The Computer Museum

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2/91

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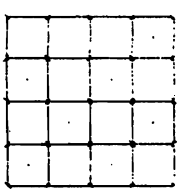

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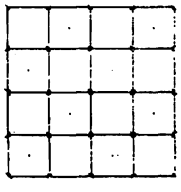

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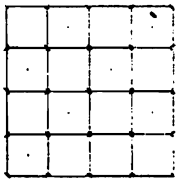

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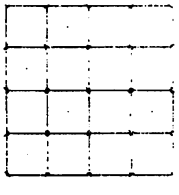

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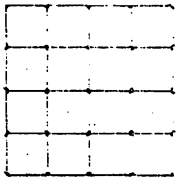

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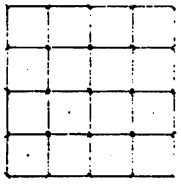

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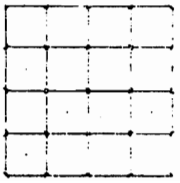

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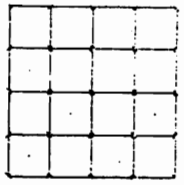

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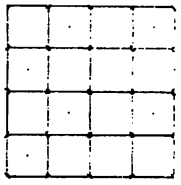

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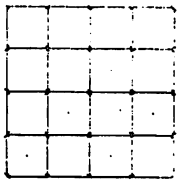

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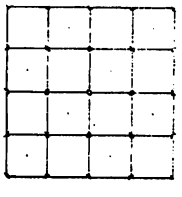
Revised February 1991



The Computer Museum

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Tony - Tom Phillips
Linda - ?

Dave Kaplan
Irv Sitkin

Charles Webb

THE COMPUTER MUSEUM BOARD OF DIRECTORS

Agenda for March 1 meeting 8:30 - 12:00 am

8:30	Call to Order
8:40	State of the Museum
9:10	Presentation and Discussion of Strategic Plan
11:30	Discussion of Next Steps for Capital Campaign
12:00	Lunch
1:00	Tour of pilot vignette of Milestones of a Revolution exhibit

Hal - Annual
Lora - Corporate
Gyen - bowl
Ed - water pants

sign off goal by goal

introduce Janet Cochran & Ted's gift

2nd Friday Feb, June, Oct

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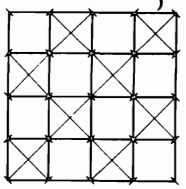
11:30 Discussion of Next Steps for Capital Campaign

12:00 Lunch

1:00 Tour of pilot vignette of Milestones of a Revolution exhibit

1) volunteer chairman
2) solicitation of lead gifts
3) preperation of
   case - sales pitch
   brochures - large & small
   video
4) National Endowment for the Humanities - Foundation gift - up to $1M
5) Annual Fund



COMPUTER MUSEUM STRATEGIC PLAN

Suggested Topics for Discussion at March 1 Board Meeting

1. Does the revised mission statement articulate the purpose of the Museum?

2. How important is it to increase visitation to capacity for the site? How much should the visitation growth goal affect the exhibit planning priorities?

   Example: It appears a "block-buster" is needed in FY93 to achieve a visitation of 220,000 by FY96. Can The Networked Society exhibit achieve 20% growth in visitation? If not, should it be postponed? But then computer uses in large-scale business is not treated.

3. What proportion of the Museum's resources should be devoted to serving people onsite as opposed to offsite, nationally, and internationally?

4. Who is the Museum primarily trying to reach—children, students, adults, computer professionals? Is the exhibit plan well-fitted to the current and future constituencies of the Museum?

5. Is the $5 million campaign goal based on this plan supportable?

6. To what use should the Capital Campaign funds be put? Building down payment, endowment (of all, parts of Museum), mortgage payment?

how much to repay DEC 2.5
how much to pay off mortgage .75

The
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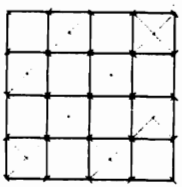
COMPUTER MUSEUM MISSION STATEMENT

The Mission of The Computer Museum is:

- To educate and inspire people of all ages and *backgrounds from around the World* through dynamic exhibitions and programs on the technology, applications and impact of computers.
- To preserve and celebrate the history and promote the understanding of computers worldwide.
- To be an international resource for research into the history of computing.

Revised 2/9/91; proposed changes in italics



THE COMPUTER MUSEUM, INC.

Meeting of the Members of the Corporation

MINUTES

November 1, 1990

I. Attendees: With a quorum in attendance, the Meeting of the Members of the Corporation was called to order by Gardner C. Hendrie, Chairman. Also present were Gordon Bell, Gwen Bell, Lynda Bodman, Lawrence Brewster, David Donaldson, Jon Eklund, Edward Fredkin, Thomas Gerrity, Charles House, Theodore Johnson, David Kaplan, Fritz Landmann, James McKenney, Laura Morse, Anthony Pell, Nicholas Pettinella, Richard Ruopp, Jean Sammet, Grant Saviers, Edward Schwartz, Hal Shear, Ronald Smart, James Sutter and Oliver Strimpel, Executive Director. James S. Davis attended as Clerk.

II. Election of New Directors. Lynda Bodman proposed the election of three new Board members, as had earlier been agreed upon by the Executive Committee. Upon motion duly made and seconded, it was

VOTED: That the following persons are hereby elected as additional Members and Directors of the Corporation, each person to serve in such capacity commencing upon adjournment of the present meeting and continuing through the annual meeting in 1994:

1. Edward Belove
2. Howard Cox
3. John A. Miller, Jr.

III. Amendment of the By-Laws: Upon motion, duly made and seconded, it was

VOTED: To amend the By-Laws of the corporation by inserting the following language at the end of Section II of Article III:

> "Notwithstanding any provision of this Section 2 which provides that the term of office of each director shall be four years, the term of office for each director who is elected at any meeting other than the annual meeting of the Board of Directors shall expire at the fourth annual meeting of the Board of Directors following the election of such Director."

III. Adjournment: There being no further business to come before the meeting, upon motion, duly made and seconded, it was

VOTED: To adjourn

Adjourned.

A true copy.

Attested:

James S. Davis, Clerk

THE COMPUTER MUSEUM

Minutes of the Board of Director's Meeting
November 1, 1990

A quorum being in attendance the meeting was called to order by the Chairman of the Board of Directors, Gardner C. Hendrie. Other directors in attendance were the same as those at the immediately preceding meeting of the members, plus Ed Belove.

I. Future Meetings. The next meetings of the board will be held

Friday, March 1, 1991,

Friday, June 28, 1991, and

Thursday, November 7, 1991

all at 8:30 a.m.

II. Status Report On The Museum.

Oliver Strimpel gave a status report on the Museum. He mentioned that the Walk-Through Computer had been successful beyond expectations in terms of the number of visitors and publicity, a visitation trend contrary to the current norm in Boston museums. Financial trends were also considered favorable.

Harold Shear commented that the annual fund drive would be focused on a direct mail campaign as opposed to a telethon. $100,000 is anticipated for the year. Laura

Morse mentioned that corporate membership was somewhat behind the goal due to the economic slow-down. Gwen Bell mentioned that the 1991 Computer Bowl funding already had reached the level of $100,000 in sponsorships with a goal of $300,000. Oliver Strimpel mentioned that the Store Manager and Functions Manager should both be congratulated. He also mentioned that the increase in the number of visitors is improving the income/expense ratio per visitor.

In terms of exhibit development, Milestones had reached the funding level of $500,000 out of a goal of $750,000. It is expected to be opened on schedule in June. The Walk-Through Exhibit has been modified and improved; a video covering the exhibit will be available on November 12. A coordinator has been hired for the Reality on Wheels program. The Siggraph Art show, a temporary exhibit, has opened.

Jean Sammet asked what was happening in the search for a person to serve as Director of Education and Exhibits. Oliver replied that he was looking for two persons with separate skills in lieu of one individual to fill both roles. He has position descriptions available that he could supply to anyone interested.

Tony Pell, and the Board in general, commended Oliver and the staff for the increased attendance at the Museum as compared to a decrease of 7-8% in museum attendance in general.

III. The Capital Campaign Planning Study. David Donaldson reviewed the Charles Webb Report. He started by mentioning that the question which had been put to Webb was whether the Museum should try to raise $10M.

The study had found a reservoir of good feeling toward the Museum and concluded that it should have a campaign starting with a goal of $5M which could be increased later if feasible. While there is much potential support available, the Museum is not experienced in asking for support funds. The traditional campaign strategy for fund raising would be peers asking peers for funds, operating under a strong leadership committee. A three year period is contemplated. The largest gifts of $100,000 and up will probably come from individuals as opposed to corporations and foundations which often do not give capital or endowment funds.

Jean Sammet asked why there was any optimism now for a campaign when two prior ones had failed. David Donaldson replied that the Museum had not done enough "asking" for funds in the past; and Ed Schwartz mentioned that the product being offered by the Museum was now a different one. Gardner Hendrie mentioned that the Museum has now moved away from its initial focus of historical collecting toward its educational function. Ed Schwartz mentioned that the current Board, unlike the earlier ones, had been chosen with the understanding that it must take a leadership role in the capital campaign.

Laura Morse felt that the campaign should have a fixed life and not go on forever. She suggested that the campaign focus not only on raising cash, but that the Museum also be willing to accept securities even if they were currently restricted or unmarketable. Jean Sammet mentioned the marketing advantages of deferred giving; but Donaldson and Ruopp felt that those techniques were more appropriate for more mature institutions with a cohesive group of supporters, such as college alumni.

Larry Brewster suggested that the campaign develop or focus upon some national theme or problem, such as the country's weakening ability to compete technologically. Belove said that the campaign must also propose an answer to the problem and must have a national focus. There was then comment that the Museum must portray an <u>international</u> image and have an international focus for the campaign. Jon Eklund suggested that an outside evaluation of the study be made. Dick Ruopp suggested that the relative costs and advantages of a capital campaign versus soliciting governmental or foundation grants should be weighed carefully, noting that one grant of $250,000 would be equal to the income from a $5M endowment. Gordon Bell questioned whether the Museum should instead forget about raising an endowment and consider funding each project in the future as it becomes necessary. Lynda Bodman questioned whether

there will be a stigma for the Museum if it sets its goals too high and fails. Jim McKenney preferred developing the right message for the campaign to send out and not worry about what the dollar goals should be, and felt that the future should be the message of the campaign since computer technology and the country's youth are both linked to the future.

Dick Ruopp suggested that the acquisition of the building is also a message of the campaign; that it is a capital drive and not just an attempt to raise and maintain a permanent endowment. Hal Shear asked if the price of the building was fixed to which Schwartz replied that it was; at 1979 values. Schwartz and Ron Smart concurred that the Museum should prove its ability to raise capital before asking DEC for any additional substantial support. They felt that DEC was eager to see the Museum succeed.

Fritz Landmann felt that the Museum's basis for attracting funds was its educational function and that a national focus was needed for the campaign. He suggested giving perhaps twenty awards annually to outstanding students, educators, etc. with the awards being made at the Museum. He felt that the corporate support would be forthcoming to underwrite the awards.

Oliver Strimpel summarized his thoughts by saying that he felt that the Museum had no choice but to go ahead with the campaign; that although it was doing better than ever

financially, it was still in a fragile situation, with only one or two months of cash in the bank. He also felt that the staff had to spend too much of its time worrying about short term financial damage control. Ed Schwartz and David Donaldson urged having a finite time period for the campaign, Donaldson suggesting that they try to see how much of an endowment could be raised in three years without dwelling too much on fixing the monetary goal. Hal Shear felt uncomfortable deciding on the scope of the campaign without first determining its leadership. Gordon Bell felt that the goal of the campaign should be set, and an external leader should be found with an internal coordinator on a full time basis.

Upon motion duly made and seconded it was

VOTED: To proceed with the capital campaign and to discuss further details at the next meeting, with a statement of the campaign theme to be developed and circulated and with the monetary goal to be determined later.

Laura Morse then moved that a consultant for the campaign be hired. Considerable discussion followed with Gordon Bell urging that the consultant was needed to "watch the clock" and keep the campaign on schedule and spare the Museum's staff as much as possible. He emphasized that an insider was needed to work with and guide the consultant.

Gardner Hendrie said that there should be a steering committee for the campaign. Charles House suggested that the Museum approach ten large computer companies and ask for a leading executive from each to lead the campaign. David Donaldson felt that the steering committee for the campaign must remain distinct from the steering committee for the Museum's long term future.

Gordon Bell felt that the campaign should not be started until the Museum has an inside person hired to run it, as well as a campaign chairperson to serve as motivator. He felt that ad hoc planning committee should be formed with power to make the selections. Lynda Bodman noted that it was critical to define the consultant's role to them as well as how they would relate to the internal head of the campaign. Jean Sammet preferred relying on an insider and paying them more rather than paying consultants.

Laura Morse then amended her earlier motion and having been seconded it was then

VOTED: To hire a consultant for the capital campaign if the steering committee deemed it appropriate.

Upon motion duly made and seconded it was then

VOTED: To authorize Gardner Hendrie to appoint a planning committee which should have a national focus and report monthly to the Executive Committee, being understood that a steering committee would be formed later.

IV. Adjournment

There being no further business to come before the meeting, upon motion duly made and seconded it was

VOTED: To Adjourn

Adjourned

A true copy attested

James S. Davis, Clerk

/ed

THE COMPUTER MUSEUM

Minutes of the Executive Committee Meeting
October 24, 1990

Oliver noted that earned revenue and attendance were strong. September attendance was double that of last year and 43% over budget. As a result, admissions income and store income were also over budget.

He noted that there was no permanent grant writer employed by the Museum, although some one was free lancing for it.

Seven sponsors have signed up for the Computer Bowl and others are pending. Most are repeat sponsors. ACM has agreed to be a sponsor through 1994.

The travelling portion of the Siggraph Art Show opened last Sunday.

A $430,000 grant for Milestones had been requested from the National Endowment for Humanities. Funding is about half-way to its goal. Oliver is reasonably confident that a commitment to opening in June can be given by December. Dick Case emphasized the importance of the exhibit to keep up momentum, as well as renewing exhibits on a continuing basis.

The Walk-Through video is completed and will be shown tonight at the Boston Computer Society. It will be distributed to other museum stores, retain outlets and schools. Intel which funded it is also marketing it and the Museum will approach TV stations about showing it.

In connection with the search for a Director of Education and Exhibits, it is difficult to find someone to adequately cover both areas and two persons may be needed (with the budget implications of this being noted). Dick Case questioned whether the criteria might be expanded to look for someone at the retirement level or someone with established ability, but not with specific experience in this area. It was thought that the Museum needed someone who understood current technology, in particular for the exhibits job. Dick Case, Larry Brewster and Gardner Hendrie tended to opt for two separate persons to fill the positions. It was noted that the education function was more urgent due to Oliver's own experience with exhibits and that perhaps the exhibits position could be filled by someone with existing on-site experience at the Museum.

With respect to the capital campaign planning study it was noted that there would be a preliminary meeting at 10:00 a.m. and that there may need to be an additional Executive Committee meeting prior to the next Board of Directors meeting.

Children's Museum Water Park

It was noted that the Children's Museum had a capital campaign underway to raise some four to six million dollars to improve visiter amenities in the lobby and on the apron and to make the waterfront area more attractive, especially once the tunnel and artery projects start to disrupt access to the Museum Wharf. There will be a playground with themes

of water and the environment woven it. The Museum Wharf's property extends to the center of the Channel. It is owned on a 50/50 basis by the Computer Museum and the Children's Museum. There was a discussion as to the degree of The Computer Museum's involvement in the project, and the degree of their financial participation. It was determined to support the Children's Museum in principal and worry about the details later. A group including Ed Schwartz and Oliver was to be established to focus on the process. They would recruit two or three other persons.

Reality on Wheels

Oliver is getting ready to prepare a budget proposal for the exhibit. There will supposedly be a large vehicle for an eighteen to twenty month tour around the country with several interactive exhibits about virtual reality. Central management of the tour would come from The Computer Museum. With the presumed high level of public interest it should draw a lot of publicity for the Museum and serve the educational purposes of the Museum on a national scale. Oliver was confident of the Museum's ability to put together the contents for the exhibit. Case suggested that there should be a dry run first at the Museum and Oliver indicated that they would do so next fall.

It was suggested that the exhibit open in Boston so that the Museum could derive maximum publicity from it and was also suggested that one such exhibit could remain here and one be taken on the road. The exhibit will need to attract and supply its own operations funding.

THE COMPUTER MUSEUM

Minutes of the Executive Committee Meeting

December 3, 1990

In attendance were Richard Case, Gardner Hendrie, James McKenney, Nicholas Pettinella, Edward Schwartz, and Oliver Strimpel.

Oliver reported that the financial patterns of earlier months were continuing, with strong revenues in attendance, functions and the store. The $180K budgeted for general development, however, may well fall short owing, in part, to the delay in hiring a grant writer. A new person has been hired, starting December 3rd. The Computer Bowl is performing on target, with $145K (of a total $300K) committed to date. Over 120,000 people have visited the Museum in the calendar year to date. School groups, though up from last year, would be stronger if schools could afford busses.

Unfortunately, the Museum's Director of Marketing has not performed as strongly as hoped for and will be leaving the Museum. A search is underway for a new person. The committee felt this was an important position and encouraged Oliver to find the best possible candidate. Oliver reported interviewing candidates for the Director of Exhibits and Education position, and has also been looking at splitting the position again into two jobs owing to the difficulty of finding someone with the appropriate background.

Oliver reported that The Children's Museum is moving forward rapidly on the proposed Waterpark Development; the group felt that connections with The Children's Museum and The Computer Museum should be made at the Board level, and a 3-4 person committee of the Board formed to pursue The Computer Museum's role in the development, maintaining the Museum's position as equal partners for as long as possible. A staff person at the Museum should be appointed to act as the main liason.

Milestones

Oliver announced a $275,000 grant from the National Endowment for the Humanities which brings the total funds committed to $753,295. It was agreed that a certain percentage, to be determined, should be set aside to support the operation and maintenance of the exhibit after its opening. It was decided that sufficient funds are in place to be confident that the exhibit development can proceed to completion. June 27, the day before the Annual Meeting of the Board and Trustees, was set as the opening date. Fundraising for Milestones will continue, while new fundraising efforts will be started for the next major exhibit, The Computer Discovery Center.

Capital Campaign

The schedule proposed by Charles Webb & Associates, delayed by approximately one month, was adopted. The committee also agreed to the other recommendations of the capital working group to retain Charles Webb as consultant at $4K per month during the planning phase, to bring a staff person to work exclusively on the Capital Campaign, and to develop a five-year plan based on input from all the Museum's committees of the Board and ad hoc long-range planning committee. It was hoped that as much "new blood" as possible could be added to enrich the planning process and help draw in future supporters.

The next meetings of the Executive Committee will be January 9, 1991 at 10:00 a.m., and February 6, 1991 at 7:30 a.m.

COMPUTER MUSEUM

Minutes of the Executive Committee Meeting

January 9, 1991

Present were Oliver Strimpel, Edward Schwartz, Gwen Bell, Richard Case, Gardner Hendrie, Lynda Bodman, Larry Brewster and James McKenney.

Oliver Strimpel discussed the Museum's financial situation indicating that the general pattern was continuing. The operating budget is doing well in regard to earned revenue streams. The annual fund, corporate membership, and Computer Bowl are all close to budget, but general operating support from grants is behind. The exhibit kits and Reality on Wheels are developing somewhat more slowly. Capital development is on budget with respect to Milestones. Greg Welch has been appointed Director of Exhibits: Oliver has abandoned the attempt to find one person to fill both the exhibits and education positions. Welch will be concentrating on Milestones.

Ed Schwartz noted that the positions of Director of Education and Marketing Director were both very important; and that the Museum needed to be staffed properly before exhibits could have optimum success.

The Milestones budget has been reconsidered and Oliver believes that the exhibit can be opened on time, keeping a reserve of 10% of the funds now on hand. This and new money coming in for the exhibit can help shoulder other expenses.

With regard to the capital campaign, it was noted that some planning meetings have taken place with various committees and groups being established. Only $36,000 of a budgeted $250,000 of unrestricted capital revenue has been received so far this year. There is currently no "asking" for funds taking place while the campaign is being planned. The short-term cash flow situation is therefore potentially serious.

Ed Schwartz questioned the need for new exhibits. Gardner Hendrie responded that he thought the money for exhibits generally came from different sources from unrestricted capital funds. Ed wants the Museum to be able to show two consecutive good years financially so that he can make an argument to DEC to contribute the building to the Museum; and therefore he felt that it needed to weigh the need for financial success against any drain that any new exhibits may put on its finances.

Jim McKenney thought that the Museum needed to do some early asking for funds in the capital campaign to avoid being in a bad cash position in the Spring. He felt that it should raise at least $150,000: perhaps by asking DEC for funds or perhaps by continuing to raise Milestones support and splitting it between Milestones and other expenses of perhaps a basis of as much as 50/50.

Lynda Bodman noted a distinction between raising unrestricted funds and the capital campaign as the latter is in fact restricted to serving as an endowment for the Museum.

It was noted that one reason there is currently no asking going on is that it is difficult to ask twice: once now and again when the capital campaign is in effect. Ed Schwartz expressed the consensus that the capital campaign must be moved forward.

In a discussion of terms of the Board of Directors, Gwen Bell and Lynda Bodman raised the issue of how re-election of terms would be handled. Lynda Bodman agreed, as Chairman of the Nominating Committee, to study the issues and make a presentation.

Oliver referred to three upcoming exhibits: Computer Discovery Center, Networked Society, and Reality on Wheels, and noted the prior approval of the Exhibits Committee to go ahead with these exhibits.

Gardner felt that the Committee must focus in general on what new exhibits it should plan for the next five years and on how much space the Museum should dedicate to exhibits over that period of time.

The next committee meetings will be held February 6, 1991 at 9:00 a.m. and March 26, 1991 at 7:30 a.m.

THE COMPUTER MUSEUM
STATEMENT OF REVENUES AND EXPENSES
COMBINED OPERATING AND CAPITAL FUNDS
($ - Thousands)

	FOR THE SEVEN MONTHS ENDED						
	1/31/90	--------1/31/91---------				FY91	FY91
	ACTUAL	BUDGET	ACTUAL	FAV(UNFAV)		BUDGET	FORECAST
REVENUES:							
Operating Fund	848	1,082	1,133	51	5%	2,019	2,115
Capital Fund	874	571	250	(321)	(56%)	1,011	831
Total Revenues	1,722	1,653	1,383	(270)	(16%)	3,030	2,946
EXPENSES:							
Operating Fund	817	1,141	1,062	79	7%	1,992	1,875
Capital Fund	502	470	438	32	7%	1,138	1,274
Total Expenses	1,319	1,611	1,500	111	7%	3,130	3,149
NET REVENUES (EXPENSES)	$403	$42	($117)	($159)	(379%)	($100)	($203)

SUMMARY:

For the seven months ended January 31, 1991, The Museum operated at deficit of (117K) compared to a budgeted surplus of 42K. As of January 31, 1991 total cash and cash equivalents amounted to 221K.

OPERATING: Operating revenues were 5% over budget due to strong earned revenue streams. Expenses were 7% under budget due to lower personal costs (vacant positions).

CAPITAL: Capital revenues were 56% under budget due to optimistic contribution expectations. Expenses were 7% over budget due to unbudgeted expense in Exhibits Development (Walk-Through Computer Video funding which was received in FY90).

THE COMPUTER MUSEUM
STATEMENT OF REVENUES AND EXPENSES
OPERATING FUND
($ - Thousands)

	1/31/90	FOR THE SEVEN MONTHS ENDED 1/31/91			FY91	FY91
	ACTUAL	BUDGET	ACTUAL	FAV (UNFAV)	BUDGET	FORECAST
REVENUES:						
Unrestricted contributions:	195	$275	288	13 5%	600	577
Restricted contributions	135	167	31	(136) (81%)	315	246
Corporate memberships	70	110	98	(12) (11%)	200	200
Individual memberships	26	30	32	2 7%	52	68
Admissions	178	206	350	144 70%	370	515
Store	124	169	216	47 28%	268	316
Functions	96	106	101	(5) (5%)	153	149
Interest Income	7	2	1	(1) (50%)	4	6
Other	17	17	16	(1) (6%)	57	38
Gain/Loss on Securities	0	0	0	0 0%	0	0
Total Revenues	848	1,082	1,133	51 5%	2,019	2,115
EXPENSES:						
Exhibits Development	0	102	38	64 63%	204	147
Exhibits & Collection	69	74	77	(3) (4%)	123	125
Education	121	150	161	(11) (7%)	261	267
Marketing & Memberships	150	232	170	62 27%	391	284
General Management	132	145	147	(2) (1%)	239	239
Fundraising	37	80	77	3 4%	182	183
Store	119	144	181	(37) (26%)	232	269
Functions	39	47	44	3 6%	74	75
Museum Wharf expenses	150	167	167	0 0%	286	286
Total Expenses	817	1,141	1,062	79 7%	1,992	1,875
NET REVENUES(EXPENSES)	$31	($59)	$71	$130 320%	$27	$240

THE COMPUTER MUSEUM
STATEMENT OF REVENUES AND EXPENSES
— CAPITAL FUND
($ - Thousands)

	1/31/90	FOR THE SEVEN MONTHS ENDED 1/31/91			FY91	FY91
	ACTUAL	BUDGET	ACTUAL	FAV (UNFAV)	BUDGET	FORECAST
REVENUES:						
Unrestricted Contributions	$51	$195	$41	($154) (79%)	250	195
Restricted Contributions	822	376	202	($174) (46%)	761	625
Interest Income	4	0	9	$9 100%	0	13
Gain/Loss on Securities	(3)	0	(2)	($2) (100%)	0	(2)
Total Revenues	874	571	250	(321) (56%)	1,011	831
EXPENSES:						
Exhibits Development	263	234	228	6 3%	746	864
General Management	113	50	33	17 34%	90	73
Fundraising	35	99	90	9 9%	155	190
Wharf mortgage	91	87	87	0 0%	147	147
Total Expenses	502	470	438	32 7%	1,138	1,274
NET REVENUES (EXPENSES)	$372	$101	($188)	($289) (386%)	($127)	($443)

THE COMPUTER MUSEUM
BALANCE SHEET
1/31/91 —

	OPERATING FUND	CAPITAL FUND	PLANT FUND	TOTAL 1/31/91	TOTAL 6/30/90
ASSETS:					
Current:					
Cash	$69,180			$69,180	$8,298
Cash Equivalents	151,651			151,651	282,190
Investments		$291		291	53,363
Receivables	30,471			30,471	120,302
Inventory	63,689			63,689	63,212
Prepaid expenses	6,874	863		7,737	15,238
Interfund receivable		406,925		406,925	617,702
TOTAL	321,865	408,079	0	729,944	1,160,305
Property & Equipment (net):					
Equipment & furniture	-		$45,442	45,442	45,442
Capital improvements	-		651,467	651,467	651,467
Exhibits	-		1,016,738	1,016,738	1,016,738
Construction in Process	-	71,084		71,084	71,084
Land	-		24,000	24,000	24,000
Total	0	71,084	1,737,647	1,808,731	1,808,731
TOTAL ASSETS	$321,865	$479,163	$1,737,647	$2,538,675	$2,969,036
LIABILITIES AND FUND BALANCES:					
Current:					
Accounts payable and accrued expenses	$50,060	$15,257		$65,317	$158,341
Deferred income	7,953	-		7,953	16,938
Line of credit/Loan Payable	0	-		0	0
Interfund payable	406,925	-		406,925	617,702
Total	464,938	15,257	0	480,195	792,981
Fund Balances:					
Operating	(143,073)			(143,073)	(213,272)
Capital		463,906		463,906	651,680
Plant			$1,737,647	1,737,647	1,737,647
Total	(143,073)	463,906	1,737,647	2,058,480	2,176,055
TOTAL LIABILITIES AND FUND BALANCES	$321,865	$479,163	$1,737,647	$2,538,675	$2,969,036

THE COMPUTER MUSEUM
STATEMENT OF CHANGES IN CASH POSITION
1/31/91

	OPERATING FUND	CAPITAL FUND	PLANT FUND	TOTAL 1/31/91	TOTAL 6/30/90
Cash provide by/(used for) operations:					
Excesss/(deficiency) of support and revenue	$70,199	($187,774)	$0	($117,575)	$748,966
Depreciation			0	0	310,606
Cash from operations	70,199	(187,774)	0	(117,575)	1,059,572
Cash provided by/(used for) working capital:					
Receivables	89,831			89,831	(83,875)
Inventory	(477)			(477)	(19,504)
Investments		53,072		53,072	(15,863)
Accounts payable & other current liabs	(16,514)	(76,219)		(92,733)	81,895
Deferred income	(8,985)			(8,985)	(5,292)
Prepaid expenses	7,354	147		7,501	(8,011)
Cash from working capital	71,209	(23,000)	0	48,209	(50,650)
Cash provided by/(used for) Fixed assets		0	$0	0	(996,328)
Net increase/(decrease) in cash before financing	141,408	(210,774)	0	(69,366)	12,594
Financing:					
Interfund pay. & rec.	(210,774)	210,774		0	0
Transfer to Plant	0	0	0	0	7,564
Line of credit/Loan Payable				0	0
Cash from financing	(210,774)	210,774	0	0	7,564
Net increase/(decrease) in cash & investments	(69,366)	0	0	(69,366)	20,158
Cash, beginning of year	290,487	0	0	290,487	270,329
Cash, end of period	$221,121	$0	$0	$221,121	$290,487

The
Computer
Museum

300 Congress Street
Boston, MA 02210
(617) 426-2800

THE COMPUTER MUSEUM BOARD OF DIRECTORS

Agenda for March 1 meeting 8:30 - 12:00 am

8:30 Call to Order

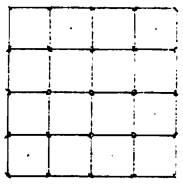
8:40 State of the Museum

9:10 Presentation and Discussion of Strategic Plan

11:30 Discussion of Next Steps for Capital Campaign

12:00 Lunch

1:00 Tour of *Milestones* exhibit (fabrication in progress) and *Science in Depth* special exhibit



CORPORATE MEMBERSHIP PROGRAM

The Corporate Membership Drive is under way. More than twenty new corporate members have joined the Museum since July 1990. But we need your help to widen our base of corporate members. Please take a moment to offer a few suggestions about potential corporate members.

Company Name: _____ Contact: _____

Company Name: _____ Contact: _____

Company Name: _____ Contact: _____

Company Name: _____ Contact: _____

Company Name: _____ Contact: _____

As we prepare for the 1991-92 Breakfast Seminar Series, we welcome your comments and suggestions about possible speakers and topics. Please take a few moments to fill out this form and let us know who and what you think our members would like to hear about at future seminars.

Possible Topics and/or Speakers:

_____

_____

_____

_____

Your name: _____

THANK YOU!

The Computer Museum Corporate Membership
Cash and Complimentary
March 1, 1990 through February 28, 1991

Benefactor: $10,000 or more

International Business Machines
Raytheon Company
Xerox Company

Patron: $5,000 or more

Adobe Systems
AT&T Corporation
Bingham Dana Gould
IEEE Computer Society
International Data Group

Sponsor: $3,000 or more

Addison-Wesley
Amdahl Corporation
Automatic Data Processing
Bank of Boston
C.S. Draper Laboratories
Coopers & Lybrand
DECUS
Gaston & Snow
Gillette Company
Liberty Mutual
Lotus Development
The Mathworks
McGraw-Hill, Inc.
Microsoft Corporation
NEC Systems Laboratory
Prime Computer
Ropes & Gray
Stratus Computer Inc.
TASC
The New England
Travelers Insurance Company
United Technologies
Ziff-Davis Publishing

Contributor: $1,000 or more

Aberdeen Group
Acer Corporation
Alliant Computer
Analog Devices
Applied Technology
Aries Technology

Arnold White & Durkee
Aspen Technology
Avid Technology
Bank of New England
Banyan Systems
Batterymarch Financial
Bitstream Inc.
Bolt, Beranek & Newman
Boston Globe Foundation
Bull HN Information Systems
Bull Peripherals
Chase Manhattan Bank
Clearpoint Research
Cognos
CompuServe
CONNECT, Inc.
Corporate Software
Data General
Data Switch
Data Translation
Davox Corporation
DEC Professional
Deloitte & Touche
Dow Chemical USA
EMC Corporation
Emerald Systems
Ernst & Young
Etra
Eusey Press
F.W. Dixon
Fenwick Partners
Gensym Corporation
Goldman, Sachs & Co.
GreenTree Associates
Greylock Management
GTE Laboratories
H.K. Graphics
Halliburton Services
Heidrick & Struggles
Index Group
Innovis Interactive Technology
Interbase Software
Intermetrics
John Hancock Mutual Life Insurance Co.
Karen C. Cohen Associates
Keane Inc.
KPMG Peat Marwick Main
Maintech
Marathon Mail
MASS Microsystems
Matrix USA
McKinsey & Co.
Medi-Tech
Micro-Mentor
Miller Communications
Miller Freeman Exposition Company

Milliken & Company
Mobil Corporation
Moody Stecker Company
New Directions
NYNEX Corporation
Pell Rudman, Inc.
Price Waterhouse
Programmed Intelligence
Schubert Associates
Silicon Valley Bank
Summagraphics Corporation
TA Associates
Technology Research Group
The Composing Room of NE
Viewlogic Systems
VideoLogic Inc.
Walker Richer & Quinn
Wavetracer
Wellfleet Communications
ZBR Publications

Corporate Membership Committee

Jim Baar
Omegacom

Rick Karash

Ilene Lang
Lang Systems Inc.

Mimi Macksoud
Price Waterhouse

Laura Morse, Chair
Heidrick & Struggles

Susan Parrish
Parrish Marketing Consultants

Steve Pytka
BISCOM

Cameron Read
Gaston & Snow

Lindy Recht

Nancy Robb
MBTA

Charles Terry
Compuserve Data Technologies

THE COMPUTER MUSEUM
PHONE LIST
UPDATED FEBRUARY 28, 1991

Armbruster, Elizabeth	Public Relations Coordinator	329
Bell, Gwen	Founding President (Collections)	331
Burke, Dan	Store Assistant	307
Chibas, Asa	Interpreter	352
Clemente, Rafael	Interpreter	352
Collins, Catherine	Grantwriter	376
Conference Room (5th floor)		304
Crowley, Ruth	Interpreter	352
DECTALK/PUBLIC INFO		423-6758
DeHarb, Diana	Cash Room Manager/Functions Asst.	308
Del Sesto, Janice	Director of Development/P.R.	378
Dorus, Mary Beth	Research/Administrative Asst.	395
FAX		426-2943
Gill, Joe	Floor Manager	352
Granlund, Tim	Interpreter	352
Greene, Don	Shop Foreman	328
Greschler, David	Exhibits Developer (ROW)	349
Griscom, Dan	Exhibits Engineer	335
Groves, Ted	Graphic Designer	373
Hardie, Foster	Interpreter	352
Hassan, Mehreen	Interpreter	352
Hellenga, Rachel	Research Assistant	374
Jennes, Gail	Senior Public Relations Manager	341
Johnson, Sue	Assistant to Executive Director	372
Jose, Kate	Computer Bowl Project Manager	346
Keough, Kathy	Functions Manager	340
Larson, Brad	Exhibits Staff	377
Lee, Brian	Store Assistant	307
Ley, Gillian	Development Coordinator	338
McElroy, Chris	Interpreter	352
McLaughlin, Brian	Business Manager	343
O'Sullivan, Christina	Store Manager	306
Oates, Julie	Development Coordinator	339
Pangonis, Geoffrey	Interpreter, Collections Assistant	352
Pezalla, Margaret	Interpreter Education Coordinator	380
Rusk, Natalie	Education Coordinator	345
Schroeder, Greg	Operations Manager	344
SECURITY		260
Southall, Noah	Interpreter/Store Assistant	352/307
Strimpel, Oliver	Executive Director	330
Thomas, Adrian	Interpreter	352
Townsend, Brita	Interpreter/Telemarketer	334
Wallace, Brian	Collections Manager	342
Walsh, Janet	Capital Campaign Coordinator	333
Welch, Greg	Exhibits Developer (Milestones)	337

The Computer Museum

300 Congress Street
Boston, MA 02210
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MEDIA SUMMARY: IN BRIEF

From January 1-March 1, 1991: The Walk-Through Computer and Video
[Clippings are new since the October 30, 1990 Board Meeting]

PRINT
Total Circulation: 77,381,119

ELECTRONIC:
Total impressions: 285,339,000

With past or upcoming media coverage, a message about **The Walk-Through Computer and/or Video** has or will have been generated nearly 400 million times via print and electronic media. This figure includes estimates of the international and some of the domestic coverage for which figures were not available.

International Highlights

International news of The Computer Museum continues with extensive feature length pieces in the United Kingdom (Personal Computing World) and Sweden (Mikro Datorn). The Guardian of London included The Walk-Through Computer in its Year in Review. In February, 15 print and electronic journalists from Germany toured the Museum in preparation for possible stories.

The March 1991 DECWORLD (Digital Equipment Corporation's Worldwide Employee Publication) featured a story on The Walk-Through and the people from Digital who offered expertise in creating the exhibit.

In early December, Canadian Broadcasting Corporation covered the visit of the Canadian New Importers to the Museum. Their feature included an interview with Oliver Strimpel.

National Highlights

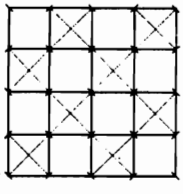
Popular Science chose the Museum's Walk-Through Computer as one of its 100 "Best of What's New for 1990." The exhibit was featured in their December issue's cover story. CNBC also aired a television special on the "Best of What's New" November 18, 1990.

The November 1990 issue of Pan Am Clipper Magazine included a major feature on the Museum and The Walk-Through in its Corporate Jet section. Travel Life and Trump's in-flight magazine also highlighted the exhibit.

The Boston Herald ("Kids find keys to success at Computer Museum") and various educational publications continue to run stories on The Walk-Through. US Kids Magazine (February 1991) featured a 4-page cover story on The Walk-Through, "The Computer Adventure," geared to young children.

The video HOW COMPUTERS WORK also received intelligent treatment in the Buffalo News and Incider and was referred to by the Miami Herald and Industry, among other publications.

In November, Fox Broadcasting's American Chronicles program included the exhibit in a program on "The Future." In December, Financial News Network's High Technology show, broadcast to 35 million households, highlighted The Walk-Through, while TV stations such as Boston's NBC affiliate WBZ-TV continued to run short pieces on the exhibit.



From October 30, 1990-March 1, 1991: Highlights of Other Museum Coverage

PRINT
Total Circulation: 11,422,258

ELECTRONIC:
Total impressions: 400,000

With the Museum's growing visibility, it continues to become a cultural reference point, as a wide variety of Museum activities receive attention.

The Museum's next major exhibition, **"PEOPLE AND COMPUTERS: Milestones of a Revolution,"** will be highlighted in the May-June Calendar of the National Endowment for the Arts' magazine, Humanities.

The **SIGGRAPH 1990 Traveling Art Show** was widely featured in print. The Christian Science Monitor (November 26, 1990) ran a thoughtful piece on the art show, while the tourist magazine Panorama made it the subject of its January-February cover and an October issue. In addition, Bostonia Magazine highlighted it with one of the artworks as the "Recommended" event on its Arts Page. Other coverage included the Macon (GA.) Telegram, Boston Phoenix (twice), The Sunday Globe, the tourist magazine WHERE, IEEE Spectrum, Computer Currents and on TV (Evening Magazine, Channel 4 and Channel 5 Evening News programs, One Norway Street).

Stories on the **Museum Store's mail order catalog** ran in The New York Times, Miami Herald, Baltimore Sun, Boston Magazine, twice in The Boston Globe, the Topeka (Kansas) Capitol, Info Week, and The Boston Sunday Herald Magazine. The Orlando (FL) Sentinel plans an item for March 1991. According to Store Manager Christina O'Sullivan, this editorial coverage generated some 500 calls for the catalog (the highest ever). (An ad in MacWorld led to another estimated 2000.)

Prior to the March 1 opening of **"Science in Depth,"** the phscologram show will have been featured twice in the Boston Phoenix, in Marketing Computers, and Mass High Tech.

A one-page piece on the Museum's **Smart Machines Gallery**, called "Where to see robots," has been included in a book, Radical Robots, a NOVA Book in association with WGBH, producer of the PBS NOVA series.

Stories on the **1991 Computer Bowl** have run in the San Jose Mercury News and Computer Currents with mentions in Upside and AI Magazines.

The Museum's **traveling exhibits, "Computers in Your Pocket" and "Terra Firma in Focus,"** were featured in Phoenix, Arizona, and Lexington, Kentucky newspapers.

The **functions space and special events** such as the November 10-11 **Computer Games Weekend**, January **Van Gogh TV performance**, and the February **Smart Art Workshop** have also received special mention as "Hot Pick" or "Critic's Choice" in such publications as The Boston Globe, The Boston Phoenix, Mass High Tech, the TAB. Smart Art was also picked up in Chicago, San Diego, and Green Bay, Wisconsin papers.

For a show on Kids and Learning that is part of a PBS series, called The Nineties, producer David Cort plans to follow some students around the Museum a la 48 Hours on March 4. The segment will be aired in May.

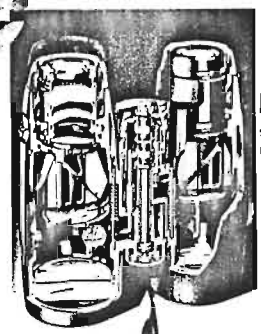
POPULAR SCIENCE
December 1990
Circ: 1.8 million

WHAT REALLY HAPPENED ON THE U.S.S. *IOWA*?

Popular science

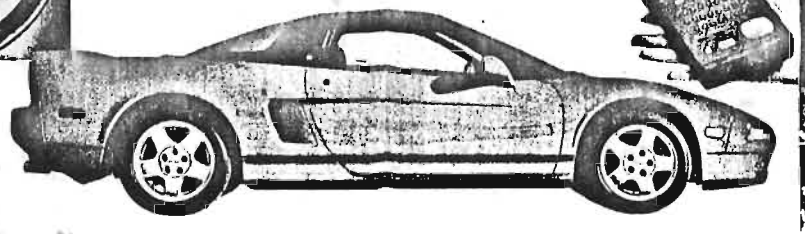
VIDEO GAMES AIM AT REALITY

GM'S SATURN VS. THE IMPORTS

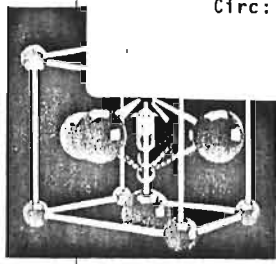


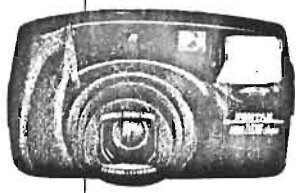
3RD ANNUAL BEST OF WHAT'S NEW

THE YEAR'S 100 GREATEST ACHIEVEMENTS IN SCIENCE AND TECHNOLOGY



DECEMBER 1990
$2.00
CANADA $2.50

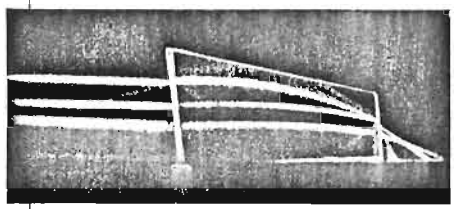




ory chips lose their power. But a new breed of integrated circuits from Ramtron Corp. and National Semiconductor Corp. has ferroelectric-ceramic components that store data even after power is removed. Atoms within ceramic crystals shift up and down to represent non-volatile binary ones and zeros.

CLOSE, VERY CLOSE

Selected as the European Compact Camera of the Year 1990-'91, the Pentax IQZoom 105 Super has an unusual "super macro" mode in addition to its regular macro mode. With super macro, you can get closeups only $1^1/_2$ feet from the subject, using the carrying strap as a measuring tape. Ingenious.



SMART GLASS

A new technique from the patent-development company Isotec precisely structures atoms within glass. The process may revolutionize optics. One use: forming one lens that takes the place of a compound multiple-element lens. This sample blends signals of different wavelengths into a single beam.

ENGINE AMIDSHIPS

Toyota demonstrates its engineering ingenuity by giving itself a virtually unsolvable problem—how to put the engine nearly in the middle of its new Previa minivan for more carlike handling and improved visibility. The technical achievement took a complicated oil system, an offset engine lying on its side, long shafts to the accessory drives, but only a minimal loss of interior space. It's easily the most complicated minivan engine installation on the market.

COLOSSAL COMPUTER

The Computer Museum in Boston has on display a two-story PC you can walk through to learn how computers work. Visitors spin a five-foot-tall track ball to select from 300 cities around the world; the computer finds the shortest land route between them. Then it shows the sights you'd see along the way —on an 108-square-foot monitor.

ALL TOGETHER NOW

Put Solmate Inc.'s efficient integrated mechanical system into a house, and you can get rid of the furnace, air conditioner, ventilator, and water heater. Solmate also captures and reuses heat from the house air and "gray" (waste) water from the sinks, dishwasher, and clothes washer. (For an illustration, see "Canada's Energy Miser," this issue.) Solmate, which will be available next spring, will cost about the same as the equipment it replaces.

Vol. 4, No. 3 February 1991

U·S kids

A *Weekly Reader* Magazine

Fun Things To Do Inside

The Big Computer

See page 34

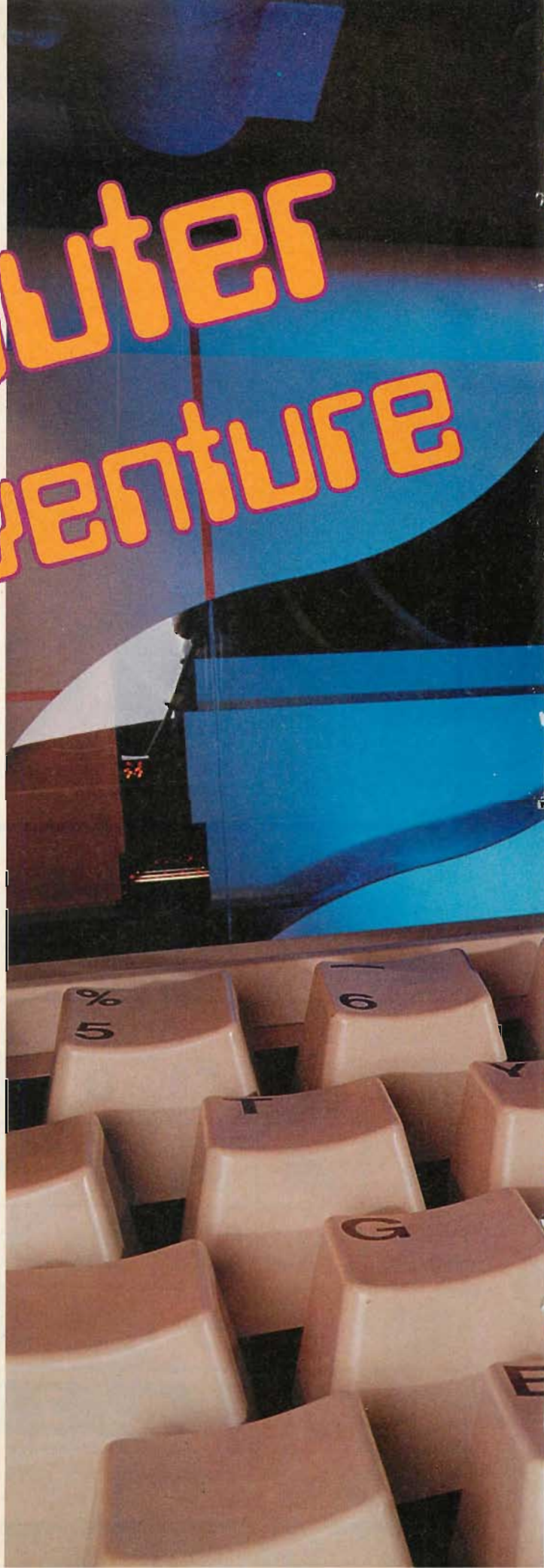
FIELD PUBLICATIONS

FREE GUMMY BEES INSIDE HONEY NUT CHEERIOS

"Special offer good through March in specially marked boxes."

The Computer Adventure

by Deborah H. DeFord



Have you ever dreamed of diving deep into the ocean? Have you ever imagined a journey into the heart of a steamy green jungle? Have you ever hoped to hop aboard a spaceship and head for the stars?

How about a walk through a giant computer? Have you ever thought about that? Some kids do more than think about it. They stand with two feet on a single key and then jump across the keyboard. Then they watch a screen that is too big to fit in a person's house.

But they don't stop there! Their adventure has just begun! They are about to enter the Walk-Through Computer. The Walk-Through Computer is just like the computers at school or at home, only it's 50 times bigger! Now why don't YOU join the Computer Adventure! ⇨

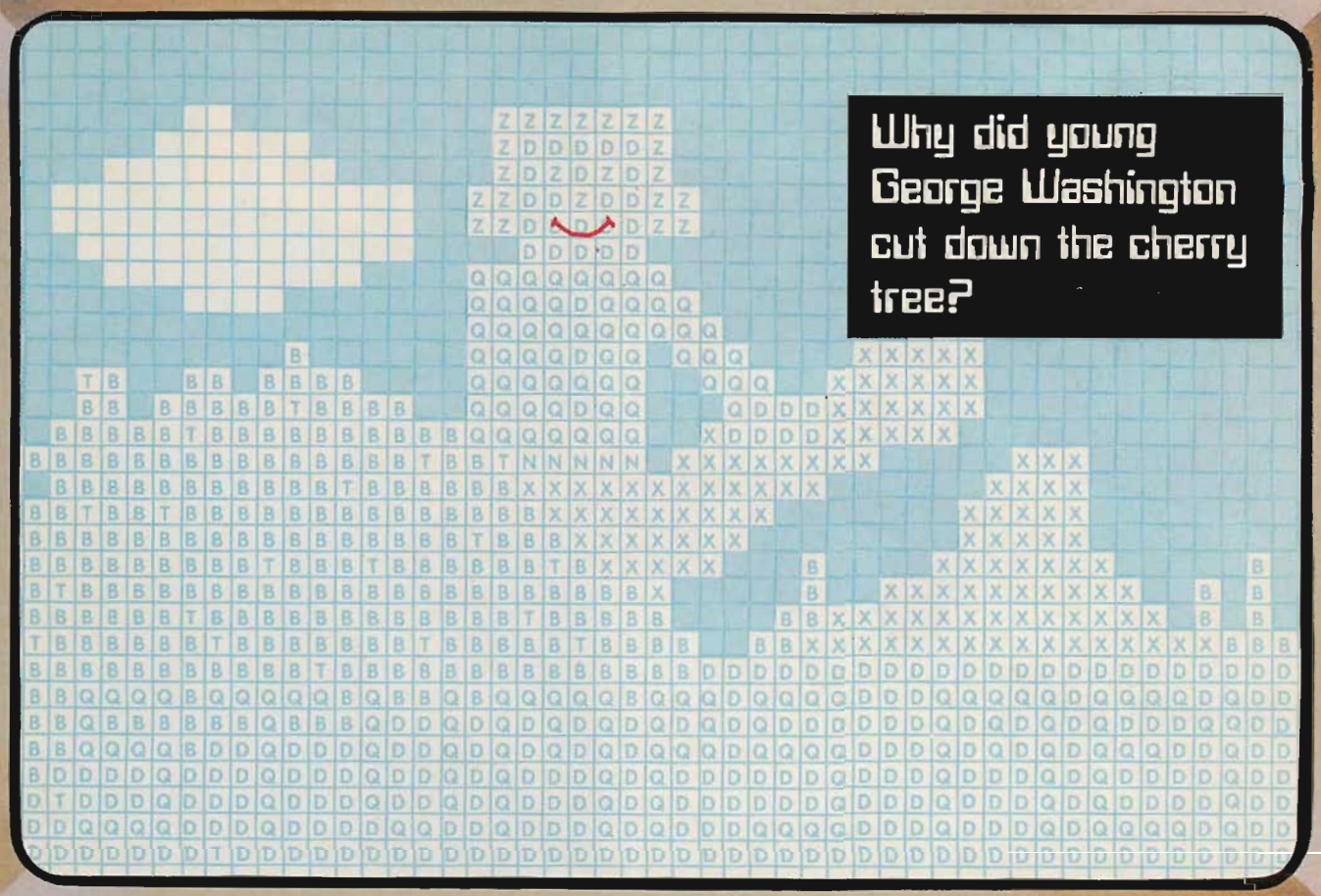
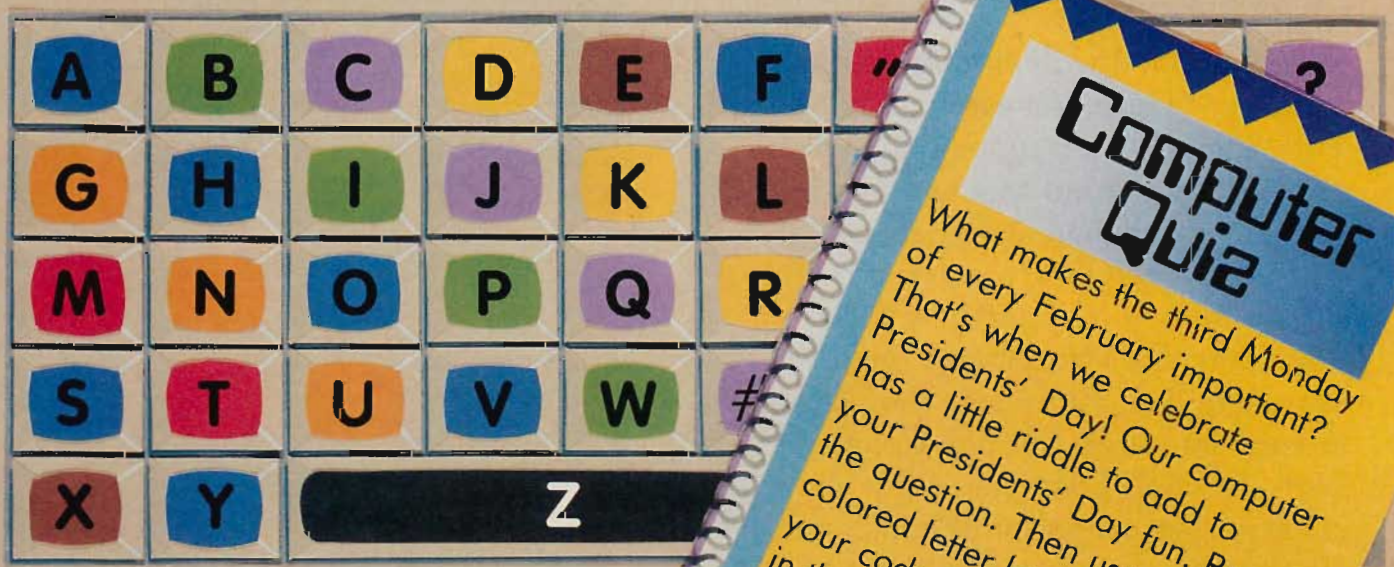


Illustration by Jo Lynn Alcorn



Computer Quiz

What makes the third Monday of every February important? That's when we celebrate Presidents' Day! Our computer has a little riddle to add to your Presidents' Day fun. Read the question. Then use the colored letter keys as your code key and color in the answer on the computer screen!

The Computer Adventure

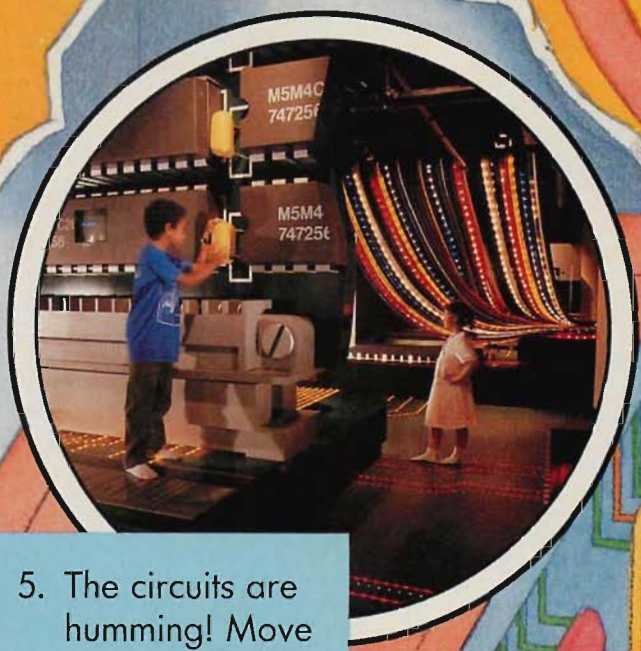
You can find your way through the Walk-Through Computer. Your stops are numbered in order. But to get from stop to stop, you need to follow the correct path through the maze. Are you ready? Read on!

No computer works without power. So start your adventure at the Power Supply (1).

Along the Computer Trail

1. Power Supply
2. Floppy Disk
3. Trackball
4. Hard Disk
5. Video Board
6. Monitor

1. You are plugged in! Now hurry to trace a clear path from here to your Floppy Disk (2).



5. The circuits are humming! Move back out to the Monitor (6) to see what's happening.

3. You've told the computer what you want it to do. Move inside to the Hard Disk (4).

Photos by Jack McWilliams

FINISH

6. Where in the world can you find the Walk-Through Computer? There's only one place—at the Computer Museum in Boston, Massachusetts!

START

4. The computer is working for you. Hurry to the Video Board (5).

2. The disk is in place, but don't stop yet! Move to the keyboard and Trackball (3).

Illustration by Frederic Winkowski

Kids Helping Kids

Pets

Dear Kids,
Please help. I really want a puppy. I asked Mom and Dad if I could have one. But they said no.
I told them that I would walk the puppy and feed it every day. But they think I would get tired of it.
I just know I would take good care of a puppy. How can I get my parents to believe me?

Erin D.
Minnesota

We asked our Kids Helping Kids panel about Erin's letter. Here are the panel's ideas.

Lorna: Ask your parents if you can pet-sit for friends or neighbors who go away. Then use that chance to show how responsible you can be.

Lorna

Monique: Your parents might have other reasons for saying no. Some parents say no because their home is too small, or because they're allergic to animals.

Monique

Do you have a problem that is causing you trouble? Need help? Write to Kids Helping Kids, U★S★Kids, 245 Long Hill Road, Middletown, CT 06457. Be sure to send us your complete address.

Buffalo News
BUFFALO, NEW YORK
CIR. 384,157
NY-BCG

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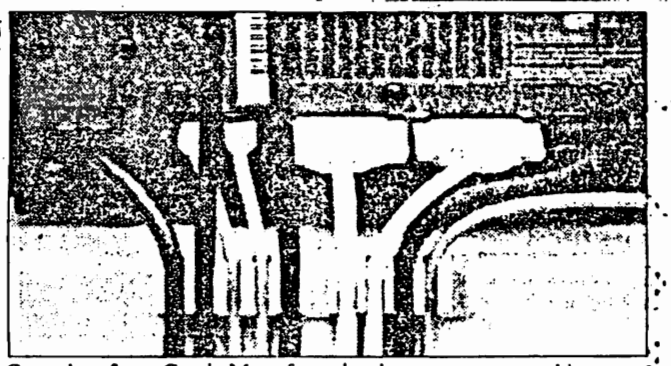


Organizer from Curtis Manufacturing keeps computer cables neat.

Video gives inside story of how computers work

An educational videotape that explains how computers work by taking viewers inside a giant working model of a desktop computer will be available Nov. 7 from the Computer Museum, 300 Congress St., Boston, Mass. 02210.

The 25-minute video, produced with funding from the Intel Corporation Foundation, uses the museum's new exhibit, the Walk-Through Computer, to explain graphically and dramatically what makes a desktop computer work.

David Heil, host of the Emmy award-winning PBS science series "Newton's Apple," and teen-agers Jennifer, Leandra, Mark and Damien embark on a video mission to discover how a computer works by visiting the Computer Museum, the only place in the world where they can use and then climb inside a computer exhibit that is enlarged to 50 times normal size.

Once inside the giant computer, each teen-ager explores one of the major components — the central processing unit (CPU), random access memory (RAM), the disk drive and the video board — while the video viewer watches.

Software is explained by incorporating animated portions of the museum's "Software Theater" show. This section describes what a software program is and how it works with the hardware, according to Liz Armbruster of the museum staff.

The video, which sells for $19.95 plus $3 for shipping and handling, is intended for use in introductory computer classes, according to Ms. Armbruster, and is "appropriate to communicate computer basics in any setting.

"Targeted to the middle school level, it can be ordered alone or with the museum's educational activities packet. The packet contains an introduction to the museum's galleries and exhibits as well as suggestions for related activities in the classroom and the museum."

To order the packet, which costs $5, including shipping and handling, and the video, write to The Computer Museum Store at the address above or call (617) 426-2800, extension 307.

Personal Computers

By LONNIE HUDKINS

The museum is devoted solely to computers and their impact on society, according to Ms. Armbruster. Designed for people of all ages and interests, it has more than 70 interactive exhibits, two award-winning theaters and a collection of vintage computers and robots.

Organizer keeps cables neat

Curtis Manufacturing Co., Inc., of Jaffrey, N.H., has come out with a new product called "Cable Organizers" that should appeal to Christmas shoppers looking for inexpensive but useful gifts for computer users.

The organizer is designed to keep computer and electrical cables neat and organized and enables users to straighten up confusing cord tangles at the back of their equipment.

Cable Organizers, available at local outlets for a suggested retail price of $9.95, also can be used effectively by stereo and video enthusiasts. The package includes a 10-slot cord manager, two bundler clips, six runner clips and 10 blank peel-and-stick labels.

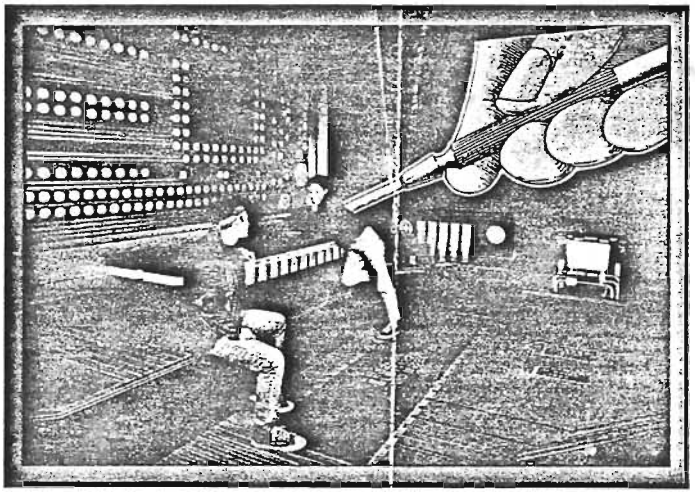
Personal Computers welcomes your questions and programs as well as advance notification of computer group meetings. Mail your correspondence to Lonnie Hudkins, The Buffalo News, P.O. Box 100, Buffalo, N.Y. 14240.

INCIDER
January 1991
Circ: 122,000

COMPUTER SCIENCE

If you want to learn what makes a computer tick, take a look at the new 25-minute video from Boston's Computer Museum. In the film a group of teenagers set out to discover the inner secrets of computing by visiting the museum's famous "walk-through computer," a giant model that's 50 times the size of a microcomputer.

The kids not only explore the major parts of the computer — the central processing unit (CPU), random-access memory (RAM), disk drive, and video display — they act out the operation of the machine. While some students take the role of various computer components, others act as the data bus, carrying information and messages among the other students. To explain the abstract idea of software, the video incorporates animated graphics from the Computer Museum's collection.



Exploring inner space: Students get into the act when they visit a walk-through computer in a new video produced by Boston's Computer Museum.

How Computers Work: A Walk Through the Walk-Through Computer is designed for use in middle-school classrooms, but you can use it to teach the basics of computing to all ages. The video costs $19.95 (plus $3 shipping); a companion packet of educational activities costs only $5 more. Contact the Computer Museum Store at Museum Wharf, 300 Congress Street, Boston, MA 02210, (617) 426-2800 extension 307.

— **P.S.**

DECWORLD

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ON THE COVER:
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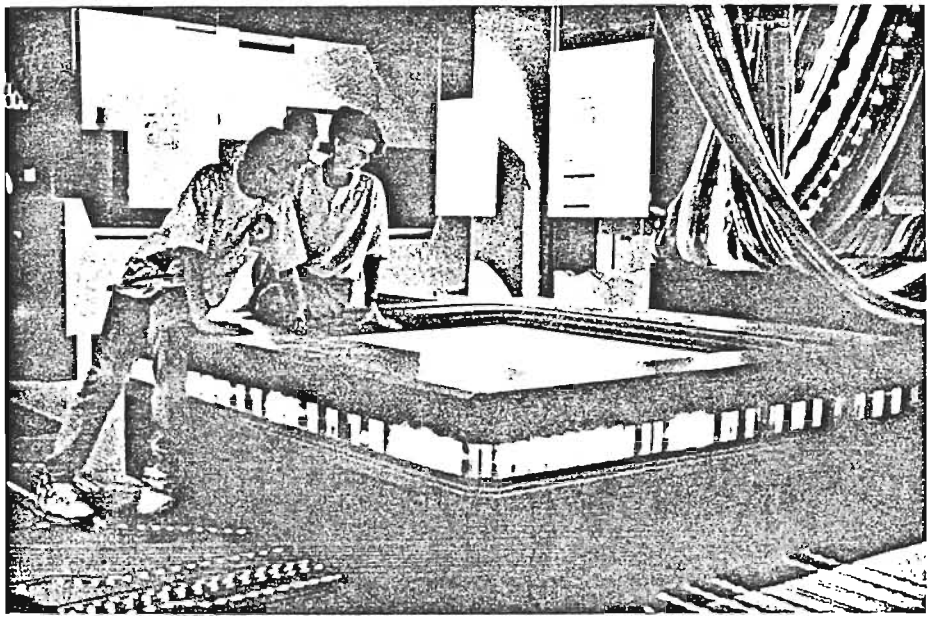
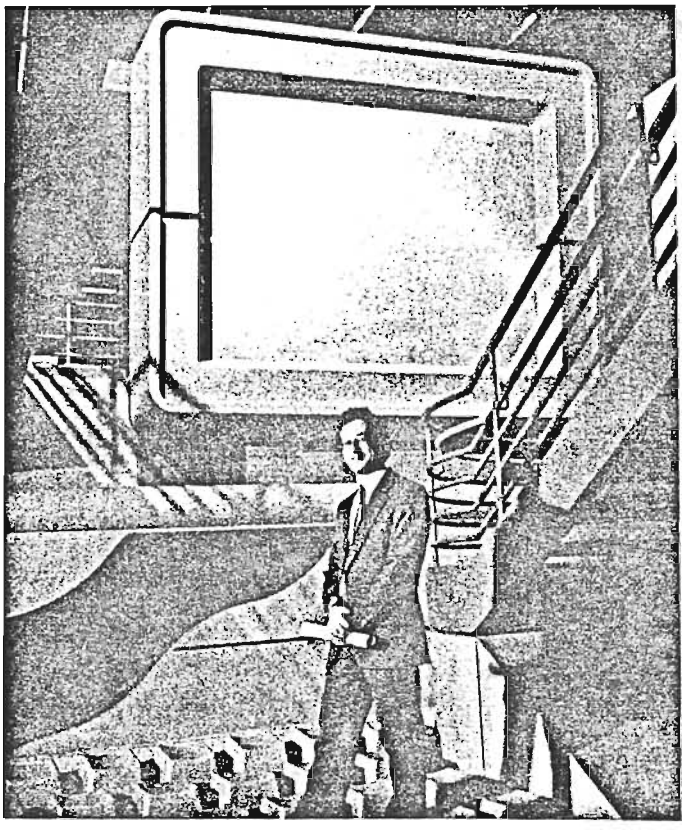
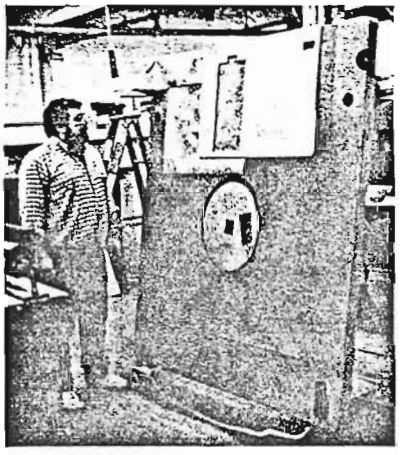


Visitors to the Walk-Through Computer take a closer look at the CPU (Central Processing Unit).



Oliver Strimpel, the Walk-Through Computer Museum executive director, is shown standing on an oversize keyboard. For more information on the computer museum see page 6.



The Walk-Through Computer 3.5" diskette.

ing people from Germany, Japan, Sweden, France, and England have viewed the giant–sized computer, only to be stunned by various special effects supported by Digital's MicroVAX 3400 system.

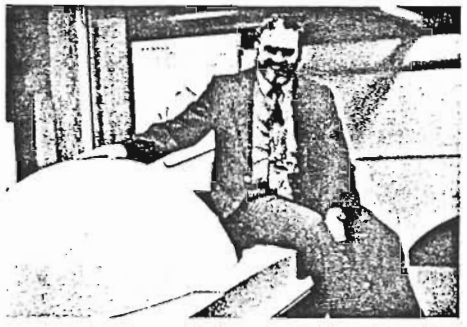
Thanks to a special electron microscope video provided by Digital's Semiconductor Engineering group, visitors see a real computer chip in operation.

Throughout the exhibit, visitors are amazed at how the complexities of a computer are made simple. Digital volunteers helped accomplish this.

Digital's Dick Rubinstein, manager, Technology Assessment and Planning (TAP), Corporate Research, a computer and calculator collector in his own right, has been involved with The Computer Museum since its beginnings at Digital.

"I was part of the advisory board for the Walk–Through Computer exhibit," says Dick. "Working with Dr. Oliver Strimpel and Richard Fowler, I helped brainstorm ideas for the display, reviewing various exhibit proposals and critiquing mock–up displays.

"Laying the groundwork for the exhibit was great fun because it gave me a chance to mix my personal and technical interests.



Dick Rubinstein

"We were primarily interested in creating exhibits that adults and children could relate to."

Carl Blatchley

Digital was also called on to provide expertise concerning the exhibit's disk drive. Carl Blatchley, senior engineering manager, Disk Subsystems Group, provided a model of Digital's RF71 disk as well as pictures and drawings from which the exhibit could be modeled and built.

Lenn Daugherty

Carl looked to his department for support in providing technical consulting to help design the life–sized disk drive.

Engineers Lenn Daugherty and Phil Bartels were fascinated with the idea of a walk–through computer. They helped translate the highly technical facets of Digital's RF71 disk drive, which actually stores and retrieves the images that make up the Walk Through Computer's database of travel scenes.

Phil Bartels

Luis Rodriguez

"We were trying to make the giant display model as realistic as possible," says Lenn. "Through a small window, viewers can look into the disk drive and see it in action — reading the information."

Phil helped a museum animator understand the technical facts about the head and disk — so that the animator could accurately portray its complexities in a video that reveals how a real disk drive works.

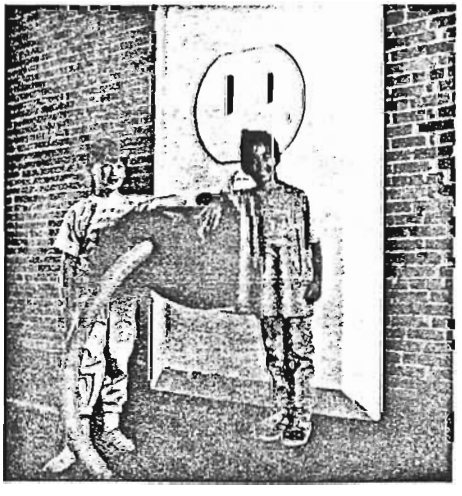
"Gathering lots of technical information was the easy part," says Phil. "The hard part was making sure that the translations of the information were accurate and appeared in a simple and comprehensible form."

All of the efforts make the exhibit appealing and easy for the public to digest.

Some employees are even developing enhancements for the exhibit. Luis Rodriguez, a mechanical process technician from Digital's Springfield plant, developed a video that may accompany the exhibit.

"The video shows how Digital builds its RF30 disk drive from raw material to final product," says Luis.

"The documentation of this process is invaluable. People can easily see and understand the complexities of the manufacturing process." ●



Meg Bowman, 11 (left) and Richard Fredkin, 8, explore the outlet of The Walk-Through Computer.

Computer Museum unveils world's first Walk-Through Computer

The Computer Museum and Digital share a special history, stemming from Ken Olsen's interest in collecting and saving computers.

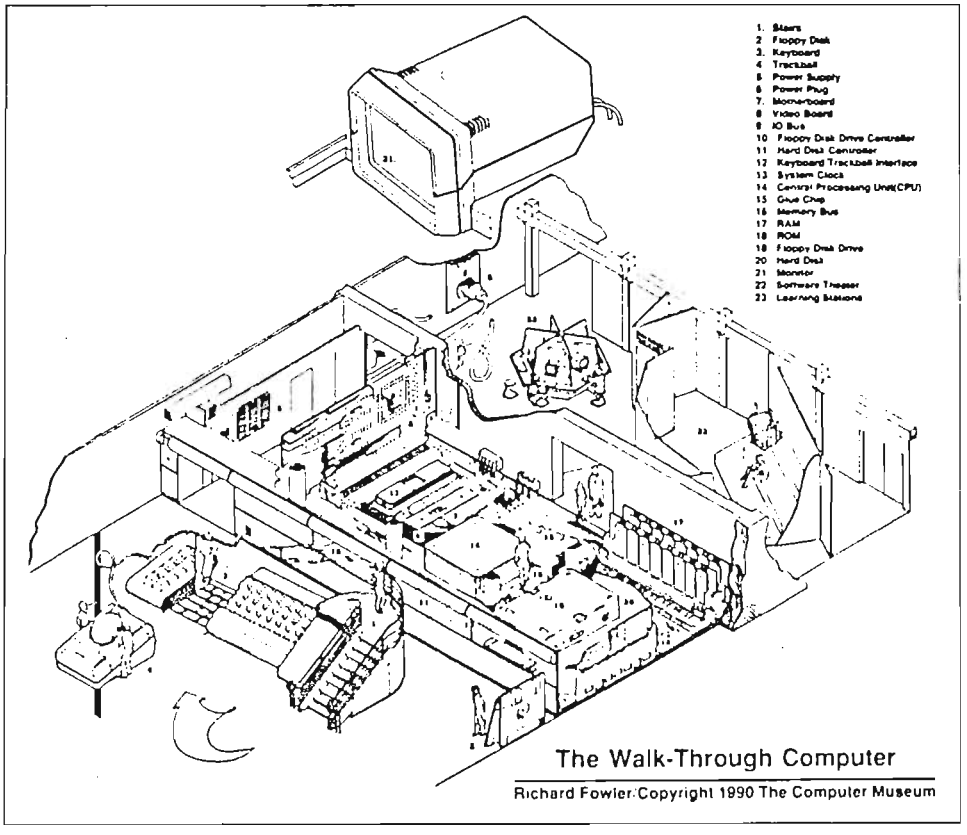
The museum collection was started in 1974, when Ken, and Digital board member Robert Everett, then president of MITRE Corporation, rescued the MIT Whirlwind computer from the junk pile.

To house the growing museum collection, in 1979, Digital officially opened the world's first computer museum at one of its sites in Marlboro. Over time, the exhibit broadened to serve the whole industry and general public. The museum was incorporated in 1982 as an independent, nonprofit educational institution and later moved to its current site on Boston's historic waterfront. At present, it is the only institution in the world devoted solely to computers and their impact on society.

Over the years, the museum has assembled the most extensive collection of computers and robots in the world, with some 75 hands–on exhibits including the popular Walk–Through Computer.

Overall, the exhibit helps visitors learn about how a computer works — storing, retrieving and displaying information under the control of a program.

The World Traveler Program, a demonstration application, helps visitors find the shortest route between two cities. Users manipulate a giant trackball and keyboard to select an itinerary. As the computed route is displayed, images of each city appear on the screen.



The Walk-Through Computer

Richard Fowler:Copyright 1990 The Computer Museum

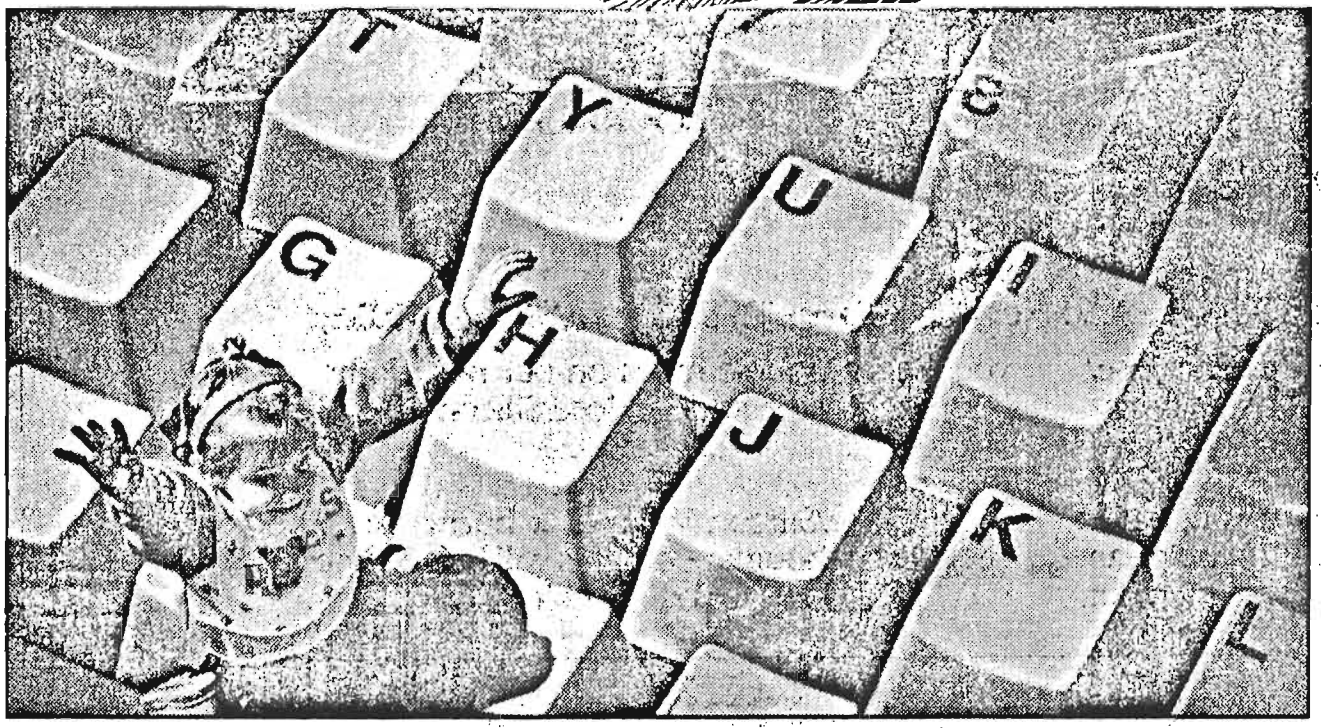
With the involvement of several companies, the Computer Museum's popular exhibit, The Walk–Through Computer came together quite smoothly. Digital and several other companies worked closely with the museum's Executive Director, Dr. Oliver Strimpel, and the project's designer, Richard Fowler, on loan from Britain's National Museum of Photography, Film and Television, to turn the insides of a computer into a fantasyland.

Visitors can actually walk through a computer that is 50 times actual size and features a four foot RAM chip, six foot floppy disk, 108–square foot monitor and 25 foot long keyboard.

Since the exhibit's recent opening, more than 70,000 visitors, includ-

Bruce Gifford, a Digital employee, enjoys the exhibit.

CIRCULATION 355,494
THE BOSTON HERALD, THURSDAY, FEBRUARY 21, 1991



HANDS-ON TRAINING: Michelle Pushee, 4, of Norwell, is overwhelmed by a giant computer keyboard, part of the Walk Through Computer at the Computer Museum in Boston. Staff photo by Ted Fitzgerald

Kids find keys to success at Computer Museum

By HELEN KENNEDY

For those still intimidated by computers, Boston's Computer Museum has a new exhibit designed to take the mystery out of the machine.

Visitors will be dwarfed by the two-story working model of a desk-top computer, but who could resist the chance to run up and down a 25-foot keyboard?

The Walk Through Computer, located on the museum's fifth and sixth floors, is 50 times the actual size and features a 108-square foot screen. And it works, running a program called World Traveler that takes the user on a computerized tour of 300 cities.

Visitors wanting an inside look at computers can stroll through the machine's inner workings, examining the 7-foot-square microprocessor and enormous disc drive.

The museum's Software Theater explains some of the finer points of programming, and related nearby exhibits trace the history and evolution of computers.

REPORTAGE

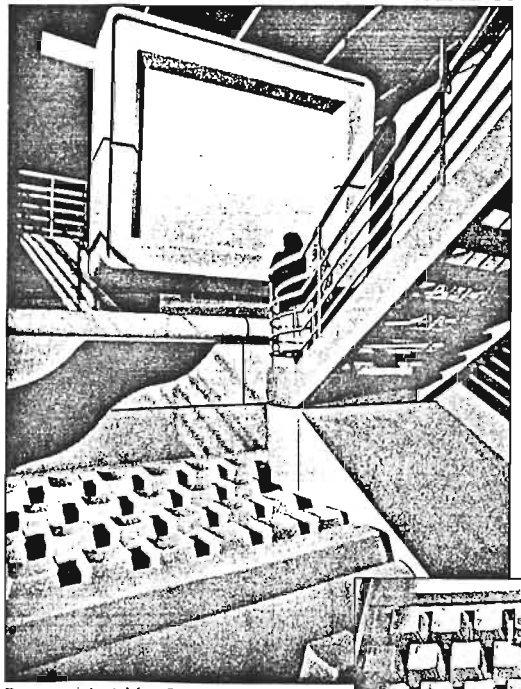
Translation:"Visit the world's only Computer Museum"

Besök världens enda datormuseum

Av Rabbe Kurtén

Följ med MikroDatorn till Boston där The Computer Museum är beläget. Möt datorkonstnären Aaron och Herman Holleriths 100-åriga datamaskin. Kliv in i världens största dator.

Foto Jack McWilliams



Var snäll och ställ dig på markeringen så skall jag tala om för dig hur lång du är, knarrar en röst som för tankarna till Frankensteins monster när jag närmar mig ingången till Datormuséet i Boston. Lydig som jag är ställer jag mig snällt på de vitmarkerade fotavtrycken, och efter en liten stund knarrar rösten vidare: "Du tycks vara omkring 6 fot lång." Eftersom jag anser mig vara 182 cm, är mätresultatet inte dåligt, jag har ju skor på.

Jag kliver av fotavtrycken och stannar och ser hur en skolklass fångas upp av samma knarrande datorstämma. Men skoleleverna är inte lika lydiga som jag, för dem är det en sport att lura den dumma datorn. De ställer sig på huk eller håller böcker över huvudet och jublar triumferande när den lättlurade datorn knarrar fram sitt: "Du tycks vara omkring 7 fot lång. Du är verkligen längre än de flesta."

När jag väl är inne i muséets utställningshallar möter fyra milstolpar ur datorernas historia, en Univac I, en PDP-8, en Cray-1 och en IBM PC. En autentisk TV-inspelning från när det begav sig visar hur det gick till när Univacen för första gången användes för att presentera prognoser och valresultat vid presidentvalet 1952 i USA. TV-reportern talar om "denna fantastiska elektronhjärna", och bemöter den nästan som en levande person.

Datormuséets stolthet. Detta är en persondator i 50 gångers förstoring. Bildskärmen är 15 fot. Det är annat än en 21-tumsmare!

Så förs man vidare in i utställningen över "Intelligenta maskiner". Robotar och artificiell intelligens samsas här i ett utställningsrum. Här demonstreras robotars "syn", "hörsel" och "känsel" men även deras icke-mänskliga "sinnesorgan" såsom förmågan att utsända ultraljud och uppfatta ekot, ett "sinne" som kan användas för att mäta till exempel avstånd, och därmed f
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MIKRODATORN
November 1, 1991
Swedish Computer Magazine

Datorkonstnären Aaron

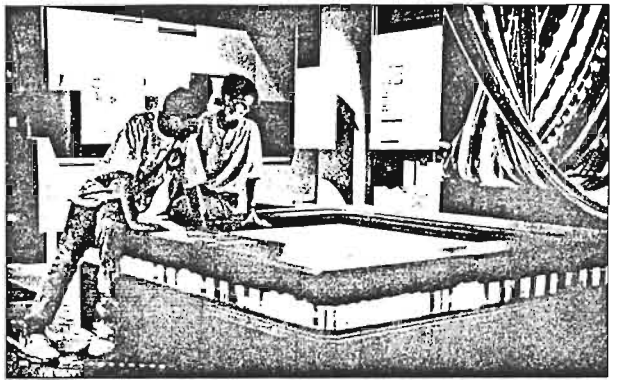
Bland exemplen på artificiell intelligens finns det klassiska "terapeut-programmet" Eliza, men också ett expertsystem som rekommenderar lämpligt vin till maten, ett som per tele-

Foto Jack McWilliams

Tangentbord som heter duga. Andrew Chen och sonen Jacob, från Boston, vilar ut på det 7,5 meter breda tangentbordet.

REPORTAGE

Alla de klassiska mikrodatorerna visas i en särskild sal. Här finns de tidiga hobbymaskinerna från 70-talets första



En Intel 80486 cpu i 50 gångers förstoring. I fönstret visas omvandlade pågående programinstruktioner i symbolisk form, en bild av kretsens logikschema och en rörlig elektronmikroskopsbild av kretsen i arbete.

hur en dator fungerar under huven. Man kliver in bakom skärmen och kommer in på moderkortet där man omges av krets-

a "Persondator 975. Den in- Ett av de för- 4 kb minnes- tt hantera en eciellt för Allen. Och här Shack, PET ch Apple II,

kort som når upp till taket. Pulserande ljusledningar simulerar bitflödena mellan maskinens olika komponenter. Och de olika kretsarna finns där i 50 gångers förstoring och med illustrativa bildpresentationer i kretsarnas "fönster".

Interaktiv utställning

Bildpresentationerna följer skeendet i programmet. Så visas till exempel i CPU:n hur instruktioner utförs, hur data hämtas från minnet, kombineras, tolkas och återläggs, eller sänds till bildskärmen. Omväxlande med detta visas 80486-kretsens logiska design, och en bandupptagning med elektronmikroskop som visar en krets i arbete. Minneskretsarna visar hur minnesadressen pekas ut, och hur data ur minnet därefter läggs ut på bussen och sänds till CPU:n.

I kompletterande utställningsmontrar runt jättedatorn visas interaktivt "ett teckens väg från tangentbord till bildskärm" och andra liknande instruktionsprogram.

Denna utställning, som öppnades senaste sommar, och som kostat cirka 1,2 miljoner dollar, är en pedagogisk upplevelse som verkligen lever upp till muséets uttalade målsättning att avdramatisera och avmystifiera datorerna.

För den som ingenting vet om datorer är det antagligen just den stora "Datorn man kan gå i" som blir behållningen och som motiverar ett besök. Men även de som kan en del om datorer kan hitta intressanta uppgifter och utställningsföremål.

Själv fängslades jag mest av användargränssnittet i den dator som användes i Apollo-projektets månlandare. Astronauterna gav datorn kommandon ur en repertoar av tvåsiffriga verb och tvåsiffriga substantiv. De verkligt stora grabbarna behövde inte kommandon som påminde om ord och som därför var lätta att komma ihåg. De visste att "21 42" betydde "visa aktuell höjd över månens yta på skärmen". Vi har kommit en lång väg sedan dess när det gäller hur vi hanterar våra datoriserade verktyg. ⊿

Dator i stor skala

Runt den historiska utställningen finns mikrodatorer av olika slag i praktisk användning. En ACER 915P presenterar de kinesiska tecknen och deras uppbyggnad och etymologi (ords härledning), en HP med pekskärm presenterar de olika mikrodatorerna...

Muséets stora stolthet är dock den persondator i 50 gångers förstoring som sträcker sig över muséets två våningar, och som omedelbart fångar besökarens uppmärksamhet när han kommer in. En väldig 15 fots skärm presenterar världskartan och en datoriserad röst ber en ange utgångspunkt. Man manipulerar markören antingen med piltangenterna på det 7,5 m breda tangentbordet eller med den väldiga manshöga styrkulan. Välj startpunkt och mål, och datorn rekommenderar bästa väg, och visar sedan scenerier från mellanlandningsplatserna på den stora skärmen.

Detta är utanverket. När man sett programmet i funktion är det dags att se

Foto Dan McCoy

Rådvill? Adressrådgivaren, ett av muséets många expertsystem, ger råd per telefon åt en ung museibesökare.

PERSONAL COMPUTERS

The New York Times

Gifts for Computer Buffs

THE NEW YORK TIMES
December 4, 1990
Circ: 1,068,217

By PETER H. LEWIS

IT is that time of year again when people are confronted with the task of finding suitable gifts for their computer-afflicted loved ones. We're here to offer professional help.

For those who are convinced that their significant others would actually sleep with the computer if given the chance, consider Spreadsheets, which are cotton-polyester percale bedsheets printed to resemble the ubiquitous green-bar fan-fold computer paper. (The bars appear to be periwinkle blue, however.) A twin set, including one flat sheet, one fitted sheet and one pillowcase, costs $59.95. A queen set, with two pillowcases, is $79.95. Extra pillowcases are $19.95 a pair.

Spreadsheets are guaranteed to be user friendly and are available from the Boston Computer Museum Store, (617) 426-2800. Ask for extension 307 and request a catalog of other gifts.

Among the other offerings for hard-core computer fanatics, who are often affectionately called propellerheads, are propeller beanies ($10) and baseball caps ($12).

●

Slightly more practical is Santa's Helper, at $24.95 (plus $2.50 postage and handling), a program for I.B.M. PC's and compatibles from the Cummings Software Corporation of Seattle; phone (206) 284-0305. Santa's Helper is many things. It keeps a data base for Christmas card lists. It generates mailing labels. It allows users to design their own cards. It plays Christmas carols and displays the words for sing-alongs. It has 1,000 gift ideas. It creates shopping lists and tracks gifts against a budget.

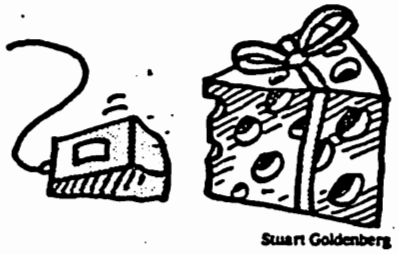
It also includes an amusing "naughty or nice" questionnaire that meticulously determines in which category Santa will classify the recipient.

For those who prefer to sneak away from family gatherings to watch football on television, Cummings Software also offers Beat the Spread, which allows sports fans to pick winners in professional football games. It comes with a data base of statistics on all games since 1988.

"It's strictly for fun," said its developer, Woody Cummings, disavowing any link between his program and those who might use it for wagering.

It's a good bet that shoppers will be able to find something useful at the Curtis Manufacturing Company of Jaffrey, N.H., phone (800) 548-4900, a treasure trove of inexpensive computer-related gifts.

Among the new offerings this year



Stuart Goldenberg

is Cable Organizers, a $9.95 package of plastic clips and cord holders that can tame the spaghetti-snarl of wires and cables that typically spews from the backs of computers. The clips keep the cables neatly ordered, and there are adhesive labels that make it easy to identify wires without having to crawl around under the desk.

Curtis also offers two devices that slice off the perforated margins on computer paper. This is not as silly as it sounds, as anyone who has accidentally ripped a printout can attest.

The Curtis Trim-Right ($14.95) is a desktop paper-cutting unit that appears to be well suited for precise trimming of single sheets, whether to remove the margins or to create custom sizes. The Curtis Trim-Trak Margin Remover ($9.95), on the other hand, is a compact, handheld gadget that zips off the margins on long strings of multiple-part forms.

Identify propellerheads and organize their lists and cords.

●

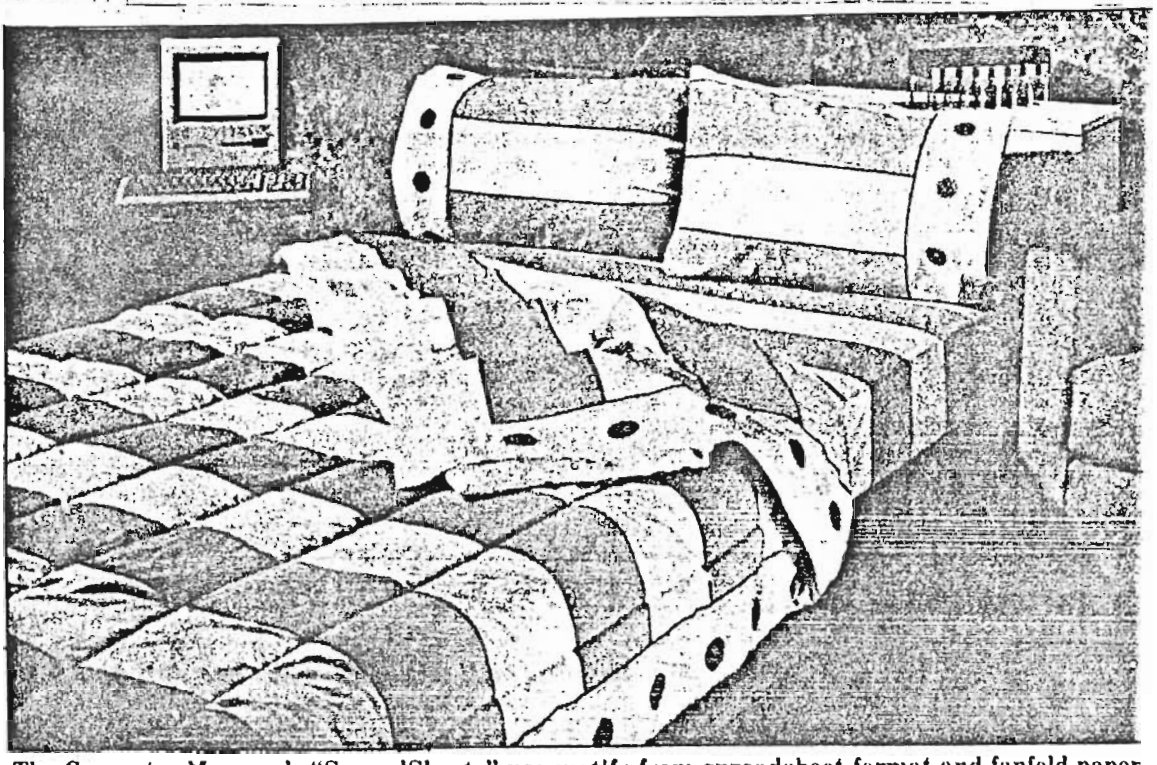
The PC universe, as a result of Windows 3.0, is just now starting to appreciate the role of the mouse-pointing device, which has been used on the Apple Macintosh for years. Macintosh users can continue to stay a generation ahead of their PC counterparts by switching to the Curtis MVP Mouse, a $149.95 trackball.

We long ago abandoned the mouse that came with our Macintosh in favor of trackballs, which are essentially mice that have gone belly-up. A trackball takes up less desk space and, some users feel, gives better control over the cursor.

The MVP Mouse has an optional $29.95 foot switch that plugs into the desktop unit, allowing users to click the commands by tapping their toes. We like it because it eliminates those annoying moments of clumsiness when we have positioned the cursor just so, only to jerk it off target when we reach for the mouse button. It also keeps our feet from falling asleep.

A Happier Holiday

Museum shopping mixes duty and pleasure



The Computer Museum's "SpreadSheets" use motifs from spreadsheet format and fanfold paper

■ MUSEUMS
Continued from Page 73

Boston area, is a good place to find offbeat presents.

Any 6-year-old would be delighted with the dinosaur cookie cutters, dinosaur masks, dinosaur soap and dinosaur note pads also in the shop. For older kids, there are Eat and Learn placemats: One features the periodic table of the elements. For grownups there are elegant onyx bowls, priced from $12 to $51, and limestone dinner plates from Pakistan.

The Museum of Science, near Lechmere Station, has also set up a special shop to go with its exhibition "Tropical Rainforests: A Disappearing Treasure." Here you'll find conscience-soothing nontoxic, biodegradable goods from countries including Indonesia, Peru and the Philippines.

For people who are so attached to their computers that they'd like to sleep with them, The Computer Museum store offers SpreadSheets, in an impressively accurate blue and white stripe with sprocket hole borders. A twin size set – one flat and one fitted sheet, plus a standard pillowcase – is $59.95.

The store also offers "Smack-a-Macs," for days when you're tempted to vent your computer-related frustrations by slugging your screen. The equivalent of a voodoo doll, the "Smack-a-Mac" is a computer replica that is stuffed, so you'll hurt neither it nor yourself when you clobber it. Then there's the plastic pen folder that says "I was a Nerd at the Computer Museum," along with computer chip lapel pins and key chains, and diskettes that are really coasters. And, so you can eat as well as sleep computers, the store, which is next to the Children's Museum just off Congress Street, has diskettes made of chocolate.

The **New England Aquarium** gift shop has drinking glasses with seagulls on them, salt and pepper shakers with penguins, mugs with dolphins, cocktail napkins with scallop shells, ice buckets with sailboats and sets of rubber duckies for the bath. It is, in short, a theme operation. Among the particularly charming items are penguin music boxes that play "The Skater's Waltz" or "Heartbreak Hotel." These are usually $20, but are currently part of a 30 percent off sale. There's a log carrier with ducks on it for $24, and delicate Chinese tree ornaments made of wheat straw selling for $5.50 and $7.

And if none of the above is quite the ticket, consider a gift of one of the Aquarium's adoption programs, which allow the recipient to be an honorary parent to a whale, eel, baby penguin or giant sea turtle. Call the Aquarium's development office at 973-5294 for adoption information. The Aquarium is located on

THE BOSTON GLOBE
December 14, 1990
Circ: 522,000

Holiday gifts to make a computerphile smile

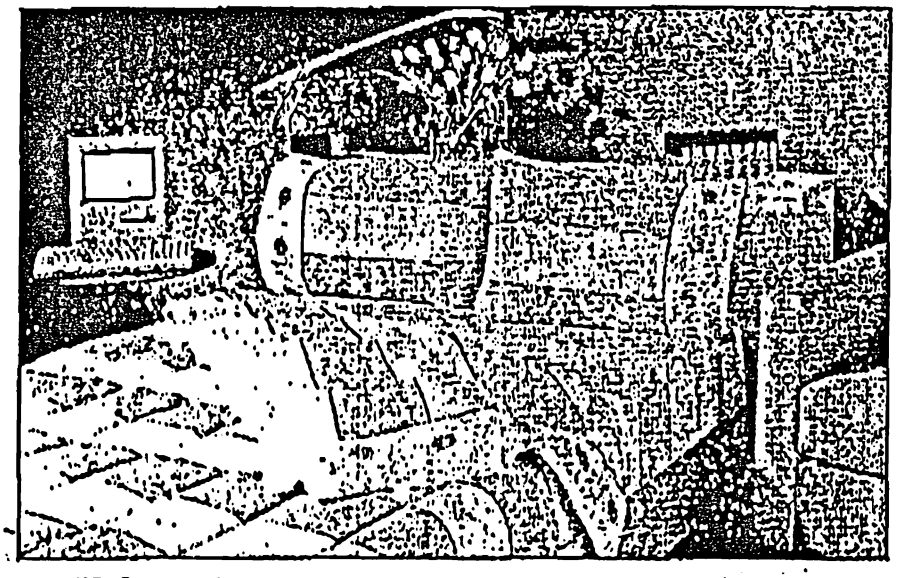
CRAIG CROSSMAN
TECHNO-FILE

With the holidays almost upon us, what can you buy for that computer connoisseur who has everything? And where do you go for help if you've always thought a mouse was something cats like to chase?

Here is a selection of unusual, high-quality items that won't send you to the poor house. They will, however, bring holiday cheer to computer users of all ages.

THE MIAMI HERALD
December 10, 1990
Circ: 551,271

NOVELTIES



THE Computer Museum Store in Boston offers a wide range of computer novelty items.

For the person who wrestles with computer spreadsheets all day long, now they can toss and turn in them at night, too. SpreadSheets are bed sheets in the familiar computer paper design, accurate right down to the simulated tractor feed holes.

The sheets are 50 percent cotton/50 percent polyester, and are available in a twin-size set for $59.95 or queen-size set for $79.95. A separate set of two standard pillowcases sells for $19.95.

Other computer novelty items sold by the store include ChocWare Disks chocolate candy, ($4.50 per disk, or five for $20), disk-shaped beverage coasters called Discoasters (set of six for $15) and Smack-a-Mac ($10), a computer-shaped punching bag.

Computer Museum Store
(617) 426-2800

SUNDAY CAPITAL-JOURNAL
(Topeka, KS)
December 16, 1990
Circ: 76,441

Unusual gifts for the computer nut

907c

You are in a panic! You still haven't found just the right gift for that computer nut friend of yours? I know it's late, but it's not too late for some more gift ideas. I just received a catalog of unique computer-related gifts from a unique source — the Computer Museum in Boston. Tell you about that in a later column.

Tim Elmer

At home with computers

Although delivery normally takes about two weeks, you can phone in your order and pay $5 for second-day UPS delivery or have an item Federal Expressed for next-day delivery. So there still is plenty of time to order that special gift.

■ BED SHEETS: Some people love their computers so much, they would rather take them to bed than a book, magazine — or even a spouse. However, taking a computer to bed isn't practical, so the next best thing might be bed sheets and pillow cases that look like computer spreadsheets, accurate right down to the tractor feed-design borders.

The sheets and pillow cases are 180-count percale, 50 percent cotton and 50 percent polyester. The twin size set contains one flat sheet, one fitted sheet, one standard pillow case and retails for $60. The queen size set comes with two pillow cases, flat sheet, and fitted sheet and retails for $80. A set of two standard pillow cases retails for $20.

■ CHOCOLATE: You know how it is when you have been slaving away over a computer all day; you get a little deflated and need an energy boost. What could be better than a 3.5-inch chocolate diskette. Yummy for the tummy, each one retails for $4.50, or you can buy a set of five for $20.

■ POSTERS: The "Computer Wimp" poster list 166 things everyone should know before buying a computer. For those who already have a computer, the poster is a reminder of what not to overlook next time.

Snapshot-size images of computer-related objects are interspersed throughout the numbered list and arranged in newspaper column format with a banner "Computer Wimp" headline. It creates an eye-catching poster. Measuring 23-by-31 inches, it costs $7.

Another poster, "Murphy's Computer Law," features dozens of pithy statements that are sure to ring true to battle-worn computer users. Cann's Axiom is an example of one reminder: "When all else fails, read the instructions." Measuring 23-by-31 inches, it costs $7.

■ JEWELRY: It's high-tech jewelry! About the size of a 2-inch campaign button, flat, black plastic geometric shapes (star, triangle, and circle) are overlaid with computer circuitry that flashes lights when you touch it with your finger. Lights stop flashing automatically after 20 seconds. Called Meggadots, they pin onto a shirt, blouse or coat. Each one retails for $20, including batteries.

Or, how about a computer chip lapel pin or key chain? A distinctive way to show everyone you're a computerite, the pin and key chain design consists of an actual computer chip on a gold-plated setting on black enamel. The lapel pin and key chain cost $12 and $15 respectively.

■ CALCULATOR: You've seen hand-held calculators in about every shape and size, but how about one that looks exactly like a 3.5-inch floppy diskette? The DISCalculator has basic electronic function keys and a liquid crystal display flush-mounted on the diskette-shaped calculator. To see the numerical LCD display, you slide down the metal diskette shutter. The shirtpocket-sized, solar-powered DISCalculator retails for $13.

■ DESK COASTERS: Tired of those coffee mug marks on your spouse's computer desk? The Discoasters should solve that problem. Shaped like a 3.5-inch floppy disk, a set of six multi-colored, foam-backed, cardboard-laminated Discoasters retails for $15. Perfect for the computer user because he or she doesn't have to worry about spilling coffee on these diskettes.

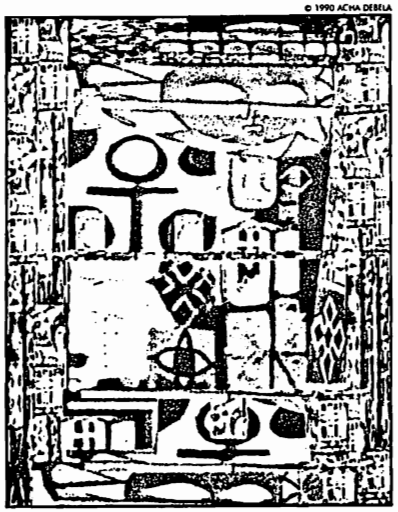
■ COFFEE MUG: If you are going to give coffee mug coasters as a gift, you may as well complement the gift with a coffee mug. A set of two 11-ounce "Computer Museum" mugs costs $10.

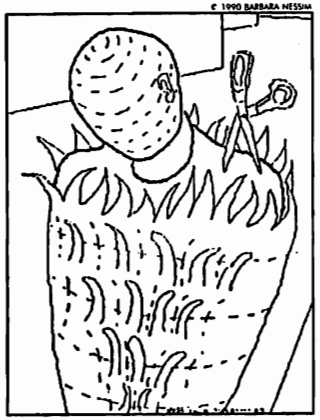
■ T-SHIRT: No list would be complete without a computer-related T-shirt. One T-shirt from the Computer Museum features a computer monitor displayIng a ferocious-looking, jagged-tooth visage accompanied by a caption, warning, "Caution, I Byte."

Available in gold, red, or light blue in all sizes, each T-shirt is 50/50 cotton and polyester and costs $10. Computer Museum commemorative 100-percent cotton T-shirts ($10 and $8.50 for adult and children sizes respectively) and heavyweight sweatshirts ($35) are also available.

To order, call the Computer Museum (from 9:30 a.m. to 5:30 p.m. EST, seven days a week) at 617-426-2800, ext. 307. Good luck.

THE CHRISTIAN SCIENCE MONITOR
AN INTERNATIONAL DAILY NEWSPAPER
MONDAY, NOVEMBER 26, 1990 50¢ ($1.00 CANADIAN)





HIGH-TECH IMAGES: *'A Song for Africa' (left), by Acha Debela, is a photographic-print collage inspired by African works. 'Under Wraps,' by Barbara Nessim, uses computer-generated stereo slides.*

THE CHRISTIAN SCIENCE MONITOR
November 26, 1990
Circ: 170,000

Computers Bolster Art
As a tool for creativity and imagination, their usefulness to artists is growing.
10

NOW

'DARRYLA': *Helen M. Klein's computer-generated work in ink and watercolors (above) is on paper.*

■ ***Artists, picking up where the computer-graphics engineers leave off, are helping to raise artistic standards and 'legitimize' the medium in the formal art world.***

As a tool for creativity and imagination, the computer's usefulness to artists is growing

Computer Art Goes From Mechanics To Aesthetics

By Laura Van Tuyl
Staff writer of The Christian Science Monitor

BOSTON

WHEN Barbara Nessim, a professional artist in New York City, began working with computers 10 years ago, some of her colleagues called her a "traitor to art" and said she was "too good for gimmicks."

But after 10 years, many of them have made an about-face: Those who said they'd never *touch* a computer, Ms. Nessim says, are now saying "they absolutely can't live without it!"

Nessim's experience is a sign of the computer's growing usefulness to artists as a tool for creativity and imagination. Artists, picking up where the computer graphics engineers leave off, are helping to raise artistic standards and "legitimize" the medium in the formal art world.

Nessim is one of 500 artists from 20 countries who submitted their work to this year's SIGGRAPH Art Show, held during the August conference of AMC-SIGGRAPH, one of the world's leading associations of computer graphics researchers. The show reflects an unprecedented level of artistic maturity among the entrants, say show jurors.

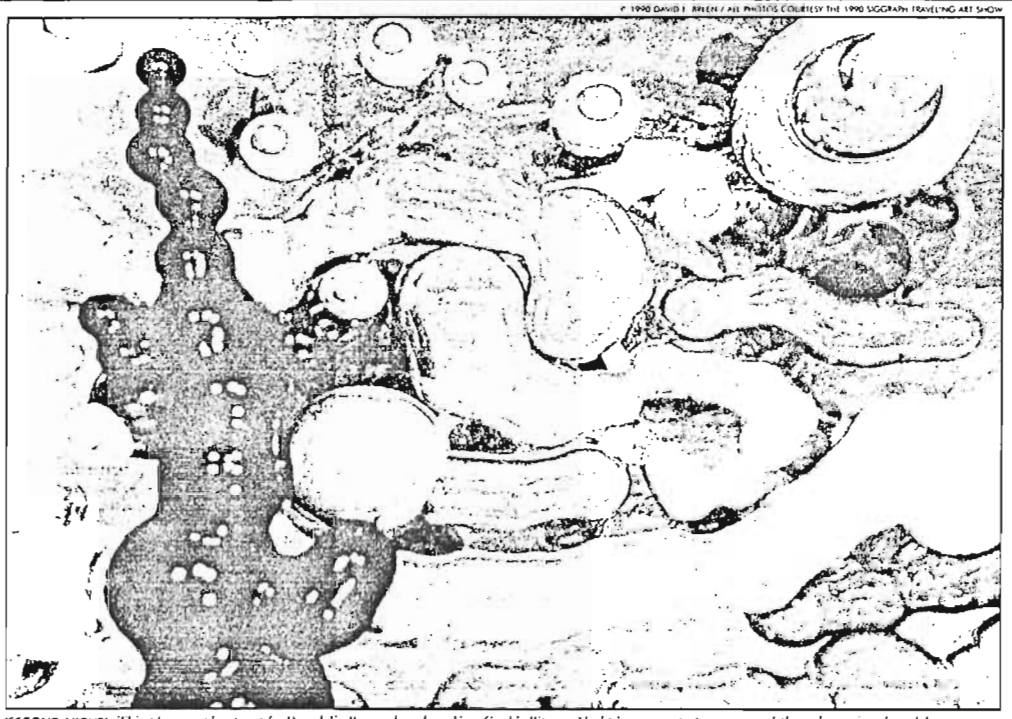
"People have gone past tinkering with technology and are using it as a form of expression," says show juror Michael Ester, director of the Art History Information Program of the J. Paul Getty Trust. "People are really exploring very personal themes, cultural issues, even a few political statements."

A scaled-down, traveling version of the art show is on view at the Computer Museum here through January 1991.

According to Patric Prince, chairwoman of the traveling art show and juror, "the works submitted were far more inventive in terms of art content. This reflects the number of artists using the technology." More artists with personal computers are using the growing number of "off-the-shelf" programs or other systems that do not require programming skills, she says.

"There are many more players. You don't have to have a fellowship at Bell Labs to be a computer artist," says Oliver Strimpel, executive director of the Computer Museum.

Here at the museum, some computer artists have used three-dimensional modeling programs to create realistic lighting or atmospheric effects, such as Kenneth Snelson's futuristic "Forest Devils' Moon Night." Others have scanned photographs into a computer and then manipulated them or combined



'SECOND NIGHT': *This photographic print by David E. Breen, based on Van Gogh's 'Starry Night,' uses computer-generated three-dimensional models.*

them with contrasting images. In "Ornament Over the Promenade," Isaac Victor Kerlow created an abstract landscape scene on a computer, made a slide of it, and projected it onto a large linen surface. He then traced it and used the marks as the basis for a painting.

"I see serious artists using the computer unself-consciously," says Thomas Linehan, chairman of the SIGGRAPH '90 Art Show, and art education professor at Texas A&M University. "The exciting thing is when the technology doesn't get in the way, but extends the meaning of the artist's statement."

Mr. Linehan is starting to see "sincere and open requests" by art museums and galleries to host portions of the SIGGRAPH shows, he says. Interest in computer art is growing among "the formal art world in Europe, the US, and Japan."

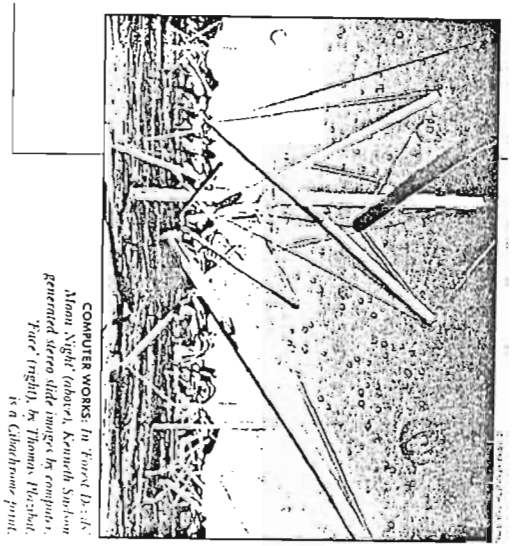
Barbara Nessim's piece "Under Wraps" suggests that "people like to wrap themselves up in things that are meaningless," like designer clothes, she says. "This is about cutting away those layers." A hand-held viewer turns the image into "stereo art," making the scissors and wrapping leap out from the background.

Nessim begins her creations in sketchbooks and then draws them with a mouse on her Macintosh computer, equipped with drawing and paint programs. She then makes hard copies of the pictures with a laser printer and photocopies them onto archival paper, to be hand-colored in with pastels or watercolors.

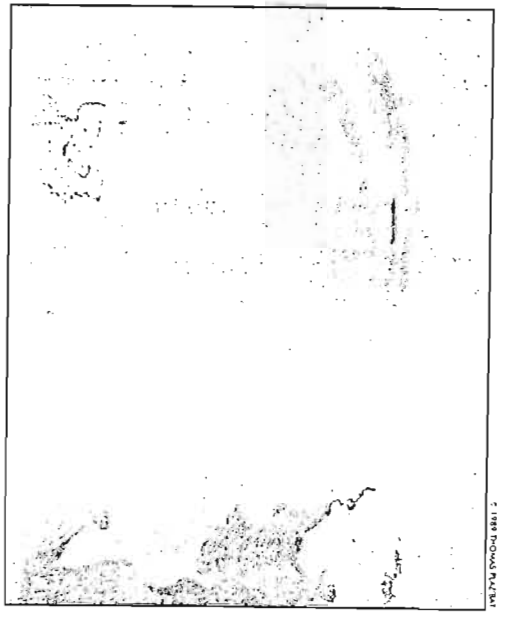
David Breen of Troy, N.Y., delved into computer art about five years ago. He had no formal art training but was well-schooled in computer graphics from his job as a research engineer at the Design Research Center at the Rensselaer Polytechnic Institute.

"I've always been a big fan of Van Gogh," says Mr. Breen, whose photographic print "Second Night" is based on the master's "Starry Night." His piece, he says, "has the basic shapes and structures of 'Starry Night,' but the tools I have are 3-D tools." Using a computer graphics work station, he mathematically created 3-D objects and defined their surfaces as shiny or flat. The software then transferred it into an 2-D image.

"I see these incredible tools," says Breen, "powerful computers, powerful software, and I feel like I've only touched the tip of the iceberg."



COMPUTER WORKS: *In 'Forest Dusk: Moon Night' (above), Kenneth Shelton generated stereo slide images by computer. Face (right), by Thomas Paltrit, is a Cibachrome print.*

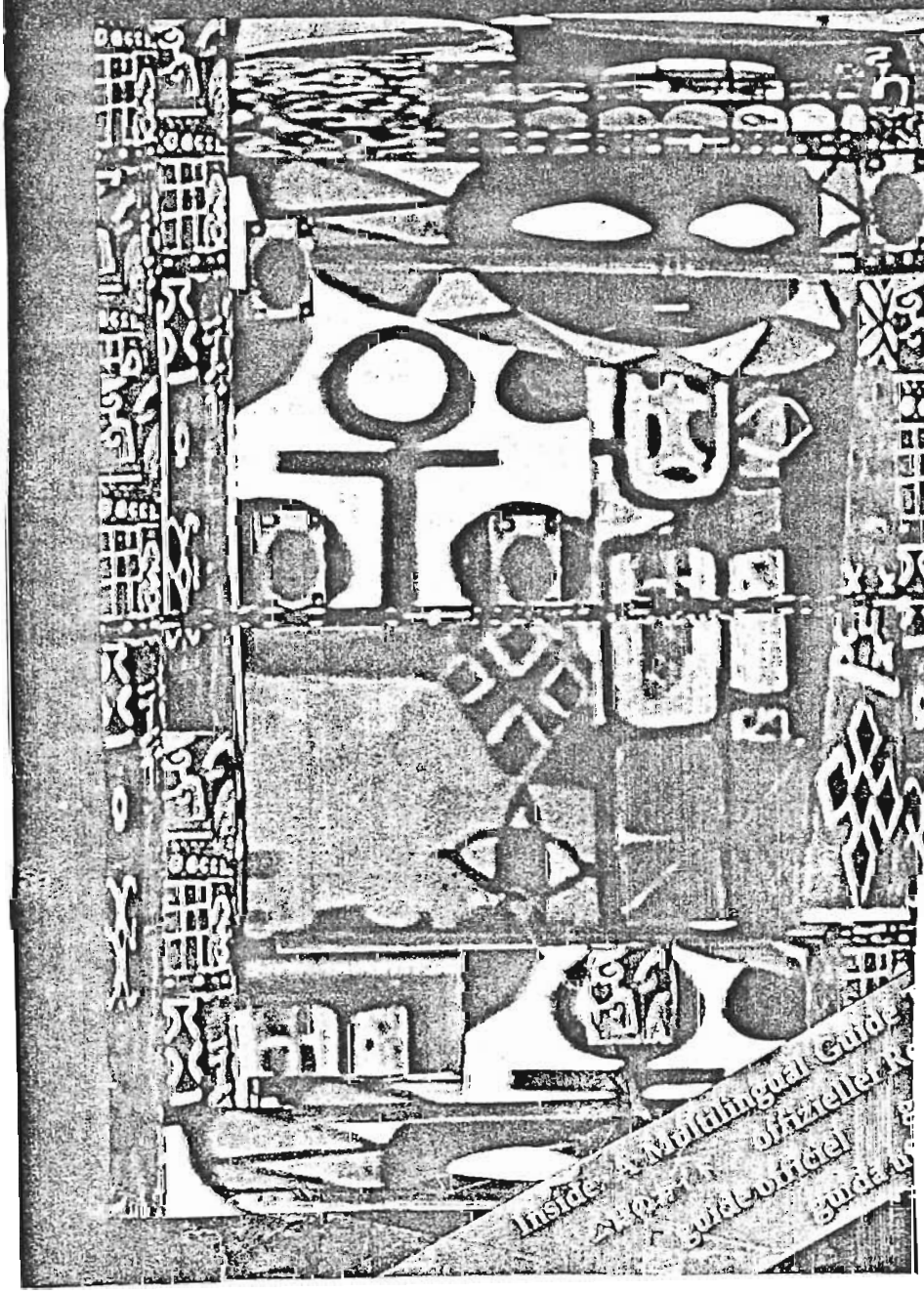


PANORAMA
January 21, 1991
Circ: 72,410

PANORAMA

BOSTON'S OFFICIAL BI-WEEKLY VISITOR GUIDE

COMPLETE LISTING OF EVENTS JANUARY 21—FEBRUARY 3
At The Computer Museum



ON THE COVER

A Song For Africa © 1990 by Acha Debela, part of The 1990 SIGGRAPH Traveling Art Show on exhibit at The Computer Museum through Feb. 1.

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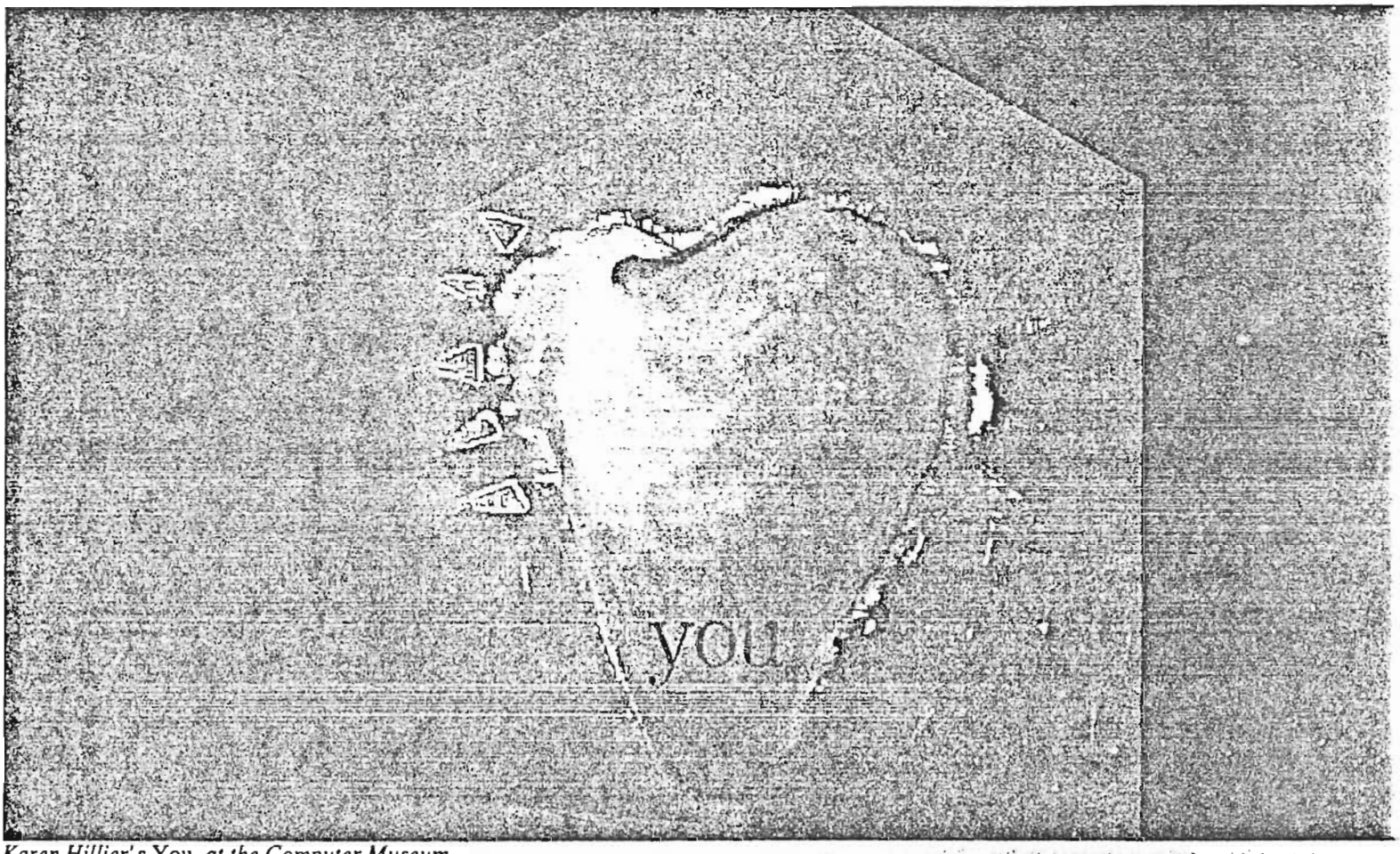
ART LISTINGS

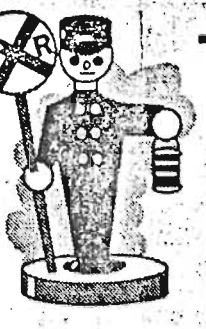


Karen Hillier's You, *at the Computer Museum*

COMPUTER MUSEUM (423-6758), 300 Congress St., Boston. Tues.-Sun. 10 a.m.-5 p.m. Admission $8, $5 for students and seniors, free for children under five, half-price for all Sat. 10 a.m.-noon. Tours on Sat. and Sun. at 1:30 and 3 p.m. Robot shows and computer-animated films presented daily. Ongoing exhibits include "Design a Deck," an interactive exhibit for would-be architects; "Smart Machines," a historic and modern overview of robots and artificial intelligence; "Four Computer Classics," vintage computers, including the UNIVAC I, PDP-8, Cray 1, and IBM PC; "The Computer and the Image" features the latest in computer graphics and design. Interactive exhibits allow visitors to create computer animation, simulate plane flight, and design a car. "The Walk-Through Computer" is a giant, interactive, two-story working model of a computer 50 times its actual size. Through Feb. 1: a juried show of more than 30 two- and three-dimensional art works from artists around the world. Fri. and Sat.: a "computer-copia" of exhibits, events, and activities is presented to celebrate the holidays.

THE BOSTON PHOENIX
December 28, 1990
Circ: 135,000

ARTS WEEK



A SELECTIVE GUIDE TO ACTIVITIES FOR THE WEEK OF DECEMBER 2-8

SUNDAY BEST

Tom Paxton and John McCutcheon

Youngsters and grownups alike can enjoy this joint concert by one of acoustic music's elder statesmen, author of such classics as "Ramblin' Boy" plus a member of the younger generation, both of whom mix traditional folk material with childrens' songs.
▶ *3:30 and 7:30 p.m. Arlington Town Hall at 730 Massachusetts Ave., Arlington. Telephone 641-1010. Tickets $17.50.*

'Sex, Drugs, Rock & Roll'

Strikingly intense character actor-monologist Eric Bogosian ("Talk Radio") brings a revised version of his acclaimed one-man show in which he loses himself in a variety of on-the-edge contemporary figures – televangelist, junkie, doctor, and more.
▶ *3 p.m. Wilbur Theater, 246 Tremont St. Telephone 423-4008. Tickets $26.50-$36.50.*

Handel & Haydn Society

A seasonal favorite, the "Messiah," Handel's oratorio about the Passion and Resurrection of Christ, gets an unusual twist as conductor Christopher Hogwood leads an early-instrument ensemble and soloists in the orchestration by Mozart.
▶ *3 p.m. Symphony Hall, 301 Massachusetts Ave. Telephone (800) 382-8080. Tickets $15-$29.99.*

World's End

This quiet, water-surrounded preserve designed by Frederick Law Olmsted contains 251 acres of variegated and picturesque land to explore – including woodlands, fields, marshes, rocky ridges, and broad hills whose crests afford a view of Boston Harbor.
▶ *8:30-4:30 Martin's Lane, Hingham. Telephone 749-8956. Admission $2.50.*

'Voices of Our Ancestors'

Semenya McCord, an accomplished jazz singer from Cambridge, evokes "an African American Heritage of Song" through a varied selection of black music from slavery days to modern times, in a one-woman concert that's suitable for children and families.
▶ *2 p.m. Newton Arts Center, 61 Washington Park, Newton. Telephone 964-3424. Tickets $6.*

Concord Orchestra Family Concert

Old chestnuts jostle the new in an interesting program conducted by Richard Pittman that opens with "Peter and the Wolf," narrated by Carl De Suze, and continues with orchestral music by Rossini and John ("Nixon in China") Adams.
▶ *2:30 and 4 p.m. Performing Arts Center, 51 Walden St., Concord. Telephone (508) 369-4967. Tickets $8.*

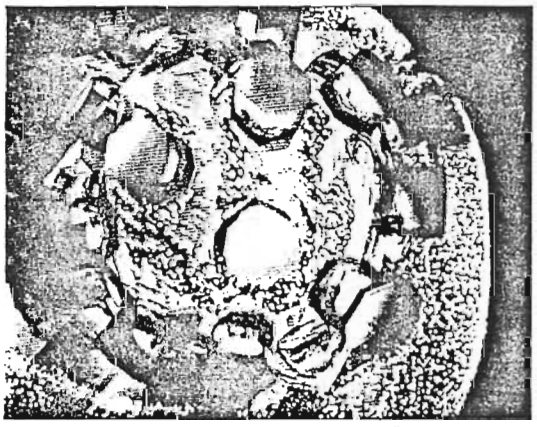
Computer Museum

The only local museum of artificial intelligence presents the new edition of the "SIGGRAPH" Traveling Art Show – a juried international cross-section of state-of-the-art digital paintings, photos, sculpture, animation, and 3-D art.
▶ *10 a.m.-5 p.m. Museum Wharf at 300 Congress St. Telephone 423-6758. Admission $6.*

THE BOSTON GLOBE
December 2, 1990
Circ: 787,385

Computer art in Boston

Few realize how serious an undertaking computer art has become. Yet more than 2000 entries from 500 artists representing 20 countries were considered for the 1990 Siggraph Traveling Art Show by an international panel of artists and curators. Titled "Digital Image/Digital Photography," the collection went on view Oct. 23 at The Computer Museum in Boston.



Papilloma Virus. [illegible] Copyright [illegible] Laboratory. The 1990 Siggraph Traveling Art Show.

The 30 pieces selected reveal "aesthetic quality and a significant use of the computer" in the creation of the artwork or its presentation, or in the interaction between the piece and the viewer, explained art show chair Thomas E. Linehan, director of the Visualization Laboratory in the College of Architecture at Texas A&M University, College Station.

The two- and three-dimensional works include prints, paintings, plotter-drawings, glass sculpture, animations, and phscolograms (pronounced skol'o-grams), or three-dimensional photographs similar to holograms except for being in full color.

One of the phscolograms, shown above, is of a papilloma virus superimposed on a mammogram, with a cancer visible in the lower right. To create such an object, the artist starts with multiple views of a scene, each of which is cut into vertical columns. The columns are then interleaved and positioned behind a barrier strip, or line screen. Lines in the screen are spaced so that each eye sees a different view, which the brain fuses into one 3-D image. Moving the head left or right obviously changes the picture.

Scenes may be real or simulated—either real objects are captured on photographic film or videotape and then scanned into a computer, or artificial worlds are created using computer graphics. Computer processing yields a photograph-like image in digital form.

In the phscologram of the papilloma virus, the image has been printed as a full-color transparency on one side of a 50-by-60-by-7.5-centimeter piece of plexiglass; the barrier strip is mounted on the other side. The finished work is viewed in a light box.

The show at The Computer Museum in Boston runs through Feb. 1, 1991. It is actually a selection chosen from pieces displayed at the 10th Annual Siggraph Art Show, held in August during the 17th Annual Conference on Computer Graphics and Interactive Techniques in Dallas.

IEEE SPECTRUM
November 1990
Circ: 287,000

[illegible] of hard-edged unstable
[illegible] implements analyt-
designing gaussian
mirror resonators.
cage, as it's called,
yte Macintosh floppy
academic version is US
ersion is US $500, and
nse is US $2500. *Con-
ibution Center, Stan-
ord, Calif. 94305-6225;*

with a superconducting temperature (T_c) of 92 K) is US $200. Larger films up to 40 by 40 mm in area are also available. Thicknesses range from 10 to 100 micrometers.

According to the company, the films show excellent transition characteristics, Meissner effect, and infrared and magnetic field response. Stoichiometric, morphological, and electrical characteristics are available on request. So are still thicker films for thick-film circuit applications.

Other products include a US $175 superconducting battery kit built around a YBCO toroid that mimics the U. S. Navy's magnetic energy storage device, and solid shapes of YBCO and bismuth-lead-strontium-calcium-copper oxide (with a T_c around 100 K). All products are described in a brochure. *Contact: Colorado Superconductor Inc., Department P10, Box 8223, Fort Collins, Colo. 80526; 303-490-2787; fax, 303-490-1301; or circle 62.*

Desktop laser optics

Four programs meant for optical resonator design and laser beam propagation calculations work on Macintosh desktops. From Stanford University in California, the package takes advantage of the Macintosh graphic interface along with optimized algorithms, such as the complex ray-matrix approach for paraxial systems, fast Fourier and fast Hankel transforms for optical beam propagation, and the virtual source approach for unstable resonators.

Calculations that previously required batch runs on mainframe computers can be carried out at the desk. In most cases, the programs follow theoretical approaches outlined in the text *Lasers* (University Science Books, 1986) by Professor A. E. Siegman of Stanford.

The ABCD program, for example, allows an optical system to be built as a succession of optical elements (lenses, mirrors, Brewster plates, and so on). The system can be edited on the Macintosh in the same way as text is edited by using the CUT, COPY, PASTE, CLEAR, and UNDO commands. Focal length, thickness, and other parameters for each element may be edited at any time or made variable. Each element may also be made misaligned or astigmatic.

Of the other programs, Fresnel propagates an arbitrary wavefront successively through such elements as a hard-edged aperture, an arbitrary mask, and an arbitrary paraxial system. VSource uses a virtual source to calculate higher- and lowest-

Smartness in harness

An intelligent power IC from Texas Instruments Inc. reduces both the component count and the complexity of wiring harnesses in instrumentation systems. The 8-bit serial-in, parallel-out TPIC2801 driver has eight 1-ampere, 30-volt outputs that it can monitor simultaneously. It can identify faults, disable affected channels, and report the status of each output to a microprocessor via a single output. Other multi-output switches have but a single reporting flag, which does not locate the failure, according to the company.

The IC accepts inputs directly from a microprocessor or low-level logic, and can directly switch lamps, relays, printheads, small solenoids, and other medium-current or high-voltage loads. Also integrated on the chip is the self-protection circuitry required for active energy snubbing associated with inductive loads.

Fabricated in TI's BIDFET technology, which incorporates bipolar double-diffused and MOS field-effect transistors, the TPIC2801 operates from −40 °C to +105 °C and comes in a 15-pin single-inline package. Suggested resale price is US $3.20 each in quantities of 1000. *Contact: Texas Instruments Inc., Semiconductor Group, Box 809066, Dallas, Texas 75380-9066; 1-800-336-5236, ext. 700 (North America) and 1-214-995-6611, ext. 700 (elsewhere); or circle 61.*

Guides to business East and West

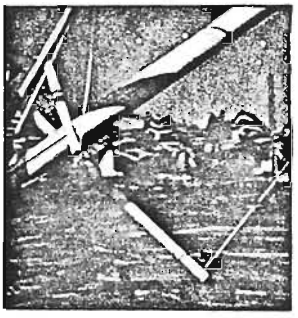
The American Electronics Association (AEA) has two books for those in the electronics industry on both sides of the Pacific. The 450-page 1990/91 AEA membership directory profiles some 2800 member firms and 500 associate members. Includ-

(Continued on p. 132)

BOSTONIA
January/February 1991
Circ: 180,000

THE ARTS PAGES

LISTINGS

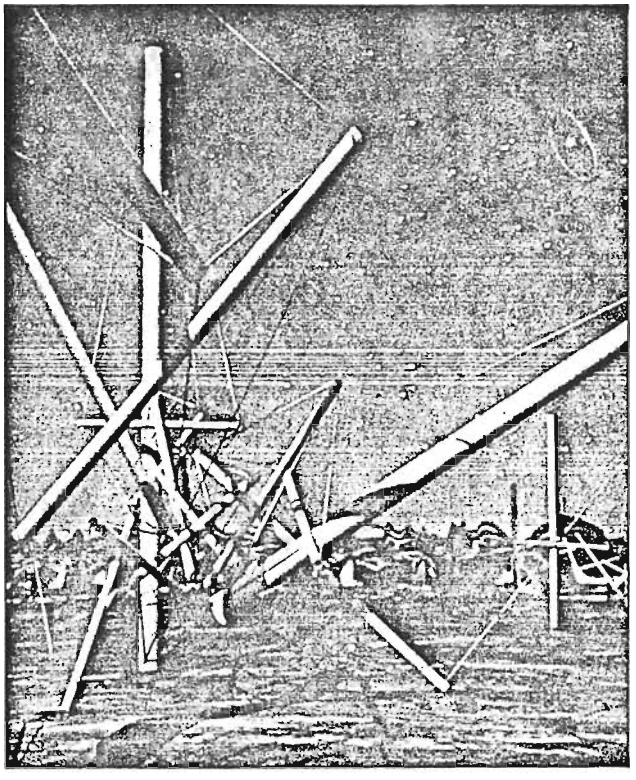


THE ARTS

LISTINGS 16
Recommended is "Digital Image/Digital Photography," at the Boston Computer Museum.

AMONG THE MANY BOOKS 20
Christopher Ricks reconsiders the art of Dorothy Richardson. *Mark Kuchment* surveys the life of a Russian geneticist.

FROM THE STUDIO 25
Photographer Lucy Cobos cap-



Recommended The 1990 SIGGRAPH traveling exhibition entitled "Digital Image/Digital Photography," at The Boston Computer Museum through 2/1, offers an opportunity to see how computer art has developed beyond its preoccupation with technical effects into a flexible new medium allowing free-ranging artistic expression. Thirty works, ranging from two- and three-dimensional prints and sculpture to animation and "stereo art" (such as Kenneth Snelson's *Forest Devils' Moon Night*, pictured here), provide the evidence. $6 adults, $5 students and elders; half price Friday evenings. Tues–Sun 10–5, Fri 10–9. Museum Wharf, 300 Congress St., Boston. (617)426-2800.

compare depictions of the conflict by artists of both countries. Most of the American art was created after the war ended and is more abstract and symbolic in its expression, while the Vietnamese works were created in the field, and are more documentary in nature. A stated aim of the exhibition is to promote understanding and reconciliation between the former antagonists. A reception will be held on Friday, January 18. Mon–Fri, 10–4; Sat–Sun 1–5. 855 Commonwealth Ave., Boston. (617) 353-3345.

Art Complex Museum

▪ Russian-born Alex Gassel, trained in icon restoration in Moscow, uses traditional Russian egg tempera techniques and cultural talismans from many civilizations in his work. The surrealistic result can be compared with the ACM's collection of European religious paintings which Gassel recently restored, in an exhibition entitled, "Icons," *through 1/13*. "The Boston Printmakers," a group of artists working in a variety of print media, are exhibiting concurrently.

▪ From *1/25–3/17*, the museum will feature "Perspectives," the architectural landscapes, realistic and imaginary, of Joel Babb, manipulated by using experimental projections and repeating patterns. Also from *1/25–3/17*, the ACM will exhibit artwork chosen for their annual juried show. Wed–Sun 1–4; Free admission. 189 Alden St., Duxbury. (617)934-0029.

Currier Gallery of Art, *1/27–4/29*

▪ "Corot to Monet: The Rise of Landscape Painting in France," will exhibit predecessors of Impressionism from a viewpoint which emphasizes the social values that raised landscape painting in the mid-19th century to a preeminent position. One hundred paintings and ten works on paper by Corot, Millet, Rousseau, Courbet, etc., will show the achievements which helped free painters from academic constraints. Also, see the Zimmerman House, designed in 1950 by Frank Lloyd Wright, and recently acquired by the museum. Tues, Wed, Fri & Sat, 10–4; Thurs 10–10; Sun 2–5. Free admission. 192 Orange St., Manchester, N.H. (603) 669-6144.

Danforth Museum of Art, *Through 1/13*

▪ Eight Boston-area artists present us with "Separate Visions: A Diverse View of Contemporary Boston Art." Wed–Fri 12–4:30, Sat–Sun 1–4:30. $3 adults, $2 students and seniors. 123 Union Ave., Framingham. (508)620-0050.

De Cordova Museum, *Through 1/27*

▪ Howard Ben Tré's evocative glass and metal sculptures, suggesting an elegant, though sometimes unsettling amalgam of human figures, machines, and ancient monuments, remain on display. Also on display are photographs by Aaron Siskind from the museum's permanent collection, some of which influenced the development of the Abstract Expressionist movement. Tues–Fri 10–5, Sat and Sun 12–5; $3 nonmembers, free for members. Sandy Pond Rd., Lincoln. (617) 259-8355.

Essex Shipbuilding Museum

▪ A visit to this small museum to see "Frame-up," a full-scale exhibit of traditional shipbuilding techniques, may help frustrated sailors get through the land-bound winter months. This exhibit, based on the methods used to construct the schooner *Rob Roy* in 1900, may be seen by appointment only from *1/1–4/1*. $2 adults, $1 children, $10 minimum for groups. 28 Main St. on Rte. 133, Essex. (508)768-7541.

Fuller Museum of Art, *Through 1/13*

▪ The Fuller's Sixth Triennial Exhibition continues its survey featuring 40 area artists working in varied media—drawing, painting, installations, video. Wed–Sun 12–5; $2 general admission; $1 seniors, students, and children; free for members. 455 Oak St., Brockton. (508)588-6000.

Harvard Art Museums

▪ "Guercino, Master Draftsman: Works from North American Collections," displays more than eighty drawings by one of the greatest draftsmen in the Western art tradition, *2/16–3/31*. Il Guercino (born Giovanni Francesco Barbieri, 1591–1666), was a leading painter of the Italian Baroque, whose vigorous drawings reflected his interest in everything from figure studies to scenes of 17th-century urban Italian life. "Awards in the Visual Arts 9," continuing

Where to See Robots

If reading about robots makes you want to see or even build one, call up your local science and children's museums. Ask if they exhibit robots or sell "build-your-own" kits.

One particularly good exhibit is at The Computer Museum in Boston, Massachusetts, which demonstrates robots in its Smart Machines Theater. Twenty-five machines come to life as they are introduced in a ten-minute show. You can see Denning's Sentry, NASA's Mars Rover, and Stanford Research Institute's Shakey.

Elsewhere in the museum, you can type your name into a computer and watch a robotic arm spell it in blocks. Or, by the touch of a joystick, you can direct a foot-high robot on wheels around its pen.

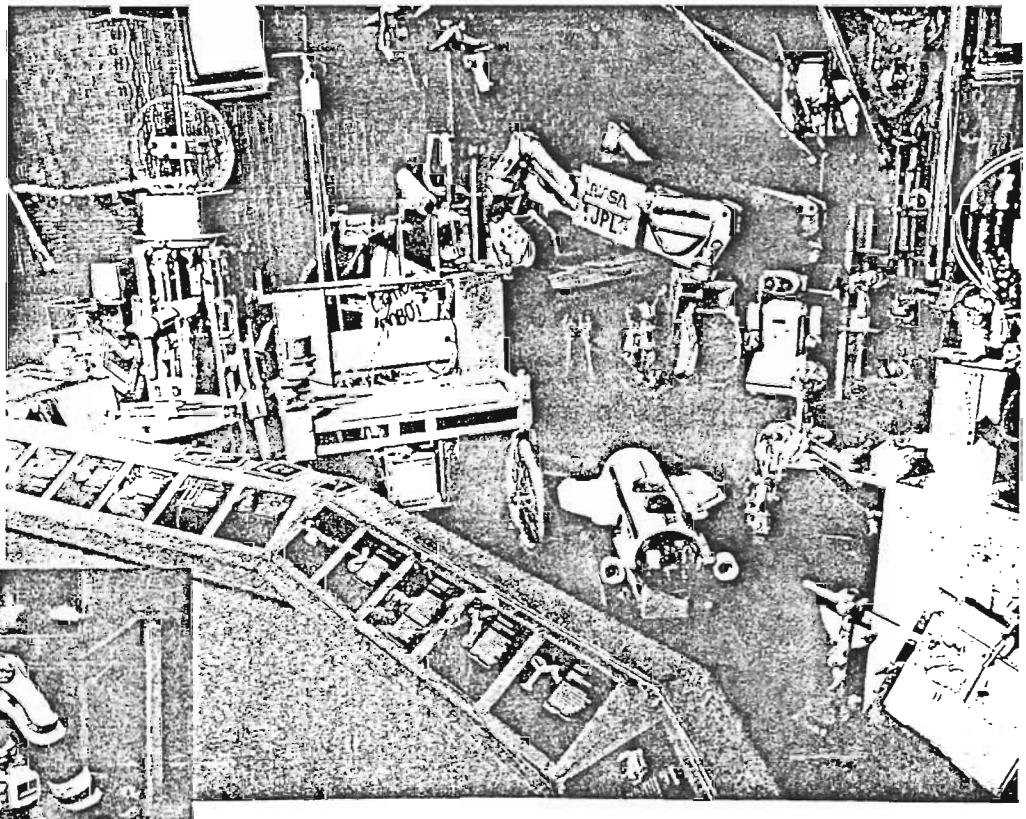
The "Color the States" computer demonstrates speech recognition. The machine gives you the choice of four colors with which to paint a map of the United States, one color per state. You pick the state and announce your color, which the computer then fills in on its video screen. The challenge for the computer system is to understand all of the different accents among the museum's 100,000 yearly visitors. Your challenge is to complete the map without allowing states of the same color to touch each other. (You can try this test – called the "Four-Color Problem" – at home with a map and four differently colored crayons.)

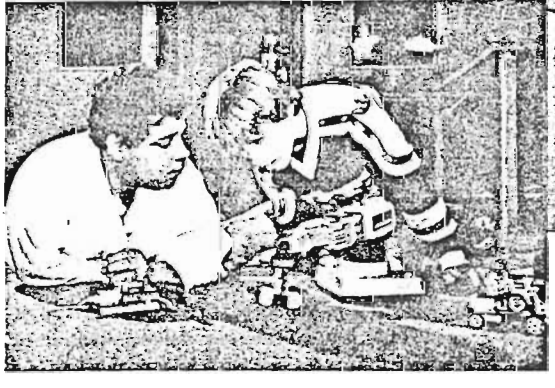
Another exhibit analyzes a two-minute conversation between Dave, the human, and HAL, the computer, in the movie, *2001*. This video reveals the incredible amount of knowledge and intelligence HAL would have to possess in order to speak as it did in the film. The analysis concludes that scientists may build such smart machines some day, but not by the year 2001.

The Computer Museum sells kits for building robots and sometimes holds workshops for adult-child teams. With the parts and instructions supplied, you can assemble Peppy or Medusa, miniature robots under six inches (15.24 cm) tall. Both come with their motors, circuit boards, and batteries visible inside a clear plastic dome. Snap-on electronic connections or bolted mechanical connections make these machines safe to build – but not easy. Close attention to the instructions is required at all times.

Peppy runs on wheels while Medusa walks on four stiff legs. They both take off and stop at a clap of the hands.

Boston's Computer Museum has one of the largest collections of robots assembled anywhere.





Building robots isn't just for scientists. Kids of all sizes can create robots from kits or objects around the house.

RADICAL ROBOTS
A NOVA BOOK
Fall, 1990

By Marguerite Zientara

Women Captains For This Year's "Computer Bowl" Teams

For the first time since it started three years ago, The Computer Bowl trivia contest will feature female team captains. Computer historian Pamela McCorduck, author of seven books, including *Machines Who Think*, will head the East Coast Team. The West Coast Captain will be Heidi Roizen, President and CEO of T/Maker Co.

This year's event will be a tie-breaker, in that the East Coast won (375 to 310) in 1988, then lost last year (300 to 290) to the West Coast. The judges this year will be International Data Group Chairman Patrick McGovern and venture capitalist John Doerr.

Created and produced by Boston's Computer Museum, The Computer Bowl will be held April 26 in San Jose, Calif., and will be beamed live via satellite to the Museum and other locations around the U.S.

More on this as time draws near.

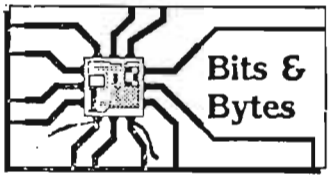
JANUARY 1991

BOSTON COMPUTER CURRENTS
January 1991
Circ: 68,517

San Jose Mercury News, Wednesday morning, December 5, 1990

[Circulation 277,010]

Business



Trivia titans turn to S.J.

THE TEAMS are set for the titanic struggle. The reigning champions from the West Coast have secured the home-field advantage. No, we're not talking about the 49ers and the Super Bowl.

It's time, once again, for the Computer Bowl, that periodic battle for bragging rights as the "Computer Masters of the Universe."

This time, the confrontation between industry luminaries will be staged live at the San Jose Convention Center on April 27. Two previous editions of the trivia contest, a fund-raising event sponsored by the Computer Museum in Boston, were conducted on the East Coast and broadcast by satellite to a few West Coast locations.

In the first Computer Bowl in 1988, the East Coast team scored a 375-310 blowout. In the second contest last April, the West Coast experts won a nail-biter 300-290.

The Computer Museum has asked two women to serve as captains of the 1991 teams — Heidi Roizen, president of T/Maker Co. of Mountain View, and Pamela McCorduck, author of several books on artificial intelligence.

Roizen's West Coast allies include David House of Intel, Philippe Kahn of Borland International, David Liddle of Metaphor Computer Systems and Ed Juge of Tandy.

"We're studying hard," said Roizen, who warned the Easterners to forget their stereotypes. "We're not just sitting in pyramids, getting centered and eating granola."

The East Coast computer industry, badly depleted by years of poor financial performance, is pinning some of its hopes on John Markoff, technology writer for the New York Times.

For ticket information, call the Computer Museum in Boston at 617-426-2800.

□

Lee Gomes, Rory J. O'Connor and Ron Wolf contributed to this column, which was compiled by Steve Hamm. You can contact them by mail at 750 Ridder Park Dr., San Jose 95190, via fax at (408) 920-5917, or send electronic mail via MCI Mail at mailbox 361-2192.

If Famous People Were Computers

Name	Famous As	Main Memory	CPU	I/O
Mitch Kapor	Spokesman for hacker/felons	Past computer bowl champ	Minisupercomputer (or superminicomputer)	TI speeds (1.544 MBPS)
John Doerr	Portable computing enthusiast	Current computer bowl champ	Cray-3	World's fastest talker
Teddy Kennedy	Freestyle swimmer	Page fault	Not as good as earlier versions	Operates on advice of counsel
Bill Gates	*People* magazine celebrity	3.2 gigabucks (that's all you have to remember)	80X86 (of course)	Goes haywire in the presence of Bill Joy
Larry Ellison	Short sellers' friend	Crashed—lost 75% of gigabucks	Powerful, but subject to overheating	Out of control
Ronald Reagan	Color commentor at baseball All-Star game	Magnetic core	ENIAC	Controlled by Nancy
Steve Jobs	Inspiration for Honda commercials	Seems to have lost the recipe	Should have gone RISC	Short bursts of "O" followed by long silences
Don Valentine	UPSIDE interviewee	Never forgets a failed CEO	Application specific parallel supercomputer (computes size of market only)	Unfiltered
Armadillo Slim	World's best poker player	At least 52 registers	High-speed math co-processor	Poker face
Rain Man	Actor in movie of same name	30 terabytes	H-P 12C	Lots of "I" (faulty "O")

(software). "A mind (hardware) is a terrible thing to waste (not loaded up with software)."

There are still more parallels. Let's look at mass storage. I used to have a girlfriend who carried around with her the sloppiest Filofax north of Ojai. It weighed 15 pounds, 10 pounds of which were Post-it Notes, yet she could find anything she wanted immediately (came in handy when she was audited by the IRS). She didn't have much of a memory normally but obviously, she had uncanny indexing [illegible] advanced degrees with last minute capability for rapid ra[illegible] mass storage.

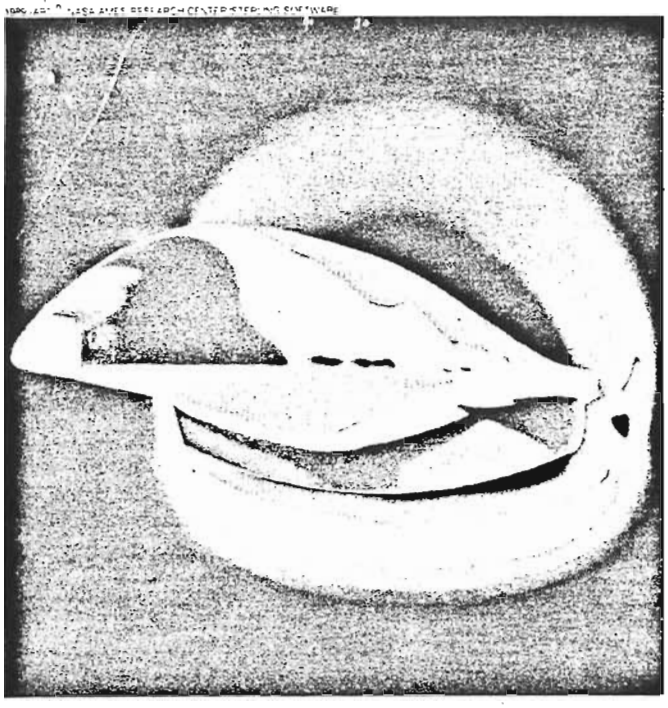
Still others are an[illegible] insist on neat desks a[illegible] file cabinets. They act their tidiness, but now they are just working with very limited main memories (we're talking kilobytes, not megabytes here) and have to waste cycles getting their mass storage in proper order. How many of the rest of us earned

UPDSIDE MAGAZINE
November 1990
Circ: 55,000

Try applying this new paradigm (am I overdoing it now?) on your friends. Then go find new friends, because you're bound to piss the old ones off.

Mark Bronder runs on a Sparc chip and massively stores trivia such as the above.

CORRIDOR TALK



Art to the Nth Power

A "stealth negative" won't stop the conflict in the Persian Gulf, but it could be the forerunner of 3D television. $(ART)^n$, a group of artists, scientists and mathematicians at the Illinois Institute of Technology, has invented this computer-generated digitized negative to create a phscologram (pronounced skol-o-gram).

Phscolograms combine elements of photography, holography, sculpture and computer graphics. To achieve a holographic effect, explains mathematician Stephan Meyers, the images are transferred from the "stealth negative" to a cebachrome and laminated onto one side of a piece of plexiglass; on the other side is a "barrier screen" which allows the image to be seen through a series of slits. As the angle of vision changes, a sensation of depth breathes life into the image.

"The energy and passion for combining art and technology are connected [in a phscologram]," says sculptor Eilen Sandor, who founded the collaborative in 1983. What began as a group of artists shooting dioramas with a giant camera has since grown to include technicians from NASA's Ames Research Center, Mountain View, Calif., and the Pasadena, Calif.-based Jet Propulsion Lab.

The group creates unusual visuals, such as a close look at the AIDS virus and "Hypersonic Vehicle" (above) which shows pressure on a test craft traveling at Mach 12.4. The Computer Museum in Boston will feature these and other images in the "Science in Depth" exhibit from March through mid-May.

Sandor and scientist Dan Sandin also created the Electronic Visualization Laboratory at the University of Illinois. Sandor hopes to find a non-compromising commercial outlet for the new computer art. Adds Meyers: "Artists and scientists both bring their emotions into this work."

MARKETING COMPUTERS
February 1991
Circ: 14,648

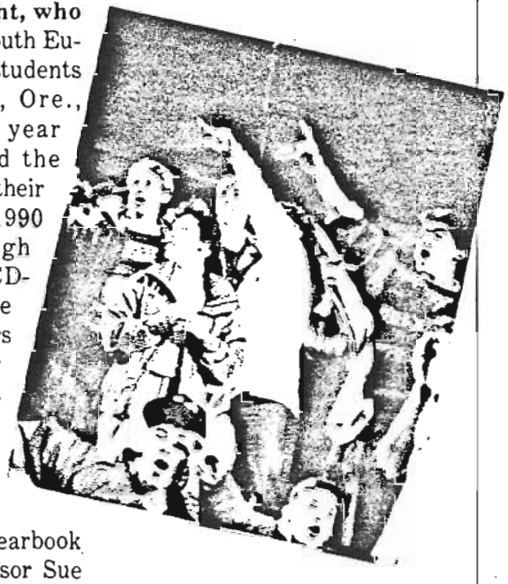
ronmental programs under the name Project Green.

Everything except the disk in XTreeGold 2.0 management software is made from recycled and recyclable materials. XTree's heroic efforts in attempting to eliminate waste in its manufacturing, shipping and office operations make it a qualified role model. Now XTree has joined The American

Forestry Association's Global ReLeaf program to help plant 100 million new trees in the U.S. by 1992.

Thanks for the Memories

Two, four, six, eight, who do we appreciate? South Eugene High School students in South Eugene, Ore., made history last year when they created the CD-ROM version of their printed annual, the 1990 *Eugenean*. Although few of them own a CD-ROM drive, those who have CD players can at least hear student concerts that are on the disc.



The school's computer specialist, Tom Layton, went to S.E.H.S. yearbook and newspaper advisor Sue Barr with the idea. Layton's computer students scanned photographs and text onto the CD, while Barr and her staff helped with layout and design. "The students worked hard, all through the summer," says Barr.

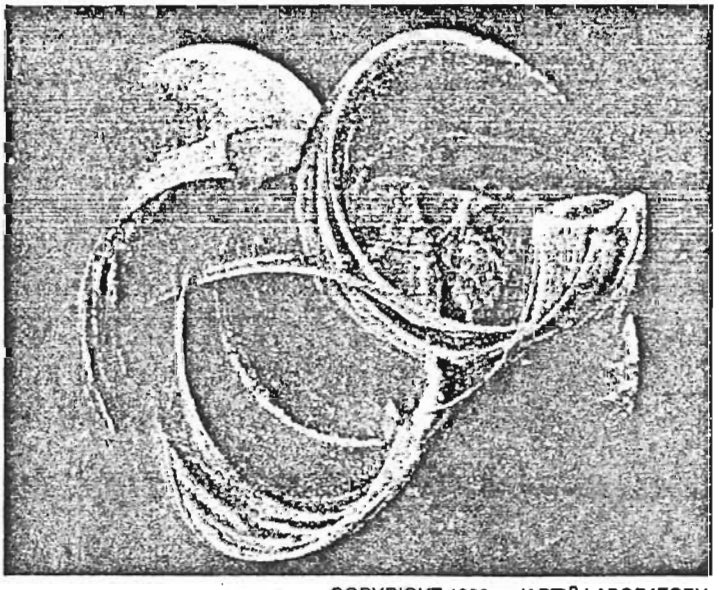
Layton thought the project would appeal to corporations who might like to donate equipment. Apple Computer and Canon USA complied, as have Macro-Mind and RasterOps.

Students are now operating a desktop publishing company and a multimedia firm to create hypercard stacks for the state of Oregon. Barr says this year's *Electronic Eugenean* will be different. Layton agrees: "We're going where no yearbook has gone before."

—By Tara Buckley

THE BOSTON PHOENIX
February 8, 1990
Circ: 134,000

A phscologram is a 3-D amalgam of photography, holography, sculpture, and computer graphics. Created by $(ART)^n$, a group of artists and scientists at the Illinois Institute of Technology, phscolograms can be made of objects invisible to the naked eye, from the surface of Mars to the eye of a thunderstorm to molecules and viruses. "Science in Depth," an exhibit of these sophisticated and compelling artworks, opens at the Computer Museum on March 1. Call 426-2800. (In photo: *Strange Attractor*:)



MASS HIGH TECH
January 14, 1991
Circ: 37,000

Computer Museum Bursting in 3-Dimensions

Ever wonder what the surface of Mars looks like? How about the eye of a storm?

"Science in Depth," an exhibition of three-dimensional images at the Computer Museum, will show you that and more. The exhibit opens March 1 and runs through May 15. The digitized, full-color photographic works show subjects invisible to the naked eye. They include images of the surface of Mars, the eye of a storm, viruses and molecules. Called "pschograms," the pieces were created by ART, a group of artists and scientists at the Illinois Institute of Technology in collaboration with the Electronic Visualization Laboratory at the University of Illinois, Chicago.

"The results are not only visually compelling, but have serious applications in mathematics, medicine, chemistry and physics," says museum executive director Dr. Oliver Strimpel. The show includes some of the most important visualization of the day, representing space and aircraft, medical subjects, mathematics, chemical studies of organic molecules and tributes to artists Georgia O'Keeffe and Man Ray.

One pschogram, created by NASA Ames and the Jet Propulsion Laboratory (JPL), shows a computer-rendered view of Mars using surface data of Mount Olympus and the Valley of the Mariners. Other pschograms show Doppler radiation data of a thunderstorm, the F-22 Stealth Fighter and a model of the space shuttle. Still others offer doctors three-dimensional views of polio, herpes, and AIDS viruses, some of which have never been clearly visualized until now.

In creating these works, ART has collaborated with scientists from institutions such as the IBM T.J. Watson Research Center, The Scripps Clinic and Research Center, NASA Ames Research Center, JPL, the University of Chicago, the University of Chicago Hospital, Lockheed and Monsanto Corp.

One of many pschograms on display.

Art coined the term pschogram (pronounced skol-o-gram) because its work combines elements of photography, holography, sculpture and computer graphics. As the viewer moves, the pschogram's imagery — captured in large lightboxes — shimmers with life, practically springing off the wall into 3-D. The pschograms "don't draw us in, but rather come out to us. . . provoking responses about what is real and tangible and what is merely visible and apparent," says *Critical Inquiry.* □

The Boston Globe
BOSTON, MASS.
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JAN 6 1991
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THE BOSTON GLOBE
January 6, 1991
Circ: 787,385

CRITIC'S CHOICE

High tech avant garde

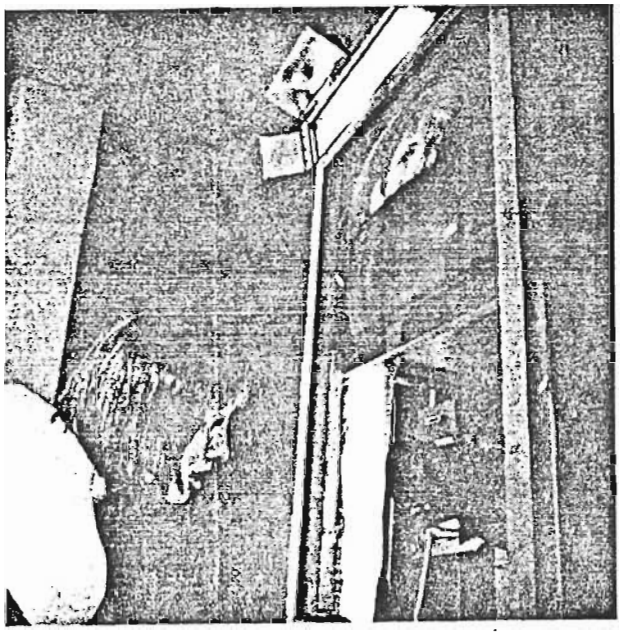
8078

Video and Vincent Van Gogh is not everyone's idea of a marriage made in heaven, or anyhwere else. But, nonetheless, the fiercely expressive Flemish painter provided the moniker for a group of experimental German videographers and filmmakers who are currently in residence at the Institute of Contemporary Art in Boston.

The group is something of a cult phenom in Europe because of a high-tech form of television and radio transmission which they call "intervention."

To demonstrate, two members of the network, Benjamin Heidersberger and Mike Hentz, will be in Cambridge's Continental Cablevision today, where they will coordinate what can only be described as a three-pronged audience-interactive video-performance transmission.

In simpler language, this means that visitors to either the ICA or to the Computer Museum – cosponsors of the project here – will get the opportunity to converse with each other and to transmit images of themselves back and forth, via a video-telephone set-up called a "picturephone." While all this is happening, Heidersberger and Hentz, stationed at Continental Cable, will manipulate the two sets of images to create an original program, which will in turn be broadcast locally on Cable Channel 3 in Boston, Cambridge, and the northern suburbs.



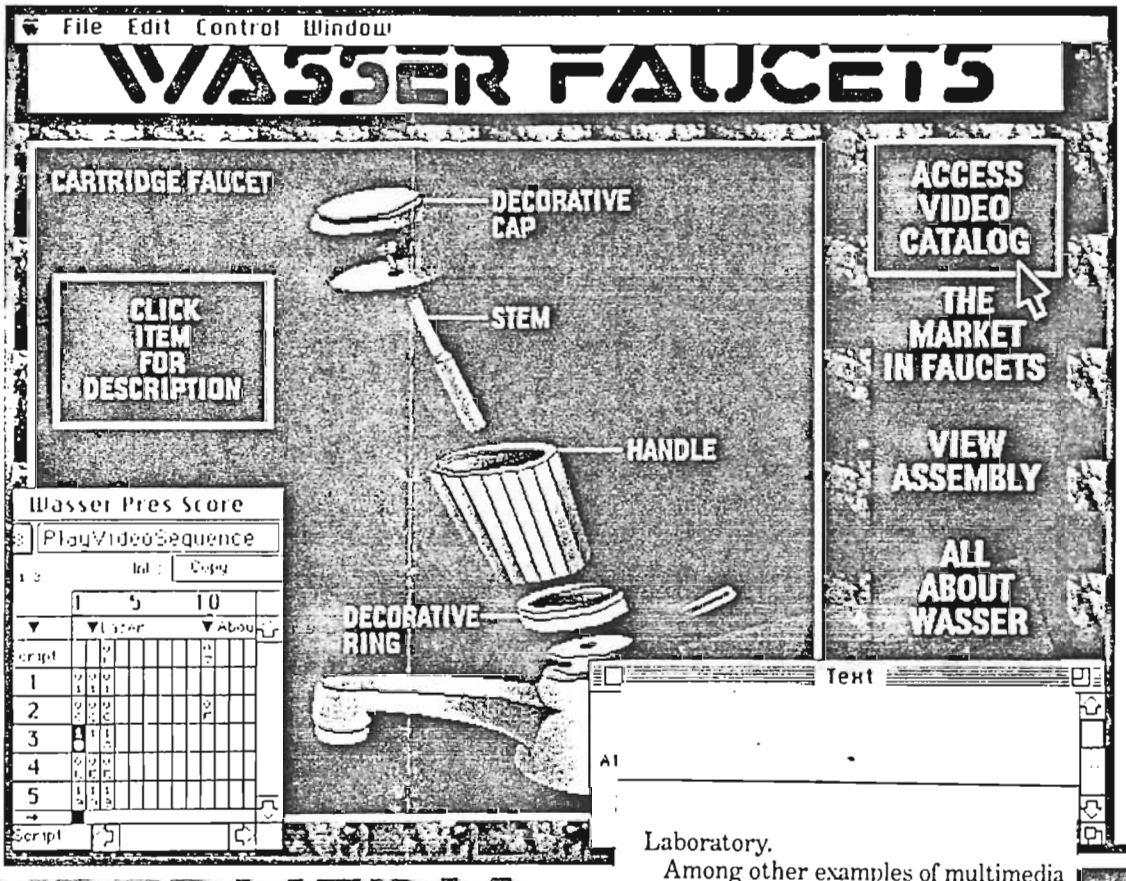
This "intervention" will take place from noon to 4 p.m. today and is free with admission to either museum. The Computer Museum, of course, is the world's only museum that deals exclusively in artificial intelligence. It is at 300 Congress St. on Museum Wharf, admission is $6. $6. Telephone 426-2800. The ICA is at 955 Boylston St. Its admission fee is $4 and the telephone is 266-5152.

– JOHN ENGSTROM

8078

MULTIMEDIA

HYPERMEDIA



These technologies are still in their infancies, and are expected to have a major, if yet unclear, impact in the 1990s.

ART & DESIGN NEWS
January/February 1991

Laboratory.

Among other examples of multimedia and hypermedia applications are the following:

Information kiosks and displays are found in museums, shopping malls, and other places with complex space and exhibits. They use interactive technology to give visitors more personal and specific information than the standard 2D sign. One leading-edge use of interactive technologies is the Computer Museum in Boston. The visitor is given the opportunity to learn more about the exhibits by engaging the various computers throughout the museum. By using them, one learns more background as well as gaining hands-on experience. One is unable to pass through the museum without getting into a conversation with at least one computer, if not a dozen or more. Other museums and exhibits are following suit and this promises to be a growing application area in years to come.

Marketing, advertising, corporate presentations, and point-of-purchase sales have been using interactive technologies for some time now, albeit many times in a limited manner (for example, marketing information shown by means of touch-sensitive screens and interactive

The Breakfast Seminar Series
The Breakfast Seminar Series is a monthly program which presents speakers of international prominence in the world of computing. The Series focuses on current emerging trends of key importance to business decision-makers. The Series is an exclusive benefit of corporate members.

Selected Past Speakers

Joel Birnbaum, V.P. & General Manager
Hewlett-Packard Company

Bill Foster, President
Stratus Computer Inc.

Charles Spoick, President
National Semiconducter Corporation

Frank King, Sr. Vice President
Lotus Development Corporation

Ted Nelson,
Autodesk Inc.

Arno Penzias,
AT&T Bell Labs

Esther Dyson, Editor & Publisher
(*Release 1.0*)

Edward Teller, Sr. Research Fellow
Hoover Institution

Patrick McGovern, Chairman
International Data Group

Ed Feigenbaum
Author

The Computer Museum "....has become a focal point and unifying force in the highly competitive, rapidly changing [computer] industry." — *Boston Globe*, October 1988

"The Computer Museum is the only institution that has the sole purpose of preserving something of the history and artifacts and the culture of computing. And I think that it's going to become increasingly important that we have an institution that enables us to look back and understand where we came from. And that's The Computer Museum." — Mitchell Kapor, *ON Technology*

"The Breakfast Seminar Series is a forum to learn about the various forces shaping the future of technology. The Seminar Series alone is worth the cost of membership." — *Coopers*

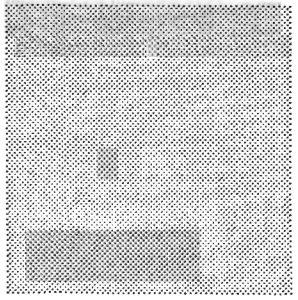
"Corporate sponsors of the Museum benefit directly from a computer literate society. Exciting interactive and educational exhibits like The Walk-Through Computer, many of which travel or are replicated, intrigue and educate visitors of all ages. This mission deserves our encouragement and support." — Laura Barker Morse, *Heidrick & Struggles*

Corporate Membership

the Computer Museum

Founded in 1979 to chronicle the history and preserve the artifacts of the computer revolution, The Computer Museum is the only international institution devoted solely to computers and their impact on society. Located on the Boston waterfront, the Museum is a unique educational center dedicated to increasing public understanding and knowledge of information technology. The Museum currently hosts over 150,000 visitors annually. Millions more across the country see its various traveling exhibits.

The Museum has the most comprehensive collection of historical computers and robots in the world and more than 75 hands-on interactive exhibits. A recent exhibit addition is "The Walk-Through Computer," the world's only two-story working model of a computer, designed to engage and teach people of all ages.



Corporate Support

Early corporate involvement provided the basis for founding the Museum. Today, in an age in which computer literacy is critical to competitive advantage, Corporate Membership allows companies to directly assist the Museum in educating our current and future labor pool. Corporate support is crucial for maintaining our educational programs.

Additional corporate sponsorship of special activities and projects has resulted in some of the Museum's most exciting exhibits and events, like "The Walk-Through Computer" and its popular annual fundraising event, "The Computer Bowl."

As a benefit to its corporate members, the Museum provides educational and entertainment opportunities especially suited to corporate needs. The Museum provides a forum for industry communication, admission benefits to customers, employees, and families of corporate members, and a site to host conferences, meetings, and parties. More than half of the Museum's members are headquartered outside the Boston area, a testimony to the global appeal of the institution.

Corporate Benefactor: $10,000

1,000 free admission passes or the privilege of a single free day with special programs for all employees and their families
Seven designated representatives who receive all Museum publications and invitations
Use of Museum document and video collection.
Audio tapes of Breakfast Seminar Series
Ability to participate in Museum's Collection Loan Program

Corporate Patron: $5,000

500 free admission passes
Five designated representatives who receive all Museum publications and invitations
Use of Museum's document and video collection

Corporate Sponsor: $3,000

300 free admission passes
Three designated representatives who receive all Museum publications and invitations
Use of Museum's document collection

Corporate Contributor: $1,000

100 free admission passes
Two designated representatives who receive all Museum publications and invitations
Use of Museum's document collection

Benefits of Corporate Membership

All Corporate Members receive the following:

Recognition in all Museum publications

Invitations to corporate "member-only" monthly breakfast seminars

Reduced rates for rental of facilities for corporate functions

Invitations to openings and priority admission to special events

Audiotapes of the Breakfast Seminar are available to corporate members based outside New England who cannot attend the seminars in person.

Access to "insider" news describing sponsorship opportunities available for Museum projects and events

Admission tickets may be donated in the corporation's name to the Museum's Ticket Subsidy Program which provides free admission to needy organizations and underserved community groups.