Contribute To The VIE

Thanks to Doris Duncan and Lyle Bickley for their articles this month. What an amazing set of people are our volunteers.

I had an opportunity to visit the IBM archives in New York last month. It was occasioned by by question, "What is a cosmograph?" See the article on page 2.

There will be more on "What I did on my vacation" in future issues.

So, if you do anything that relates to the CHM while you are on vacation, please remember the VIE. We need your stories to make the VIE vibrant.

Please share your knowledge with your colleagues. Contribute to the VIE.

  Jim Strickland   jlstrick@aol.com

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

CHM's New Blog

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

- **10/19 - Alex Lux "Little Green Men,"** http://www.computerhistory.org/atchm/little-green-men/

- **10/24 - Dag Spicer** A special visitor to CHM and his work on Squee: the Robot Squirrel! http://www.computerhistory.org/atchm/squee-the-robot-squirrel/

- **10/26 - Karen Kroslowitz,** http://www.computerhistory.org/atchm/preservation-conservation-restoration-whats-the-difference/

- **10/31 - Chris Garcia** http://www.computerhistory.org/atchm/the-haunted-house/

- **11/2 - William Harnack** about his trip to Blizzard Entertainment for the new Make Software exhibit in development, http://www.computerhistory.org/atchm/my-gamer-soul-wept-with-epic-joy/

- **11/4 Marc Weber** on his amazing trip to Kenya to conduct research for the upcoming Make Software: Change the World! exhibit, http://www.computerhistory.org/atchm/the-other-internet-part-1-masai-mara/

- **11/15 Alex Lux i**n honor of Guinness World Record Day Nov. 15th, it's ok to have some fun right? http://www.computerhistory.org/atchm/guinness-world-records-day/

CONTENTS

If brute force doesn't solve your problems, then you aren't using enough.

Program an IAS Machine
Lyle Bickley

The Institute for Advanced Study (IAS) machine was described in a paper by John von Neumann. The IAS was built in Princeton University (1945-51) and had many derivatives:

- AVIDAC (Argonne National Laboratory)
- BESK (Stockholm)
- BESM (Moscow)[4]
- CYCLONE (Iowa State University)
- DASK (Regnecentralen, Copenhagen 1958)
- GEORGE (Argonne National Laboratory)
- ILLIAC I (University of Illinois at Urbana-Champaign)
- JOHNNIAC (RAND)
- MANIAC I (Los Alamos National Laboratory)
- MISTIC (Michigan State University)
- MUSASINO-1 (Musashino, Tokyo, Japan)
- ORACLE (Oak Ridge National Laboratory)
- ORDVAC (Aberdeen Proving Ground)
- SARA (SAAB)
- SILLIAC (University of Sydney)
- SMIL (Lund University)
- WEIZAC (Weizmann Institute)

Although all these and many subsequent systems are based on what is commonly called "Von Neumann Architecture", their design and implementation was based on the contributions of not only von Neumann, but many others.

I recently discovered (via the SIMH group, and more specifically, Nelson Beebe, Research Professor and Software Specialist, University of Utah) a great educational tool for learning what it was like to program the IAS!

This Java application emulates the Princeton IAS system and will run on Linux, Windows and Macintosh computers. It can be downloaded from:

http://www.cs.colby.edu/djskrien/IASSim/

In order to make writing programs easier, there is a very simple higher level language called "JVNTRAN" which compiles into IAS assembly language. A built in assembler assembles the code and loads it into the virtual IAS machine for execution.

One hint - the default IAS comes with only 32 words of Selectron memory. Before trying any of the examples, up the "Selectron" size to at least 256 words via "Preferences".

One of the example programs provided is a Prime Number Calculator. After running it, you will be able to read the results from memory, starting at location 40 (hex) - just as if you were sitting at the IAS console (only with an easier to read display).

For those who want to read von Neumann's original paper, it can be found in both text and pdf formats at:
http://hdl.handle.net/2027.42/3972

And if you try it, or want to try it and need some help, let me know. I'll be glad to see what I can do..

Lyle. lbickley@bickleywest.com

Cosmograph? What's a Cosmograph?
Jim Strickland

Early this year, while walking through the "Early Punched Card" (IBM) gallery, I studied the big poster of an IBM advertisement that is blown up and shown behind the scale and time card machine. It is from 1933 and showed that, at that time, IBM was in the fire alarm and telephone businesses and also sold the cosmograph! What was a cosmograph? There is even a picture of a cosmograph which hardly helped at all. See Figure 1.

Later, I did some internet research. First, I found that the Cosmograph is a Rolex watch, no help there, or a map of the universe, no help there. But after limiting my search in many ways, I found, way at the end of the Google list, an article that talked about a kind of graphic display called a cosmograph which traced back to the 1890's to a visualization technique created by an Irish Engineer Matthew Sanke (which built on the work of others). This was a time when pie charts and histograms were just beginning to be used to help visualize business data.

I also found a book from 1939 (Graphic Presentation by Willard Brinton) that included cosmographs as one graphic presentation technique which was especially good at representing flows, such as financial inputs and outputs. Brinton refers to a cosmograph with this instruction: "One thousand strips of paper are set on edge to represent 100% and are separated into component parts of 1%."

For more on Brinton's book, see

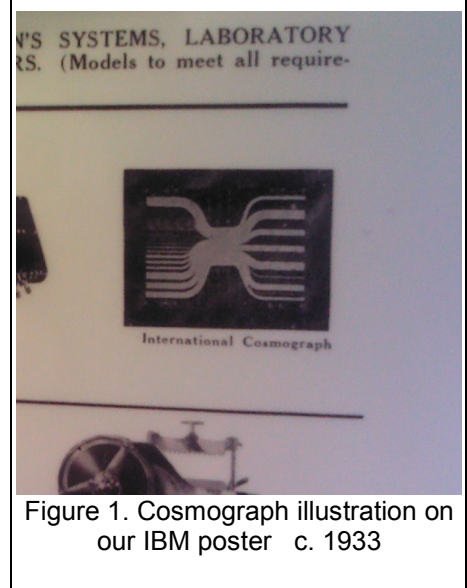http://archive.org/stream/graphicpresentat00brinrich#page/78/mode/2up

Figure 1. Cosmograph illustration on our IBM poster c. 1933

But what was IBM's role? Was its cosmograph hardware? Did it somehow use punched cards? Or, was it a service? Did IBM even sell services in 1933?

Another search led me to the fact that IBM copyrighted the IBM Cosmograph June 9, 1933. But that didn't tell me what it was.

So, I wrote to the IBM archivist. Unfortunately they had no information readily available and could do only limited research. I was at a dead end.

My wife, Bea, and I had planned a vacation trip to New York. Might it be possible to visit the IBM archives and do my own research. I wrote IBM again and yes it was! They welcomed my visit.

So, in October, I visited the IBM archives at Somers, NY and another "warehouse location" in Fishkill, NY. What a treasure trove for a former IBM'er! (I'll write more on that visit at another time.)

But here is what I found about the International Cosmograph.

In 1934, the IBM sales manual was a little leather bound book about 5 x 7 x ½ inches called "Manual of Business Instruction." In the preface, was the following:

> The International Cosmograph is a device which produces cosmograph graphic analyses of figure facts without the drawing of graphs. The finished cosmograph chart has all the advantages of the drawn graph. The drawing of graphs usually requires the time and skill of an accomplished draughtsman. The Cosmograph, however, due to its simplicity of construction and operation, requires no skill or foreknowledge beyond that imparted in a few moments' instruction.

Later in the book was a page with these words, and an illustration:
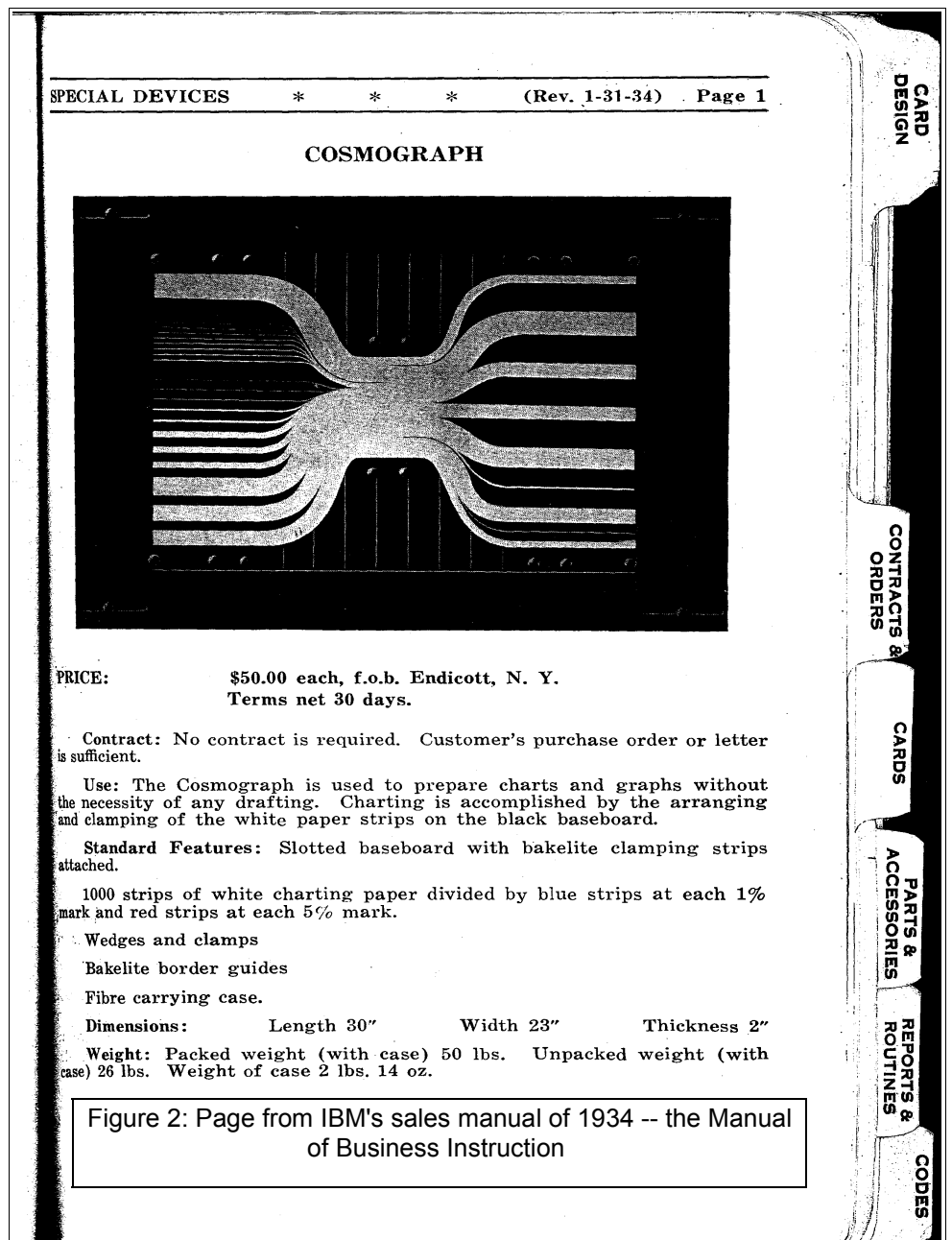
> COSMOGRAPH
>
> The purpose of the Cosmograph is to produce graphic analyses of figure-facts without the drawing of graphs. It requires no measurements or computing for measurement. The device consists of a black working board on which strips of paper are manipulated so as to form lines

and masses. Each minimum percentage unit of data is represented by one white strip. The proper number of strips to make a full percentage group is positioned. When all groups have been arranged a photostat of the board is made. The negative print, on which the groups appear in black against a white background, is used as the graph.

Finally, in another section was the page shown in Figure 2:

I had my answer. In 1933, for $50.00, ($850.00 in 2012) a business could buy a device to illustrate financial inputs and outputs by separating and grouping strips of white paper against a black background.

Eat your heart out Excel!

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COSMOGRAPH

PRICE: $50.00 each, f.o.b. Endicott, N. Y.
Terms net 30 days.

Contract: No contract is required. Customer's purchase order or letter is sufficient.

Use: The Cosmograph is used to prepare charts and graphs without the necessity of any drafting. Charting is accomplished by the arranging and clamping of the white paper strips on the black baseboard.

Standard Features: Slotted baseboard with bakelite clamping strips attached.

1000 strips of white charting paper divided by blue strips at each 1% mark and red strips at each 5% mark.

Wedges and clamps

Bakelite border guides

Fibre carrying case.

Dimensions: Length 30" Width 23" Thickness 2"

Weight: Packed weight (with case) 50 lbs. Unpacked weight (with case) 26 lbs. Weight of case 2 lbs. 14 oz.

Figure 2: Page from IBM's sales manual of 1934 -- the Manual of Business Instruction

Professor Doris Duncan Completes Service as Fulbright Specialist in Tunisia

Doris Duncan Ph.D., long-time volunteer for the Computer History Museum, served as a Fulbright Specialist in Tunisia during March and April 2012. Duncan, who is a Professor of Computer Information Systems and Accounting at California State University, East Bay, was selected for the Fulbright Specialist program after an extensive application and selection process. Dr. Duncan's Fulbright project was to assess the curriculum and explore possible partnerships with the Higher Institute of Engineering and Technology ("ESPRIT") near Tunis, Tunisia.

Duncan worked with the faculty and staff of ESPRIT
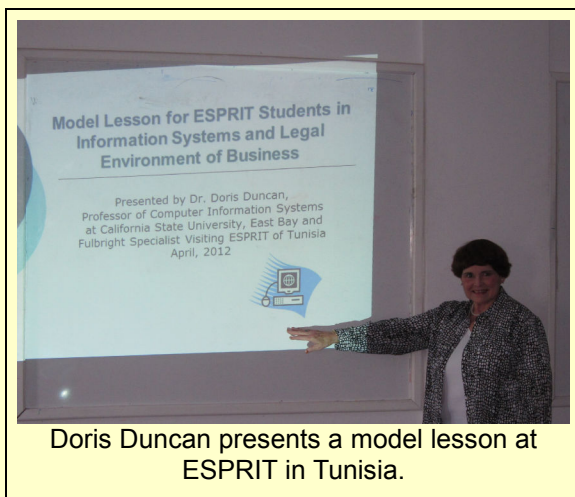
Doris Duncan presents a model lesson at ESPRIT in Tunisia.

and made several recommendations to enhance the information technology/engineering curriculum at ESPRIT and improve their qualifications for earning a globally recognized accreditation. Additionally, Duncan twice conducted a seminar on "Trends in Information Systems and Technology Careers: A Silicon Valley Perspective." She also presented two model lessons, one on "Information Systems for Accounting" as well as "The Legal Environment of Business" with an emphasis on technological intellectual property.

According to Dr. Duncan, "This was my first trip to North Africa and my second ever to all of Africa. In 2009 I had my first Fulbright Specialist opportunity in Kampala, Uganda. I now better understand the hardships people in developing countries undergo and I have a deeper appreciation of the conditions of workers in developing countries. I feel even better prepared to work with a wide spectrum of people in diverse cultural, educational and business environments. The Fulbright program is a wonderful source of hope for world peace and reconciliation."

Doris spoke about this trip of a lifetime to Tunisia, as well as Fulbright program opportunities, at the recent Decision Sciences Institute conference held in San Francisco recently.

As Professor Duncan says, "The lengthy Fulbright Specialist application process, including the five page curriculum vitae, obtaining letters of reference and the wait to find out if one is selected for the eligibility roster followed by the possible opportunity to write a specific project proposal, is well worth the effort required."

Doris Duncan meets with faculty members at ESPRIT in Tunisia (left to right: Nada Abdelkader Benmansour, Chiraz Ben Abdelkader, and Doris Duncan).

And, yet another of those great quotes, but did he say it?

"Never trust a computer you can't throw out a window."   -- Steve Wozniak

The following is from an interview with Lifehacker in 2009:

Lifehacker: You've said, or at least been attributed with the quote, "Never trust a computer you can't throw out a window."

Steve Wozniak: I'm not sure I said exactly that but, hey, I'll take the attribution (laughs). I probably said something about a computer's size, someone added that bit, and I said, "Yeah, that's right."

http://lifehacker.com/5222989/how-apple-co+founder-steve-wozniak-gets-things-done

From the On-line Media

- On-line magazine,"Wired," has a article on the Honeywell Kitchen Computer. It has good quotes from Gardner Hendrie, and Dag Spicer. A good read of the story of this one-of-a-kind artifact.
  http://www.wired.com/wiredenterprise/2012/11/kitchen-computer/

- One of the world's first digital computers to replace the handwritten calculations of human "computers" is getting an official reboot that could lead to a spot in the Guinness Book of Records.

  The 61-year-old Harwell Dekatron — about the size and weight of an SUV — was originally hailed as a slow, steady machine capable of delivering error-free calculations while running for 90 hours a week. It has survived to become the oldest original working digital computer following the announcement of its completed restoration by The National Museum of Computing in the U.K. on Tuesday.

  "In 1951, the Harwell Dekatron was one of perhaps a dozen computers in the world, and since then, it has led a charmed life surviving intact while its contemporaries were recycled or destroyed," said Kevin Murrell, a trustee at the museum.

  http://www.foxnews.com/tech/2012/11/22/world-oldest-digital-computer-restarted/#ixzz2D4FOGQb2

- Oak Ridge National Laboratory's Titan Cray XK7 supercomputer is officially the world's fastest data cruncher just after being unveiled last week. According to IEEE Spectrum , Top 500 released an updated list Wednesday morning at the SC12 Supercomputing Conference that shows the Titan toppling its competition with 17.59 petaFLOPS of processing power.

  http://www.techhive.com/article/2013992/oak-ridge-labs-builds-worlds-fastest-computer-still-cant-divide-by-zero.html

Coming Events

Date	Day	Time	Event
Jan 22	Tues.	6:00 PM Member Reception 7:00 PM Program	An Evening with Elon Musk
Jan 29	Tues.	12:00 – 1:00 PM	Author David Alan Grier on The Company We Keep
Feb 19	Tues.	6:00 PM Member Reception 7:00 PM Program 8:30 Book Signing	Citizenville: How to Take the Town Square Digital and Reinvent Government Author Gavin Newsom in Conversation with KQED's Michael Krasny
Mar 14	Thur.	12:00:00 PM	The Age of Edison: Electric Light and the Invention of Modern America. Author Ernest Freeberg in conversation with Museum CEO John Hollar
Mar 28	Thur.	6:00 PM Member Reception 7:00 PM Program	An Evening with Qualcomm CEO Paul Jacobs
Apr 17	Wed.	6:00 PM Member Reception 7:00 PM Program	Innovating the Future: SRI's Curt Carlson and Bill Mark in Conversation with John Markoff of The New York Times
Apr 29	Mon.	12:00:00 PM	The Martian's Daughter: A Memoir. Author Marina von Neumann Whitman in conversation with John Hollar
Jul 10	Wed.	6:00 PM Member Reception 7:00 PM Program	Intel's Justin Rattner in Conversation with John Markoff of The New York Times
Oct 23	Wed.	6:00 PM Member Reception 7:00 PM Program	Game Changers: Trip Hawkins with the New York Times' John Markoff