). Dick and I first met in 1970 in Hengelo, Holland when he was an instructor, and I was an installation engineer for the F-143 German Navy's Schnell (*Fast*) Boat computer system.

What-Why, As I looked through my Legacy 'Pending Folder', I found a 2008 spreadsheet that compiled first computer delivery dates and several genealogy charts. This paper unites some of them.

Computer Deliveries

Hereunder, a four-digit number [such as 1103, 1224, 1830, 1219] is the UNIVAC type number. Military nomenclatures such as AN/USQ-20B or CP-901 are assigned after a project request to the gov't. Thus, nomenclatures and type numbers are not in the same chronological order as the first unit delivery date. The 1100 commercial computer systems' series continued for 38 years until systems morphed into the 2200 series, deliveries began in 1988.

Many of our computer systems have had 3 to 4 decades of high reliability operational use as we have now provided seven[+] decades of solutions to customers' problems. More than computers; systems included peripherals and application software. Four examples of systems' longevity:

1. The 9/19/1967 delivery of an 1830A/CP-901 to NAVAIR was the start of a 45[+] year service life. See page 1 line 7 of http://vipclubmn.org/Articles/ASWhistory.pdf, (2012 – 1967 = 45 yrs).
2. In 1968 once an adequate hardware input device was available in form of the UNISCOPE 300 CRT display It became possible to do transactional real time information processing. The birth of MAPPER, http://vipclubmn.org/Software.html#MapperDevelopment in use yet today!
3. Since 1968; "You 18-bit guys would be happy to know that the last Navy 1219Bs were just turned off in 2015! They were at a shore site AN/SPN-42 Automatic Carrier Landing System," reference July '17 announcement in the Introduction of http://vipclubmn.org/cp18bit.html.
4. The 5/15/1970 delivery of the IOP to the FAA was the start of a 40-year service life, http://vipclubmn.org/aircontrol.html#Genealogy. John Bonnes BEE, U of MN, 1965 was one of the logic designers of both the CP-901 and the IOP.

[1] The CBI Director holds the **E**ngineering **R**esearch **A**ssociate Land-Grant Chair for the History of Technology, an endowed position at the University of Minnesota. Dr. Norberg, Dr. Misa, and now Dr. Yost.

This S/N #1 delivery table is a composite my data and information from Ernie Lantto.

S/N #1 COMPLETE	TYPE	Mil Nom	NAME, application	Bits	Project Start	Gen Charts
10/30/1950	1101		ATLAS I	24	Oct '48	
3/5/1957			Bogart	24		1951
5/5/1958	M460	AN/USQ-17	NTDS	30		1955
9/15/1959	G-40		BOMARC	30		1960
10/20/1960		CP642/Q-20	NTDS	30	Sep '59	1957
12/21/1960	1206	CP642A	NTDS	30	Jan '61	1960
3/16/1962			CUT	18	Jul '61	
7/5/1962	1215	CP788	UDT 422	15		
7/15/1962			Mil CUT 1	18	Oct '61	
9/20/1962	510/80		Process Control	18	Mar '62	
12/1/1962			Mil CUT 2	18	Oct '62	
4/1/1963	1218	CP789		18	Oct '62	1963
4/26/1963	1212	CP642B	NTDS	30	Mar '61	1962
7/27/1963	*418*			30	Aug '62	
3/2/1964	1224	CP818		24	Sep '62	1962
6/1/1964	M1218		RADC	18	Aug '63	
7/20/1964		CP667		36		1964
9/15/1964	1824		MBRV	24	Mar '64	1964
9/20/1964	1213-00	CP808 lot 1	MTDS	30	Jul '64	
1/15/1965	*418 II*			18	Mar '64	
5/17/1965	1830	CP823		30	Nov '63	1964
5/25/1965	1219	CP848		18	Mar '64	
6/1/1965	1219A			18		
7/30/1965	1230	CP855	NASA	30	Dec '64	1965
9/15/1965	SMS1500	AN/UYK-5	Moonbeam	18		1964/65
10/15/1965	1224A	CP818U	Flexcop	24	Oct '64	
10/23/1965		AN/UYK-5	ADP, USMC	18		
3/25/1966	1830		Phoenix	30	Nov '64	
1/15/1967	1230		1230 FP	30	Aug '66	
3/28/1967	1503		1230 EMU	30	Jun '66	
4/1/1967	M555		MASU	18	Jul '65	
4/14/1967	1213-01	CP808 lot 2	MTDS	30	Jul '66	1966/67
5/15/1967	1818		ILAAS	18	Mar '66	1967
9/19/1967	1830A	CP901	P3C	30	Apr '66	1967
10/2/1967	1289		?ATD?	30		
11/14/1967	1836	CP890	C-3	30	Jul '66	1967/68
11/15/1967	1824		TITAN III	24	Jul '66	1967
1/9/1968	1530		1230 MTC	30	Jun '67	
4/16/1968	1219B	MK 152	TALOS	18	Jul '67	1968
6/21/1968	1616			16		1970/71
1/15/1969		UYK-8		30	Jun '67	1968/69
4/21/1969	3250	UYK 7		32	Apr '68	1969
6/5/1969	*418 III*			18		
5/15/1970	8300	IOP	TRACON	30	Apr '69	1970/71

S/N #1 COMPLETE	TYPE	Mil Nom	NAME, application	Bits	Project Start	Gen Charts
9/14/1970	1832	AN/AYK-10	VS(X)S3A	32	1969	1970
9/15/1970	1830B	?1830AG?	German Navy	30	Feb '70	1970
10/5/1971	1825/26	AN/UYK-11	Minuteman	18/36	May '69	1971
6/9/1972	F1230		Mission Test	30		
12/31/1972		AN/UYK-15		16		1972
5/26/1973	1624		MM Trainer	24		
7/2/1973	1819	CP-914		18	Aug '68	1969
8/31/1973	1816	AN/UYK-23	MPC-16	16		1973
12/28/1973	U-1600	AN/UYK-20		16		1973/74
2/15/1976	1833-02		RMF-400	32		1977
1/15/1980	1625	AN/AYK-15A		16		1979/80

The Twin Cities divisions of Remington Rand, UNIVAC, Sperry, and Unisys were certainly busy in the 50s, 60s, 70s, and 80s developing new computer systems for customers.

We have the year of most commercial computer first deliveries; we generated this table in 2017 when the 'Shadow Box displays' were moved from Roseville to Eagan, Legacy Exhibits Chapter (vipclubmn.org).

From the 1986 40 years booklet, Engineering Research Associates (ERA) shipped an ATLAS computer via railcars to Washington, D.C. in October 1950. "It's my belief that the ATLAS I was the first American stored-program electronic computer to be delivered - delivered in finished, working condition." observed Dr. Arnold Cohen.

Titled ERA 1101 for commercial sales, existence of the ATLAS application was classified into the late 60s. ATLAS II was the technology base for the ERA 1103. The ERA 1101, ERA-UNIVAC 1103 were the beginning of this 5 decade long series of computer systems. The 1100 'design' history is in a 1990 paper by Richard 'Dick' Petschauer, http://vipclubmn.org/Articles/HISTORY1100series.pdf.

System Type No.	1st unit	last built	qty[2]
1101	1950	1953	3
1102	1952	1955	3
1103	1953	1956	11
1104	1954	1959	10
1103A	1956	1959	19
1105	1957	1960	10
1107	1962	1965	38
1108	1965	1975	303
1106	1969	1976	338
1110 & 1100/40	1972	1979	455
1100/10/20/30	1975	1980	359
1100/80	1976	1985	1121
1100/60	1979	1988	2863
1100/70	1982	1987	77
1100/90	1983	1990	1318
1110 & 1100/40	1972	1979	455
1100/90Dyad	1987	1988	28
System 11	1984	1988	603
2200/200	1986	1990	966
1100/70 Dyad	1987	1988	28
2200/400	1988	*	901
2200/600	1988	*	438
2200/100	1989	*	131

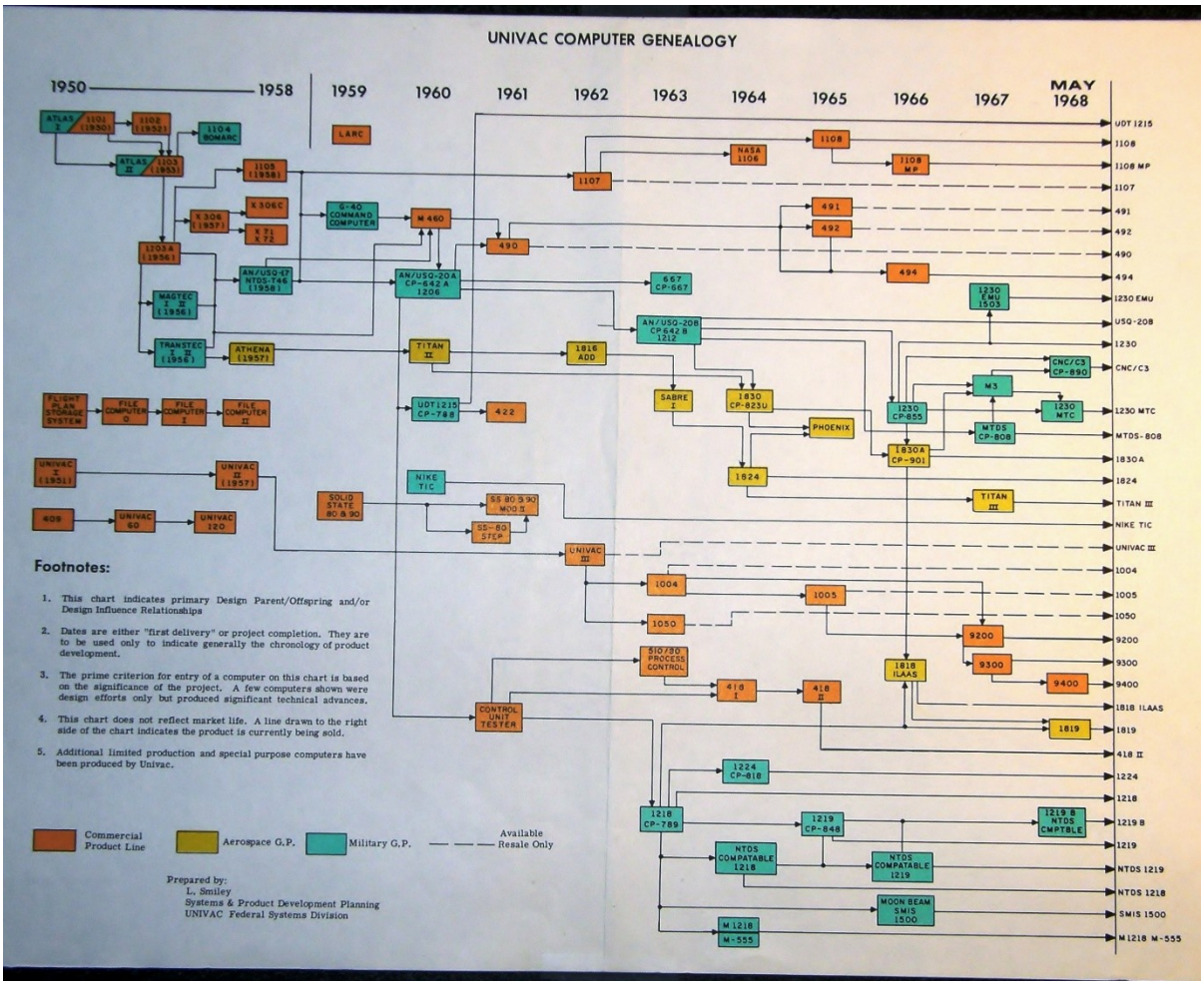
[2] Build quantities extracted from papers donated to the VIP Club Legacy Committee. *Last build date after 1990.

Genealogy Charts

Two 'computer trees' by Unisys Fellow Ron Q. Smith show the UNIVAC 1100 series relationships, http://vipclubmn.org/processors.html#1950Tree and http://vipclubmn.org/processors.html#1962Tree. These parallel the defense computer time lines.

Over many, many years the company has used genealogy charts to show relationships and evolutions of computer types. Most of these were used for marketing purposes to show prospective customers the history of the computer type being proposed for the 'new' system application. Our web site has snippets from these in the computer chapters, http://vipclubmn.org/Computers.html.

This genealogy chart from May 1968 combines the St. Paul computer lines with those developed in Blue Bell as well as the 409, U60, and U120 developed in Rowayton CT. The commercial lines are in orange with the 1100 series across the top of the chart. The blue/green boxes are ground based or shipboard units while the yellow boxes are either airborne or space borne units.



On-line Chronologies

Ten years ago, we did a computer history review comparing on-line chronologies with milestones of the ERA progeny, http://vipclubmn.org/Articles/HistoryReview.pdf. Paraphrasing from page 3 therein: Web sites and numerous publications provide many statements as to *Who did what first*. The Computer History Museum has many pieces of hardware on display in California, their presentation theme is *Time Line of Computer History*. They do not cite specific sources of their web site information. The second site referenced is History of Computing by Lexikon Services. Their theme is *Who Was First in Computing*? On their site many corporations and educational institutes are named, however not specifically cited as information sources. Entries from these two sites up to 1961 are copied in my 2011 history review.

The Computer History Museum and Lexikon Services sites were in general agreement. However, they do not identify the many defense industry computers which were developed during the first 25 years of computers and listed in the first table of this paper.

Today there are yet more organizations posting chronologies of technology development including our own **Unisys,** headquartered in Blue Bell, PA. Their chronology page is created from the Blue-Bell view of corporate and technology history, https://www.unisys.com/company-history/. **Levvvel** has created A Timeline of the History of Computers, https://levvvel.com/computer-history-timeline/. Their chronology page seems to be created from curiosity about the evolution of gaming software and the gaming devices. Our retirees club has a timeline, http://vipclubmn.org/Milestones.html that was used in the above-mentioned History Review article.

Each of these timelines has a different focus thus there is no complete agreement on what happened when and whether an event is relevant to the site's purposes. **Levvel** goes back to the creation of the abacus while **Unisys** starts in the 1873 with Remington's first commercial typewriter. Neither of these two sites picks up on some of the Defense Industry accomplishments by the Twin Cities organizations thus will be the topic of an ensuing 'Article for the Month'.

Note that I have not detailed dates of any systems developed at the EMCC/ UNIVAC/Unisys in Blue Bell, PA. If you, the reader, have data for any other machine types or nomenclatures not included above please send it to me. I will gladly make corrections for future researchers and posterity.

Lowell A. Benson with first editorial review by John Westergren.
John became co-chair of the Legacy Committee when Ole retired in 2008.