# Our Information Technology Anthology

# Introduction

This paper is our 'Site Map', presented here to facilitate linking into our Legacy's various topical chapters by readers and researchers.  When the Legacy Committee started in late 2005; discussions included 'write a book', 'make a movie', 'interview old timers', 'collect career summaries', 'set up a museum of artifacts', 'do Wikipedia', and 'get retires involved'.  The committee decided to solicit career summaries and project/equipment stories then post them as an evolving Anthology web site.  We chose a theme: A **Legacy** of **People Engineering Computers** and **Systems** at Twin Cities' **Locations** and throughout the world.
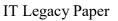
- In 2007, our Legacy writings were merged with the VIP Club web site.
- In 2017, the Legacy pages were re-labeled as chapters anticipating a future book set.

The site remains open through 2018 for topical and personal stories.

## Table of Contents[1]

*Document converted from .html to .docx format with Microsoft Office 365 Word.*

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[1] If reading on-line, clicking on a section title does a quick scroll to that section.

# 1.0 Site Design Notes

This site is hosted on webhostinghub.com since 2011. Thanks to usfamily.net for the US flag icon *.gif file used on the top of the pages and chapters. Please note that a new site structure was implemented the spring of 2017 to separate the Club Pages from the Legacy Anthology Chapters. *LABenson*

## 1.1 Site Navigation:

At the left of the site pages and chapters are Club and Legacy topic select tabs. The bottom of this navigation section has the chapter or page number and last edited date, i.e. this is site map is page 0. At the top right, in the '**On this Page**' or '**In this Chapter**' section are **quick links** to topics within the web page. The overall site structure has four general levels as detailed in section 2 below. The Home, Club, Legacy Anthology, and Contacts and Links pages/chapters have a Google 'Search' block that finds items or names on this site. To aid in readers' page navigation, all the site footers have a quick link return icon back to the home page and a "TOP" icon to quick scroll up. On longer pages, there are "TOP" icons near section ends.

## 1.2 Software:

The webmaster currently uses Microsoft Expression Web 4 software. This includes a Cascading Style Sheet (CSS) layout to provide all pages with normal Tahoma or Arial fonts. The CSS is an open source template by Andreas Viklund, modified for our use, reference http://andreasviklund.com. Each web site page is assigned a page or a chapter number. These numbers are assigned for chapter people indexing. In the previous design, the 28. People, Index page tracked legacy site contributors and people mentioned therein. The update of this page to verify the new chapter numbers indexing is on my 2018 to do list.

## 1.3 Editing Idiosyncrasies:

Within the various chapters/pages, we've generally used (parenthesis) to indicate an acronym or abbreviation of the preceding words. We've used [brackets] to separate supplemental information within sentences. I've also used {braces} to insert my own comments as Editor's notes to text written by others. When not otherwise obvious, I've tried to put individual author's initials in brackets at the end of articles; i. e. [lab] is Lowell Allan Benson, [rae] is Richard A. Erdrich, [dvm] is Don Mager, etc...

# 2. Site Design Structure

The structure has four levels: <u>Level 1</u> are the primary pages tabbed from the home page: Contacts & Links, Retirees' Club, Legacy Anthology, and this Site Map. <u>Level 2</u> are the pages/chapters tabbed from the Level 1 tabs. <u>Level 3</u> are the sections within the Level 1 and level 2 pages/chapters. <u>Level 4</u> are the articles, documents, images, and newsletters linked from the text of the level 3 sections within each page or chapter.

## 2.1. Retirees' Club Pages

| Page # | **VIP Club Pages** | <u>Content of Club Pages</u> |
|---|---|---|
| 0 | Site Map | Overview of our design ground rules and site layout. **THIS PAGE!** |
| 1 | Home | Welcome, What's Happening, Planning Ahead, Board Meeting, search this Site, Help our Historians, and Site Disclaimer |
| 2 | Retirees' Club | Introduction, The Board, Committees, Elections, and Revision History Log. |
| 3 | Social Activities | Planned Events; Periodic Group Gatherings; Histories of the Geek Squad, Old Timers, Roseville Good Old Days, Syttende Mai, Unihogs/Uniturkeys, and Volunteer Luncheons; and Venue Locations. |
| 4 | Membership | Dues, Link to a printable form, membership benefits, membership qualifications, and associate membership definition |
| 5 | Newsletter | An archive of Club newsletters since 2004 plus links to the most recent CBI and Blue Bell retirees group newsletters. |
| 6 | Recreation | Golf League, Bowling League, Electronics Club, and a linked listing of the Twin Cities' area senior centers. |
| 7 | Club History | History, Milestones, Previous Officers, Origination by Millie. |
| 8 | Contacts and Links | See section 2.1 above |
| 9 | Snapshots | This will be a new page of pictures replacing the previous 'who is it page" |
| 10 | Picnic Form | Annual announcement, reservation form, and venue directions - *annual update* |
| 11 | Volunteer Form | Announcement, survey/reservation forms, and venue directions - *annual update* |
| 12 | Thanks 2 U | A thank you page that pops up after a person has submitted the Volunteer Form, page 11. |
| 13 | Tour Survey Form | Introduction, choices, electronic and paper forms - update as needed |

## 2.2. Legacy Anthology Chapters

The level 3 sections of the chapters are listed hereunder, i.e. our table of contents:
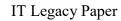
- Chapter 14 - People I-L: Article contributors; Summary by Irwin; Summary by Jurgens; Summaries by Kenny, Kistler, Kloner, Klugherz, Kolling, Koltes, Kratz, and Kuhns; and Summaries by Lahti, Langer, Lantto, and Lovely.
- Chapter 15 - People L-O: Article contributors; Summaries by Mager, Manning, McCarthy, Michaud, Moe, Mortison, Mozak, K. Myhre, P. Myhre, and Myller; Summaries by C. Nelson, E. Nelson, K. Nelson, Mellis, and Neumann; and Summaries by 'Ole', Overocker, and Olijinek.
- Chapter 16 - People P-S: Article contributors; Summaries by Pagac, Parkins, Petschaur, Patton, Pejsa, Phipps, Pickering, and Prokop; Summary by Quiggle; Summaries by Rapinac, Raveling, Reiter, Roberts, Roessler, and Rougier; and Summaries by Sandstrom, Sandusky, Santoski, Sater, Scholz, Schwitters, Sinkula, Soller, Spearing, Spitzmueller, Stephenson, Svendsen, Sloan, Schmidt, and Suckstorff.
- Chapter 17 - People T-Z: Article contributors; Summaries by Tilford, Tofteland, and Taipale; Summary by Valentini; Summaries by Walzer, Weidenbach, Weinhold, Westergren, Widenkops, Widdoss, and Wold; and Summary by Yahr.
- Chapter 18 - People Interviewed Introduction; Transcriptions of Rapinac, Hargesheimer, and Shoquist; and Interview questions by Ole.
- Chapter 19 - Deceased: Introduction; Obituary Logs; and Testimonials for Arndt, Bergum, Blixt, Casey, Champine, Cohen, Hargesheimer, Higgenbothem, Hill, Homan, Huberty, Joseph, Keye, Markfelder, McDonald, Reid, Rubens, Tomash, Wesslund, Kucera, and Ream.
- Chapter 20 - They Flew: Oscar Lundbeck; ASW flyers Tomisch, Barness, Kratz, Nickell, and Ronneberg; Noyes; Jack Anderson and Lowell Benson; Quent Fabro; Ron Handy; Special Programs Cady, Bezdicek, and Ken J. Nelson; Hydrofoil Flying Cady, Herbster, and Benson; and ABCCC Svenson, Rossman, Vitale, and DuBrall.
- Chapter 21 - Anecdotes: HSA Recollections, Musings by Rapinac, John Alton's Recollections, Legend of Jerry Green, John Markfelder, Marketing by Franklin, Environmental Laboratory, NTDS software, and SHINPADS.
- Chapters 22 thru 28 - These are place holders for new people stories or to resize some of the larger pages of 11 thru 18.
- Chapter 29 - People Index: 1) Alphabetical index of people mentioned within Legacy chapters and 2) Chapter by chapter of names of people who have contributed to the chapter. {this chapter/page has yet to be updated}

- Chapter 30 - Locations - Introduction; Original ERA buildings summaries by Benson, Lundgren, and Wise; and NSTR by Michaud and Nilsson.
  - Chapter 31 - Twin Cities': Introduction; 1987 facilities listing; Descriptions of Plant 1, Plant 3, Plant 4, Plant 5, Plant 6, Plant 6 the second, Plant 7, Plant 8, and the MACS building.
  - Chapter 32 - United States sites: Introduction; Manufacturing Facilities in Salt Lake City UT, Clearwater FL, Pueblo CO, and Clear Lake IA; Customer sites in Rockville MD, Valencia CA, and San Diego CA; TSD offices; and Marketing Offices.

- o [Chapter 33](#) - International sites: Introduction; Canada; Europe's Bad Gödesberg and Paris; Pacific Rim; and Australia, Africa, and Asia.
  - o [Chapter 34](#) - Blue Bell history: Introduction; List of ENIAC firsts; UNIVAC I, II, and III; Technical Publications; Other design efforts; and Stories from Pioneers Chapline, Bartik, Gehring, Smoliar, Wilson, and Chintz; and the UNIVAC Magnetic Tape plating facility.
  - o Chapter 35 - place holder for Clearwater FL
  - o Chapter 36 - place holder for Pueblo CO
  - o [Chapter 37](#) - St. Paul Operations: An Emmett Johnson organization chart-
  - o [Chapter 38](#) - Winnipeg Operations, Introduction, 2012 Reunion, People, Facilities, and Products
  - o [Chapter 39](#) - Legacy Exhibits: Lawshe Memorial Museum in S St Paul; Unisys in Eagan; Charles Babbage Institute in Minneapolis; Minnesota Historical Society Museum in St. Paul; and The Computer History Museum, the USS Midway Museum, American Computer and Robotics Museum, the Vintage Computer Federation, and the Vintage Technology Association.

- • Chapter 40. [Engineering](#) - Introduction; Frank Kline tidbits; PC Design by Bob Langer; Maintenance Panels by Larry Bolton; and Embedded Processors by Harry Wise.
  - o [Chapter 41](#) - Couplers & ERA Products: Introduction, Antenna Couplers, Crosley GSE, Doppler Wind Drift Indicator, and other ERA products.
  - o [Chapter 42](#) - Component Engineering: Introduction, Component Analysis, Pulse Transformers, Procurement, Product Assurance, and Semiconductor Development.
  - o [Chapter 43](#) - Field Service: Introduction, History of Field Service by Dick Roessler.
  - o [Chapter 44](#) - Interface Engineering: Introduction, Low Level Serial, Fiber Optics, 1773, SHINPADS, communicate and Semi-conductor.
  - o [Chapter 46](#) - Patents: Introduction, Archi Lahti, Lee Granberg, Cost Savings, and Dockets.
  - o [Chapter 47](#) - Peripherals: Introduction, DEAC by Kuhns, Commercial I/O consoles, Ruggedized I/O Consoles, Magnetic Tape Units, Display Units, Repertoire cards, and Technical Manuals.
  - o [Chapter 48](#) - Software: Introduction; Athena; MAPPER Stories by Del Fiacco, Schlueter, and Thalhuber with Code Cards; NTDS by Byrne; Computer Aided Design by Vraa; Simulation Development by Pluimer, Navy Compilers by Allen; and 1103 Software by Ross.
  - o [Chapter 49](#) - Training: Introduction; Recollections by Lyle of TAC, File computer, Technician Training, and UNIVAC Scientific; and People stories of Glen Kregness and Gary Holthusen.

- Chapter 50 - Computers: Introduction; Level 2 Chapter summaries; NTDS Computer Models; Computer Genealogy; and Genealogy Comments by Harry Wise.
  - Chapter 51 - 24-bit CPUs: Introduction; Genealogy Chart; CPUs Classified, ATLAS 1101, ATHENA, 1824, CP-818, CP-823, and Speed Tally; Repertoire Cards; and Technical Manuals.
  - Chapter 52 - 30-bit CPUs: Introduction; Technologies; CPU summaries for the 1104, USQ-17, M-460, USQ-20, CP-642A, CP-642B, CP-808, CP-823, Phoenix, 1230, CP-890, CP-901, 1830B, UYK-8, 1530 MTC, FAA IOOP, and ARTS III IOP; Repertoire Cards; and Technical Manuals.
  - Chapter 53 - 18-bit CPUs: Introduction; Computer Family; Unit descriptions of 1218, U1500, 1219B, 1219C, 1818, 1819, UYK-11, and 418 computer series; Repertoire Cards; and Technical Manuals.
  - Chapter 54 - 16-bit CPUs: Introduction; Genealogy; Unit descriptions of 1616, UYK-15, MPC16, 3760, UYK-20, AYK-14, UYK-5056, 1834, UYK-44, and UYK-507; Repertoire Cards; and Technical Manuals.
  - Chapter 55 - 32-bit CPUs: Introduction; Computer Family; Unit descriptions of UYK-7, AYK-10, CP-140, S-3B, and UYK-43; Memory Processor; Repertoire Cards; and Technical Manuals.
  - Chapter 56 - 36-bit CPUs: Introduction; Unit descriptions of 1103, 1105, and CP-667; Repertoire Cards; and Technical Manuals.
  - Chapter 57 - AF Units: Introduction; Genealogy Chart; and Unit descriptions of 2052, RMF-400, WASP, B-2, YF-23, and JSF (Joint Strike Fighter).
  - Chapter 58 - Special Purpose: Introduction; 1624; Unit descriptions of UDT, NIKE, RISC, CP-2044, USQ-69 and CLC; Special Purpose by Alton and Wayne Olson; and MOD 0 by Franklin.
  - Chapter 59 - Commercial Computers: Introduction; Computer Tree 1950-63; Early Customer Lists; Computer Tree 1962-80; Repertoires Cards; and Technical Manuals.

- Chapter 60 - Systems: Introduction; Systems Evolution; and Tactical Air Command. Many of these systems used our computers, software, and other products as described in the following level 2 tabs.
  - Chapter 61 - Air Traffic Control: Introduction; Genealogy of systems; Locations; Hardware descriptions; Software descriptions; Systems descriptions; Documents; Associated sites; and ZKSD
  - Chapter 62 - Airborne: Introduction; ASW stories by Blixt, Clement, Hunter and others; P-3 to S-3A by Rapinac; ABCCC by Debelak; Quicklook by CW4 Nesheim; and others such as LAMPS and Drone Systems.
  - Chapter 63 - Government Systems: Introduction; NEXRAD by Pickering, Lang, and Nelson; Postal; Agricultural; and Intelligent Vehicle Highway Systems.
  - Chapter 64 - International: Introduction: Canadian by McCarthy; Japanese by Lovely and Francis; Egyptian Navy by Booher; and European, Australia, Africa, Taiwan, and Thailand country summaries by Lundgren.
  - Chapter 65 - Marines: Introduction, TPQ-27 demonstration, MTDS, MATCALS, and TERPES.

- o [Chapter 66](#) - Aerospace: Introduction, Vandenberg AFB, Johnston Island, AF Missile Tracking, Australia tracking station, Remote Tracking, NASA in Houston, and Others.
  - o [Chapter 67](#) - Navy Systems: Introduction; Surveillance Systems; Systems' descriptions; Submarine systems; a Carrier Ride, TRANSIT GPS; and two NTDS Service Test stories from Pickering.
  - o [Chapter 68](#) - ASOC: Introduction, System Chart, and Product Evolution - thanks to Lauren Cady.
  - o [Chapter 69](#) - Commercial Systems: Introduction, Topical info, Precision Agriculture, and Flight Reservation Systems.

- Chapter 100 - [Our Stories](#): Introduction, Monthly Articles, Site Search Box, Slide Shows, and a listing of Books that tell parts of our story.

## 2.3 Contacts and Links - Page 80 sections

- E-mail addresses for the Club Officers with position foci.
- Twin Cities links for club member information and venue reviewing.
- Associated Retiree Web sites.
- Technology Research Web Sites
- Science, Technology, Engineering, and Mathematics (STEM) education.
- Technology Research Sites submitted by members and readers

## 2.4. Folders containing documents, images, etc.

This 4th level consists of documents which open in the same or their own window for easy return to the linking page. These are Print Documented Format (pdf) documents, Power Point slides, or jpg charts that supplement topics on the individual level 1 and level 2 pages as well as the level 3 sections.

1. Articles => This [folder](#) contains the Articles for the Month linked from the Our Stories tab.
2. ATCntl => This folder contains the doc, ppt, jpg, and pdf files linked from the Systems, Air Traffic Control page.
3. BitsBakUp =>We have copied the ERA/UNIVAC/Sperry/UNISYS documents from [http://bitsavers.trailing-edge.com/pdf/](http://bitsavers.trailing-edge.com/pdf/) for quick linking from our site and as a backup should their site disappear.
4. cgi-bin => This folder contains the script files referenced by the on-line survey form.
5. CodeCards ==> Volunteer Keith Myhre has scanned over 200 code cards/repertoire cards for linking from various chapters.
6. Documents => This folder contains the data files linked from the Club and Contacts & Links pages
7. EngDocImg => This folder contains the files linked from the Engineering and Computer chapters.

8. images => This folder contains the icons and pictures linked from Club page, the Contacts & Links page, and icons common to multiple pages
9. LegacyDocImg => This folder contains things associated with the Legacy Anthology chapter and its' sub-chapters
10. Newsletters => This folder contains the Club newsletters dating back to 2004
11. PeopleDocImg => This folder contains the documents and image files linked from the People chapters.
12. Photos => This folder contains the hardware artifact snapshots linked from the Legacy, Artifacts page.
13. SysDocImg => This folder contains the files linked from the Systems and Locations pages.
14. Temp => This folder contains special announcement flyers which are temporarily in use.

# 3.0 Original Site Design Map:

Below were links [Most no longer function] to all the Web pages of this site as structured before changing Legacy pages to chapter numbering; arranged like a table of contents. Note that the Legacy, Documents page 15 had links to all of the 'Articles for the Month.' This information and links continue in the Our Stories Chapter.

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We are a 501(c)7 non-profit organization. Emailed comments are welcome:
webmaster@vipclubmn.org)
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