Contribute To The VIE

We have an exciting new exhibition coming in and John Hollar writes to tell us about it: Fearless Genius, the photography of Doug Menuez. And Doug will be speaking on July 9 at noon.

Sue Mickel reviews the autobiography of CHM Fellow Jean Bartik. The book is "Pioneer Programmer: Jean Jennings Bartik and the computer that changed the world." Sue gives us some insights and some fascinating detail. Thanks Sue.

Alex Lux details three more recent acquisitions. And Jay McCauley gives his personal experience with a very unusual and exciting new addition. Where, oh where do all the new acquisitions go?

And have you ever wanted to corner the market? On gold? On silver? On IBM cards? Thanks to Stan Paddock we have done it.

And on behalf of all our volunteers, thanks to all the staff for hosting the "Volunteer Appreciation Day" on June 14. We are all in it for the fun and fulfillment that it brings us, nevertheless it is great to be appreciated. Thanks to the staff for a memorable appreciation event. And thanks to Peter Hart for his article.

Jim Strickland   jlstrick@aol.com

CHM's New Blog

Recent CHM Blog Entries
Kirsten Tashev keeps us up-to-date on our new CHM Blog. Recent Entries are:

June 11 - Dag Spicer, Senior Curator: Highlights and video of the 2014 Fellows.

Happy Anniversary 1401 Restoration Team

ROBERT GARNER

For ten years now, the 1401 Demo Lab volunteers have worked to restore and exhibit the dual 50-year-old 1401s, welcome and guide visitors in the time machine experience, and share history, anecdotes, laughter and memories.

The CHM staff learned of the availability of the German 1401 in the summer of 2003 and it arrived on March 18th, 2004. After an "IBM 1401 Needs Help" posting in the San Jose IBM Retirement Newsletter, a dozen retired IBM customer and manufacturing engineers stepped forward on June 4th to restore the dozen subsystems of mechanical and electronic inventiveness, each with over 50,000 components. 20,000 hours! Little did the team realize how much work it would turn out to be!

Please congratulate the 1401 volunteers for ten years of dedication, hard work, and camaraderie. Compensation has been in the wide-eyed kids and smiling adults as they encounter these live "compusaurs" whirling tapes, ka-chunking punched cards, and hammering paper.

(For an entertaining account of the 1401 restoration project, see the daily restoration progress reports on http://ibm-1401.info/index.html#reports-logs)

Volunteer Appreciation Day

PETER E. HART

PICTURES BY JIM STRICKLAND

John Hollar started the festivities by thanking the volunteers.

CHM's volunteer program started back in the days when the Museum was housed in a Quonset hut at Moffett Field and there were only two employees. The Museum has grown quite a bit since then: This year it will host around 100,000 visitors while attracting some 2 million page views of computerhistory.org, and 5 million YouTube views of Museum videos.

The volunteer program has also grown quite a bit since those early days. Today there are 134 active volunteers according to Megan Merritt, who oversees the volunteer database. That amounts to around two and a half volunteers for every staff member, and the Museum could not operate in anything like its current form without them.

On June 14, the Museum hosted Volunteer Appreciation Day on the back patio, treating around 70 volunteers to quite a lavish brunch, complete with adult beverages. It was an opportunity to recognize the many ways in which volunteers contribute.

The visiting public of course sees the front-facing volunteers: the docents and demonstrators. But more volunteers work behind the scenes than work in front of the exhibits. Volunteers this year processed over 600 archival items, cataloged over 4,000 new photos, and helped catalog over 2,000 records of stored artifacts. They helped at the Revolutionaries series, kept the Babbage engine going, and completed the 10 year project to restore the IBM 1401.

After thanking volunteers, Lauren Silver dons "brain wave powered" bunny ears. Really!

John Hollar, Megan Merritt, Lauren Silver and Aimee Gardner set out the delicious brunch. (Yes that is Aimee hidden under that hat.)

And the memorable quip of the day: Asked years ago what docents most needed, Al Rosenzweig responded, "Training on how to interact with carbon-based life forms."

Kate McGregor, Lauren Silver, Karen Kroslowitz and Jim Somers read comments from the volunteers recalling special moments at the museum. (And there are those darn bunny ears on the head of Kim Harris. And the head of Roy Mize.)

Sue Mickel, Mike Albaugh and Kim Harris.

Fearless Genius

JOHN HOLLAR

I'm delighted that we're bringing "Fearless Genius" to CHM for the summer. It's one of a kind as a photo essay telling important stories about a key period in Silicon Valley history and the Museum will be its only West Coast stop.

"Fearless Genius: The Digital Revolution in Silicon Valley 1985-2000" large-format photography exhibition and a related book by photographer and author is Doug Menuez. As a young photographer in the 1980s, Doug got unprecedented behind-the-scenes access to Apple, Kleiner Perkins, Adobe and other iconic Silicon Valley organizations. He also shot many photographs at the era's equivalent of Y Combinator Demo Day and other startup pitch meetings. As a result, he captured an amazing array of candid photographs.

The photo collection will make significant news here in the Valley when it debuts. The photos and a related film are running now on Fortune Magazine's website and on CNBC, and Doug is getting substantial media coverage.

"Fearless Genius" has been traveling worldwide since 2012 and is currently in Shenyang, China, and Barcelona, Spain. It is drawing huge audiences and press attention wherever it goes.

I first met Doug more than a year ago when he came to the Museum to pitch this idea. We weren't sure whether we could accommodate it given that art installations, if you will, have not exactly been a central feature of our exhibition strategy.

But Kirsten Tashev, as always, has done a brilliant job visioning the exhibition system, and for the first time we've turned over curation to two extremely talented members of Kirsten's staff: Jon Plutte, who produces and directs all of our media production; and Jenny De La Cruz, who oversees our oral history program. So we're not only introducing a new method of interpreting history with "Fearless Genius" but also unveiling and extending the additional creative talent of our content team.

"Fearless Genius" will be installed in the lobby in the days leading up to the July 9 premier. The show will run through Sunday, Sept. 7.
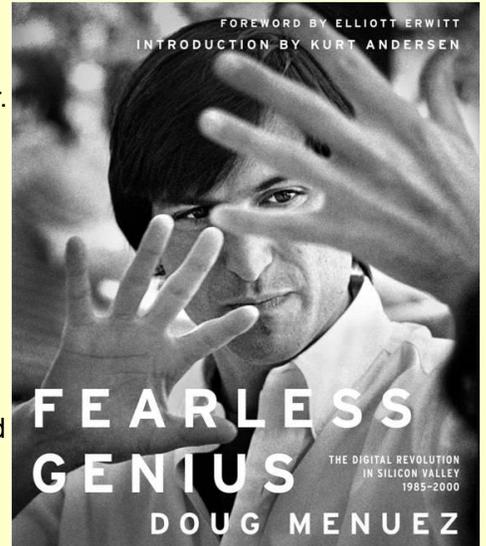
Pioneer Programmer: Jean Jennings Bartik and the computer that changed the world

By Sue Mickel

This book, Jean Bartik's autobiography, is a very interesting first person account of the events surrounding development of the ENIAC, the BINAC and the UNIVAC I computers. Like any personal account, it reflects the personality of the author and Jean Bartik was a woman of strong opinions and an amazing memory. Although I've read a great deal about Jean Bartik and the other ENIAC programmers, I found a lot of new material in this book. It also includes a lot of ENIAC-era photos I hadn't seen before.

I cannot say this book is great literature. It might have benefited from a more professional or more ruthless editor. The chapter that covers Jean Bartik's early life is quite long and detailed and not of much interest to someone like me who was mostly interested in what happened after she arrived in Philadelphia in 1945. Also, the same topic/person/event is often covered in more than one place in the book, and time moves backward

and forward to suit the author. This can occasionally be confusing and makes it harder to use it as a reference book. In spite of those criticisms, I enjoyed the book. It is full of profiles of the many famous computer people that Bartik worked with as well as anecdotes that could only be told by one who was there. What follows are a few notes on the things I found most interesting, surprising, useful and/or humorous.

- A human "computer" working with a desk calculator took around 40 hours to calculate a trajectory (note this disagrees with estimates from other sources, but Jean Bartik actually *was* a human "computer"). For the big demo in 1946 when the ENIAC was introduced to the world, Jean Bartik and Betty Snyder programmed a trajectory calculation for the first time ever. The trajectory of a shell that took 30 seconds to reach its target was calculated by the ENIAC in 20 seconds. Therefore, the ENIAC was "faster than a speeding bullet!"

- The ENIAC as constructed in Philadelphia was "like a ship in a bottle." When it came time to move the ENIAC to Aberdeen, the only way to get it out of the

building was to knock out the side of the wall and move it out through the hole.

- After the move to Aberdeen, Dick Clippinger decided to convert the ENIAC to a stored program computer because his wind tunnel problems were too large to go on the original ENIAC. He asked Jean Bartik to assemble and lead the development team. For trajectory problems, the function tables stored the drag function. Since the drag function wasn't needed for Clippinger's problem, they used one of the function tables to store the instructions. John von Neumann proposed an instruction set for the machine. Jean Bartik consulted with von Neumann and his IAS team every two weeks during the development to help simplify the instruction set to fit in the function table. By April 1948, Bartik and her team had transformed the ENIAC into a stored program computer.

- Jean Bartik went to Cambridge, England in October 1951 and saw the EDSAC computer. She was shocked at the rats' nest of wires around it. They had even built little wooden bridges over the wires to allow people to move around the room without tripping. The wiring for the ENIAC had been neat and mostly hidden. Telephone company wiremen had worked on the ENIAC and given it "incredibly tidy, unobtrusive wiring."

- Once Bartik joined EMCC and before working on the UNIVAC I, she worked on the BINAC computer. The engineers working the BINAC had discovered that they could have it play "music" by hooking the output from one of its circuits to a radio. Some engineers eventually could diagnose problems by listening to the "music." When demonstrating the BINAC for John Mauchly, they not only played music, but someone (as a joke) rolled an egg out from under the computer. "They thus showed that the BINAC could compute, play music, and lay an egg all at the same time."

- Pres Eckert was so concerned that the mercury delay line memory of the UNIVAC I would not work that he created a secret project at EMCC to develop a backup machine. He asked Jean Bartik and Art Gehring to work it. The backup would have used cathode-ray tube storage and be micro-coded. Fortunately, it was not needed. The mercury delay line memory worked.

- McCarthyism in the early 1950s significantly harmed Eckert and Mauchly's startup company (EMCC). They could not get security clearances and therefore got no funding from the government. Few investors would trust them. This eventually led to the sale to Remington Rand.

- In 1949, Jean Bartik was already fighting for equal pay. When EMCC hired a less-experienced engineer that Jean Bartik had trained for a higher salary than she was receiving, she went to Mauchly and demanded a fair salary. To Mauchly's credit, he made things right.

- The Census Bureau bought the first UNIVAC computer. Jean Bartik taught them how to program it.

Jean Bartik has some axes to grind in this book. Several people are presented in less than a positive light. However, what remains for me is the love and friendship she shows for most of the people she worked with. She remained friends with the ENIAC programmers for the rest of her life. She has nothing but praise and admiration for Eckert and Mauchly (Mauchly gave her away at her wedding).

I think that Jon Rickman, co-editor of this book, summarized Jean Bartik well:

"The lady had brains and guts and a mouth that occasionally tumbled her into trouble. She also had heart! She was someone you would want to have at your side in a fight or when you're down and out. Jean knew the true meaning of friendship and what it took to stand strong and true in a world that was not always fair or kind."

Pioneer Programmer is available in our docent library.

Cornering the Market

STAN PADDOCK

In the recent past, the museum bought a pallet of cards left over from Cardamation* in Pennsylvania.

At the time, we did not have the time to deal with them so they were placed on an upper shelf in the CHM warehouse.

Per arrangement with Karen Kroslowitz, I went to the warehouse today where Dennis Cassar was available to lower the pallet to the floor so it could be repacked.

The pallet contained 18 cartons that each contained 2,000 card boxes.

In addition, there were 24 two thousand card boxes, not in a case.

Karen supplied some museum quality boxes that just fit four of the two thousand card boxes. The 24 boxes were placed in the museum quality boxes. The pallet was repacked with the cartons. Most cartons needed to be re-taped as they were falling apart.

When all of the cartons and boxes were placed on the pallet, Dennis wrapped the pallet so everything is contained.

In total, 130 boxes @ 2,000 cards per box = 260,000 cards (1,443 pounds gross weight).

Along with the cards we already have at the CHM, we have a corner on the NOS** punch card market. I would like to thank Karen and Dennis for their help.

*Cardamation, of Phonexville, Pennsylvania ceased business in December 2011 when the founder and CEO, Robert Swartz, died. * In the old automobile vernacular, when a person finds a fan belt for a Model T that has never been used, it is "New Old Stock." These cards were made in the 1980s but never used—NOS.*

RECENT ACQUISITIONS
ALEX LUX

Amazon Kindle prototypes- Designed in 2005 at Amazon's Silicon Valley R&D campus, Lab126, Inc., this was the first prototype for *Project: Fiona*, the internal codename for the original Kindle project. This donation includes several other prototypes, including un-used industrial design concepts, the final Kindle product design and cover, as well as designs for consumer packaging. When the first Kindle was introduced in 2007 at a price of $399, it sold out in less than a day and was subsequently out of stock for several months. By the end of 2013, 44 million Kindles had been sold.
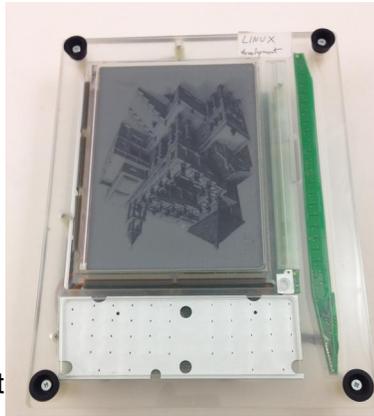
The screen shows an image of M.C. Escher's drawing "Ascending and Descending" and was last refreshed in 2005. Donor Gregg Zehr is President of Lab126.

X7198.2014, Gift of Gregg Zehr

Chumby Classic (2008): The Chumby was a customizable Linux-based touch-screen Internet device that, when registered at the Chumby website, could connect to a network over Wi-Fi. It ran a variety of software applications, known as "widgets," displaying web-based content such as a clock and calendar, RSS news feeds, Flickr images, music, sports and weather information. *Wired* magazine named Chumby one of its top gadgets for 2008. Chumby stopped selling its hardware in 2012, and shut down their servers in 2013. Users were left with only a basic clock and calendar widget available for their device. However, efforts are underway by some groups to revive the technology and restore some form of service to Chumby owners.

X7181.2014, Gift of Chris Meyer

Neo-Geo video game console- The Neo Geo Advanced Entertainment System (AES) was a video game console released in 1990 by Japanese game manufacturer SNK Playmore. SNK claimed the system was 24-bit, but in reality it was a 16-bit console with an additional 8-bit co-processor that functioned as a second CPU and assisted in audio processing. Its main competitors were the Sega Genesis and the Super Nintendo, both of which enjoyed greater success in the video game console market. The AES's slow sales were partly due to its high $650 price tag in the US, but it did find a niche market in the high-end gaming sector and had several popular titles within its video game library. The AES was based directly on SNK's Multi Video System built for arcades, so arcade quality games could be directly ported to it with no loss of fidelity for gamers at home.

X7194.2014, Gift of Mark Lambert

Stumbling Across Fascinating Things – A CCARP Adventure

Jay McCauley

Less visible to the public than our excellent docents and Babbage Engine crew is a group of volunteers helping to catalog the parts of the Museum's extensive artifact collection that are not on public display. The project is called CCARP (Collections Cataloging and Reconciliation Project), which is funded by a grant from IMLS (Institute of Museum and Library Services) announced in Sept, 2013
http://www.computerhistory.org/press/imls-2013.html
This is a follow-on to an earlier grant from IMLS.

Since the conclusion of the first IMLS grant, the Museum has received a great many new artifacts, the largest group coming from the EIGHT shipping containers holding what we now call the SAP Collection. These were hastily cataloged as they arrived, but the teams were only able to do basic cataloging, being overwhelmed by the large number of artifacts. There have also been other, smaller donations that also require cataloging. The current project addresses around 10,000 artifacts in our off-site facility that need more detailed catalog entries. Two museum staff members and sixteen volunteers are hard at work on the task. The Museum continues to receive artifacts. These are processed at the Museum by a staff member and a team of five volunteers. CCARP volunteers are unique, in that they get to handle the artifacts (with gloves). Although never intended by their manufacturers for public view, artifacts from the pre-IC era are in many ways small, colorful sculptures of components. The Museum's collection of "Honeywell Animals", sculptures commissioned by Honeywell for a series of ads and made out of electronic components, is an extension of these small gems. We also get to look at big stuff, complete computer systems.

Every CCARP session brings new things. Sometimes they are pretty boring, e.g. yet another DEC FlipChip™ M302 module. Still, the volunteers and staff must diligently catalog, and photograph the artifact. One never knows whether it might be significant for a future exhibit or a key element for a researcher. Every now and again, we stumble across something REALLY interesting!

On April 22, the crew consisted of volunteers Allen Baum, Don Hanson, Jay McCauley and Yuan Zhang, and Collections Specialists Gretta Stimson and Aurora Tucker. Aurora and Gretta had positioned several large objects on pallets for the volunteers to catalog. The other team called out, "Hey, you've gotta see this!"

They had started to examine a wooden desk with a cut-out holding an electric typewriter, a Triumph Factura. Triumph was a leading German manufacturer of office equipment. The desk had a cabinet with a door on the left hand side. When the team opened it, a most curious object was found. With great care, they got it out and

began to look at it more closely. It was in a cage reminiscent of a generator, but obviously was something else. After a LOT of head scratching, the AHA! moment occurred, "It's a MECHANICAL calculator with solenoids pressing the keys, and some sort of hookup to the printer!" Professionally made cables appeared to connect it to the typewriter. Even better, the calculator bore markings from the Walther company, everyone did their best James Bond imitation… Aurora and Gretta were working in the office, so I hastened over to them and said "You've GOTTA SEE this!" but left it mysterious about what it was.

Cataloging efforts must NEVER speculate or take information from personal knowledge, the Internet, etc. Only let the object speak with its markings, labels, etc. So, it is inappropriate to add speculations to the catalog record. However, there's nothing preventing some educated guesses being communicated to the curators and staff. This appears to be a demonstration prototype in the transition between electromechanical office devices and purely electronic ones. In the day, typewriter vendors did not disclose the details of their interfaces, so the wiring harnesses must have been made with at least cooperation by Triumph. These did appear to be professionally created. Whether this was done inside Triumph or by an outside firm with connections is probably never to be known.

The final bit was a debate between me and motorcycle buff Aurora (and indirectly fellow buff Karen Kroslowitz) about whether the Triumph typewriter was related to the motorcycle. I was sure it wasn't, Aurora was sure it was. A bit of online research afterward exposed a very tangled history with companies splitting, merging, going bankrupt, selling the name, etc. So, in the end we were both right.

http://www.computerhistory.org/collections/catalog/102669952

> **"Don't worry if it doesn't work right. If everything did, you'd be out of a job."**
> **(Mosher's Law of Software Engineering)**

Design_Code_Build: A new educational event series at CHM!

KATE MCGREGOR

An exciting new event series is about to launch this summer at the Computer History Museum!

Design_ Code_Build will welcome approximately 100 middle school age students to the museum for each of 4 events this year. Our first event will take place on Friday, July 18th, with a group of students from the organization Aim High (http://www.aimhigh.org/), which services under-resourced middle-school youth. Each event will help middle school students become excited and learn more about computer programming and coding. Group leaders, chaperones, event sponsors and other friends of the museum, will also be in attendance.

To kick off the day we will host a "Rockstar" guest from the industry to come speak to the students about their job, their passion for problem-solving and innovation through coding, and to share their personal experiences and enthusiasm for the tech industry.

Our soft-launch for the event series on Friday, July 18th will be a full-day event focused on coding and programming. The event will run from 9am-3pm with pizza lunch included for all participants and volunteers.

Over the course of the day, students will be divided into 4 groups, and will rotate through 3 engaging stations:

1. Raspberry Pi hardware and Kano software activities
2. Heroes & History: An exploration of programming through the years (Gallery activity)
3. Logic and Turtle Programming

Each group of 25 students will also be working to accomplish a team mission, and the event will culminate in 4 programming-related presentations to demonstrate the students' understanding of basic programming concepts.

Our goal is to have students explore the process of designing instruction sets that result in a task being performed, when processed by a computer. We hope that students will come away from this experience feeling knowledgeable, excited, inspired, and confident in their critical thinking skills and problem-solving abilities!

The official launch of the event series, which is sponsored by Broadcom Foundation, will take place in early October followed by two additional dates this fall. Several other organizations will be supporting the implementation of this event, including the Society for Women Engineers, the Broadcom Women's Foundation, and Engineers for Tomorrow (E4T). We are looking forward to welcoming new enthusiastic students and volunteers to CHM!

Please contribute to the Computer History Museum Volunteer Information Exchange
Share your stories, your interesting facts (and factoids) and your knowledge
Send them to Jim Strickland   (Jlstrick@aol.com)

More Links That You May Enjoy

- Ray Kurzweil on our hybrid brain
- Google's new self driving pod car
- Who invented the computer password?
- Luis van Ahn on "captcha" and crowdsourceing of book translation and ...
- *Eugene Goostman passes Turing Test.*

The VIE Cumulative Index is stored at:
http://s3data.computerhistory.org.s3.amazonaws.com/chmedu/VIE-000_Cumulative_Topic_Index.pdf

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Coming Events (Click for details)			
Date	**Day**	**Time**	**Event**
July 9	Wed.	12:00 – 1:30 PM	Author: Doug Menuez Fearless Genius
July 24	Thur.	12:00 – 1:30 PM	Author Mike Malone: The Intel Trinity: How Robert Noyce, Gordon Moore, and Andy Grove Built the World's Most Important Company
Aug 7	Thur.	6:00 PM Member Reception 7:00 – 8:30 Program	Akamai's Co-Founder & CEO Tom Leighton in Conversation with Museum CEO John Hollar
Aug 21	Thur.	12:00 – 1:30 PM	From Mainframe to Smartphone: What an Amazing Trip It's Been with Dr. Dileep Bhandarkar, Qualcomm