Digital Computer Museum

First Annual Report

Although the idea for the Digital Computer Museum was a vision of Ken Olsen and then Gordon Bell for a number of years, funding by DEC did not bring results until last year. The first Computer Pioneer lecture by Maurice Wilkes on September 24, 1979 marked the completion of phase zero. The response from the September event was so positive that it triggered staffing the Museum and permanent establishment. At the end of the first year, we have accomplished the following:

* A format for building exhibits was established;
* Literature and documentation was developed; and
* A lecture and event series was started.

This document has three parts. The first section relates the historical reasons for the Digital Computer Museum and outlines the general scope of the program. The second section expands on the current status and plans for fiscal 1981. The third section outlines ideas for the future growth and development of the Museum.

I. WHY THE "DIGITAL COMPUTER MUSEUM"

Several unrelated events and decisions all worked in the direction of Digital Equipment Corporation developing the Digital Computer Museum. Ken Olsen took it upon himself to preserve and store Whirlwind , TX-Ø and early DEC equipment in a warehouse facility. Gordon began a collection of early calculators and logic devices and wanted to continue and expand his interest in the taxonomy of computers. A consultant/curator was hired and came up with a report of other museums. Her activity was shortlived because the approach was to do a computer museum for the public -- looking costly and not very sophisticated and was further doomed by an industry depression. Both Ken and Gordon went to other computer exhibits and were extraordinarily disappointed that the Smithsonian was not making an effort to appropriately classify and organize its material; fascinated by the IBM wall (now in a warehouse) but considered that its emphasis on the interaction of social events and computing was not the story to be told; impressed with the solid display at the Museum of Science in London; totally dismayed that the computer exhibit at Boston's Science Museum was only a superficial display ad for Honeywell; and delighted that the Boston Children's Museum could teach computing (hence DEC supported this effort.)

These events led to both Ken and Gordon to conclude that a Digital Computer Museum was needed. Ken's goal, to create a place to preserve machines so that computer scientists, engineers, and programmers can see the antiques that they had worked on as little as ten years ago, and Gordon's goal, to create an understandable taxonomy of all computers and related

computing devices, are complementary.

The role of the Museum is to make sure that significant artifacts are kept. Having the original or a copy (eg. Guatelli made replica of Babbage's Difference Engine) that appear in various museums), is necessary in order to distinguish a museum from a special library. As a hardware oriented company, the preservation of artifacts and documentation of significant software is appropriate. Unfortunately, many parts of early machines have already disappeared and a few good photographs are available. Hence, the Museum will collect what is available and try to insure that good portraits are taken of classic machines. (One of the dreams for the Museum is to have life sized holograms of the machines so that one could in effect walk through them. Failing this, then projecting life sized photographs provides an alternative.)

The priorities for the Digital Computer Museum are to exhibit real time, scientific and interactive computing, with a limit of 50% of the exhibits directly pertaining to Digital Equipment Corporation. Eventually all items will be identified within a taxonomic structure of pre-computer and computer generations in order that the viewer can understand the evolution of computers. The first step has been taken in this direction with the production of a PDP-tree poster.

These goals have been discussed informally with some eminent computer historians and explained to others in seeking their cooperation. The first newsletter, attached, shows a listing of people and institutions that have contributed thus far. We have found enthusiasm for our efforts and have generally been plummetted forward by positive feedback, obtaining many hours of free services from both inside and outside DEC. Thus, like most Museums, our budget, is magnified by the gifts of time and artifacts.

II. PRESENT STATUS

The Digital Computer Museum, was sanctioned by the Operations Committee of the company a year ago. January 1, 1980 the Museum staff was in place. Gordon Bell, Keeper provides direction for the program, and through Mary Jane Forbes, Administrator, the Secretariat for the Operation. Gwen Bell, Assistant Keeper, provides day to day direction on a full-time, volunteer basis. Jamie Parker, Coordinator, is the only salaried member of the Museum Staff. The security and building group at Marlboro provide their services as needed under the direction of Joe Savignano and Dave Yates. As landlord, Joel Schwartz's support and assistance in direction setting has been essential. While we pay for warehousing space, the Museum space itself carries no charge since it is the lobby and balcony of a beautifully designed Vincent Kling building (constructed for RCA). Individuals who have contributed to specific exhibits are acknowledged below. An advisory committee representing various cooperating groups within DEC, eg., Industrial Design, Digital Press, Public Relations, etc., meets occasionally to review progress.

The activities can be categorized into five areas: archives, exhibits, events, products, and public relations. Each are discussed separately, and then related corporate activities reviewed.

Archives.

* Cataloging and storage. During the summer of 1979, all the artifacts in the warehouse were photographed and cataloged. The system is being kept up to date, with the ability to track artifacts. The database is not yet computerized -- a task that we would like to accomplish in fiscal 1981.

* Exhibit directory. A directory of all exhibits as of September 24, 1979, is on the VAX system and can be queried by Museum visitors.

* Video and audio tapes. Video tapes of all lectures in the computer pioneer series will be made. The video tapes of the first lecture by Maurice Wilkes are now available. Gordon also plans to start to make audio tapes of informal discussions with people who worked on the early machines. Other video and audio tapes by computer pioneers will be acquired as they become available.

Exhibits.

* Whirlwind. This exhibit of the memory, a register and other parts is being supplemented with some photographs, and the publication of a DEC Press book by Redmond and Smith on Whirlwind.

* TX-0. The TX-0, replicating its appearance at MIT in the 1950s, has been installed by John McKenzie, the technician who maintained the machine at MIT (now retired) and

Stanley Schultz. A group of TX-0 alumni are getting together to discuss improving the display and perhaps getting the machine to run.

* Calculators. New cases were purchased for the calculators and this exhibit, essentially complete, will continue to be improved. We are looking for the Anita -- the first electric calculator. Gwen is now working on a poster of the generations of pre-computer calculating devices and writing a A/V user activated slide talk to explain their evolution. This should be complete by September 1980. The project may also result in a small picture book.

* Office of the Past. Mary Jane Forbes has put together an exhibit (in a closet) of the office circa 1910. This will be completed prior to September, 1980.

* Logic Devices. Three cases are used to exhibit the four generations of logic devices. These are explained in a user activated slide talk given by Gordon Bell. This exhibit will grow as we get more early artifacts from critical early machines.

* Memory. Three cases show the four generations of primary memory devices. In addition, a large disk and a transparent RK05 are exhibited. A secondary memory devices exhibit and a user-activated slide-talk are in the planning stage.

* Analog computers. An analog computer is displayed simply give the visitor an idea of what these were like. This exhibit should be developed.

* PDP Family of Computers. A poster of the family tree of the PDP computers has been completed and is available. This family tree will be used with all displays of DEC machines to identify their relations with the other machines. Specifically, PDP-1 is running with the original Space War program. Stan Schultz has taken this as his project and is now putting joy sticks on the machine. He also sees to it that the Classic 8 runs with non-interactive demonstration programs. An 11/20 is on the floor along with the original hand-done artwork for one of its modules. The other mainframe machines are represented by consoles, documentation, and photographs. The LINC is the first of DEC's personal laboratory computers on display. The LINC-8, PDP-12, and a working MINC are complemented by a user-activated slide talk introduced by Dick Clayton, The basis for this comes from two films -- one made by National Educational Television and the other by the DEC LDP group. Peggy Sullivan has been coordinating these efforts.

* Computer Art. An exhibit of four lithographs by Harold Cohen, University of California-San Diego, is displayed on the first floor. We have agreed with the artist, who uses a PDP-11 to create artwork by artificial intelligence, that he will paint a mural for the museum totally covering

one of the balcony walls. We will document the making of the mural for a user-activated exhibit. See events for more information on this project.

* Computer Music. We have been in contact with Barry Vercoe of MIT and John Chowning of Stanford. Barry Vercoe has agreed to compose a piece of music specifically for the museum space, probably making use of the computing capability of the VAX. John Chowning composed music on the PDP-1 and we are in touch with him to gain access to this. These projects will probably come to fruition in fiscal 82.

Events.

* Sept. 24, 1979. Luncheon opening by the Operations Committee of Digital Equipment Corporation.

* Sept. 24, 1979. Computer Pioneers, Lecture 1, Maurice Wilkes and the EDSAC.

* April 5, 1980. VAX five-year birthday party celebration. All of the people who brought VAX into the world came to a celebration, each bringing a VAX artifact to contribute to the Museum.

* May 8, 1980. Computer Pioneers, Lecture 2, George Stibitz and the Bell Labs Relay Computer. (A mailing list of 200 people outside of DEC has been developed. About 50 of these people are in the Boston/Amherst area and are being invited to the lecture.) The newsletter format will be used to announce these public lectures.

* Sept. 22, 1980. Museum dinner for the Board of Directors of the Corporation introducing them to the museum.

* Sept. 23, 1980. Opening, lecture - demonstration. Mural by Harold Cohen. Jamie Parker is coordinating this event to bring in people from the "art" and "museum" as well as the "computer" world.

* Employee family open houses to be coordinated with the entire Marlboro facility through Joel Schwartz.

* Future events: Computer Pioneer Lectures -- Forrester coordinated with publication of DEC Press book on Whirlwind by Redmond and Smith; then Atanasoff, Eckert, and Burks will be asked; Board meeting of the Charles Babbage Institute.

Products.

The Museum is planning on having a small "store" of appropriate products. In addition, we will do a number of things that will be free. (First the free items.)

* Buttons with the core memory symbol to replace the visitor badge for people coming to the Museum.

* Newsletter. Number 1 is attached to this document. We distribute internally by EMS, and via hard copy to those without EMS access and to our outside list. The newsletter will keep people up to date on our progress and be issued occasionally as the need is felt.

* PDP Family Tree poster.

* Products for sale.

  - Pre-computer Generations poster. (This is now being designed and should also be ready for September.)

  - History books from DEC Press. The Press has an allocation of two books per year on computer history. These will be on sale along with the Bell/Mudge/Mcnamara book on the DEC Computers.

  - Other books, such as Eames, Computer Perspectives, Harvard University Press.

  - Simple Calculating Devices. We are talking to the SEE Corporation about selling their reproductions of the Pascal Adder and Napier's Bones.

* Products on Display. The Annals of Computing History and Charles Babbage Institute Newsletter will be displayed with appropriate order forms for those

Public Relations and Museum Visitors.

Our strategy has been to slowly open the Museum. DEC-related groups and visiting computer scientists have begun to find the Museum and go through it on their own. There would seem to be an opportunity to cooperate with both DECUS and the educational groups to insure that the facility and the archives are accessible and used.

We have provided special tours for classes from both MIT and Harvard, as well as several local high school groups. Unescorted high-school groups can and have wrecked havoc in the Museum -- the PDP-1 groaned for a week until Stan Schultz could come and fix it. In the present state of exhibits, the viewer needs to have an appreciation for the delicacy of what might look like an indestructible machine.

A guest book is on the desk for visitors to sign.

Relations with other institutions.

Although we can't take on the world, we want to keep abreast of what is happening so that we can allocate our time and efforts appropriately.

* Support for other exhibits. Corporate Contributions give computers to support museums including a computer for the Boston Symphony Orchestra for it's 100th anniversary next year, a PDP-8 to the Canadian Science Museum in Ottawa, and a PDP-8 and a plane from the first core memory on Whirlwind to the British Science Museum. We forward parts to the Smithsonian when they take them (Whirlwind core memory and display that Mitre put together). Requests for artifacts from our archives may be made directly to the Museum or go through Corporate gifts. We hope to loan artifacts and displays to both DEC sites and other institutions.

* Ken supports Charles Babbage Institute and we cooperate with them in our complementary interests, although we have requested the Corporation to fund the Digital Computer Museum instead of CBI given the limited supply of money.

* We did not take on any of the Codasyl archives because it is open ended and feel that others should take on this responsibility; similarly, we did not contribute to archiving the Mauchley papers because we feel that Univac and the Penn. must do this. We would undoubtedly support something which would be otherwise dropped.

* The Museum staff visited the IBM warehouses April 17th.

* Gwen is going to the opening of the Computer Exhibit in Ottawa, April 30, and will visit the Children's Museum in Washington the first week of June. She hopes to develop cooperation so that we might "sell" each other's products learn from each other's displays, and look at feasibility of joint, display design and generation.

* Gwen and Jamie will attend the American Museum Association meeting in Boston in mid June. They plan to invite Museum people from scientific museums to see the Digital Computer Museum and will attend appropriate seminars.

III. FUTURE GROWTH AND DEVELOPMENT

We are trying to build a system to archive, build displays, slide talks, etc. so that the museum will grow and develop. Two new avenues appear to be appropriate -- the Museum will fund people who want to put up appropriate displays and we will formalize a small outside group of advisors who are known as computer pioneers and historians. On the first, we have written to Professor Cohen at Harvard, Professor Randell at Newcastle, and Professor Wulf at CMU suggesting that one of their computer science students might propose to do an exhibit for the Museum. The TX-0 alumni group might also come up with some ideas for displays. On the second, a small outside group of advisors might be able to help the Museum acquire artifacts outside of DEC and in accomplishing our goal of becoming the computer museum for computer professionals.

On our own, funded at the present level, we are confident of an exciting and growing future and are ending this document with a short list of a few of the exhibits focussing on real time, scientific and interactive computing and its predecessors.

Ideas for future displays.

* Scale dioramas of the development of card tabulating and computing;
* Other pre-computer artifacts (eg. Network analyzer);
* I/O Equipment, and communications equipment;
* Secondary Memory, including recording techniques;
* Integrated Circuits- getting artifacts from TI and Intel
* Important computers: Cray's machines, 360/370, Amdahl, Intel, Manchester, BTL, Penn. MIT and others;
* First Generation computer photo gallery;
* Multiprocessors, multicomputer and network structures--including CMU's;
* Computing in laboratories before computers;
* Miscellaneous application displays (eg. power control, air traffic control, EKG's, trains, process control);
* A Programming Languages display;
* On the importance of algorithms;
* Important systems (eg. UNIX/MULTICS, FORTRAN, COBOL, APL); and
* Robots (including automatons).

Attachment: First Newsletter
Brochure

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Gordon Bell, Keeper _____

Gwen Bell, Assistant Keeper _____