DRAFT --- DRAFT --- DRAFT Folder Record

Title: Ken Olsen Collection

Author: Olsen, Kenneth H.

Arrangement: Series I: Letters to/Letters from

Imprint: 1965

Subjects:

Description: One folder

Notes: Letters from

Summary: Jan 10 to Dr. John Hunt, LINC Division, General Precision, Inc.: development of sales lead with one of the largest module users in the U.S.

Mar 10 to Ken Larsen: unanswered sales questions and communications problems in the Sales Dept. (attached memo from Ted Johnson, dated Mar 9)

Mar 12 to Paul Chisolm, Mergenthaller Linotype: description and price information for PDP-8 programmed for newspaper production

Mar 31 to John Leng: discussing the possibility of manufacturing PDP-8 computers in England

May 4 to John Fadiman: management of the German office

Jun 10 *copy* of letter from Nick Mazzarese to Joseph Onorato, MIT: possible donation of MIT's PDP-1 to the Tech Model Railroad Club

Jun 11 to John Leng: explanation of efforts to deal with rapid sales and manufacturing growth—institution of 6-month hiring freeze and plan to take over controllership and revise and simplify accounting procedures

Jun 14 to District Director, Internal Revenue Service: amended estimate of federal income tax

Jun 14 to Comm. of Mass., Dept. of Corporations and Taxation: amended estimate of state income tax

Jul 14 corrected proof of entry for S&P's Register of Corporations

Aug 6 letters to placement managers announcing hiring of Harry Mann as new treasurer and comptroller

Sep 24 to James B. Walsh, University of Rochester: explanation of discount pricing policy

Oct 8 to Edward B. Roberts, Research Program on the Management of Science and Technology, MIT: Research Program on New Enterprise Formation questionnaire to former Lincoln Lab people who formed new enterprises

Nov 2 to Prof. Harold H. Rossi, Columbia University College of Physicians and Surgeons: explanation of production and delivery delays for PDP-8

December 31, 1965

COPY

American Society of Mechanical Engineers
United Engineering Center
345 East 47th Street
New York, New York 10017

Gentlemen:

Please send me a copy of "A New Look at Manufacturing Startup, Planning and Control" - 65-WA/MGT-1. Enclosed is a check in the amount of $1.50 to cover the cost.

Sincerely,

Kenneth H. Olsen

KHO:ecc

Enclosure

December 30, 1965

COPY

Mr. Albert J. Winitzer
65 Brook Road
Sharon, Massachusetts

Dear Mr. Winitzer:

We were pleased to hear of your interest in coming to work at DEC. I have considered your suggestion to help in our Production Department, but I am afraid that I have to give you a negative answer. With the exception of a few component shortages, we have met our production schedules quite well for the last two or three months and, unless we change our budgeted production upwards, it appears that we will have more production capability than we need for a while and so we don't plan any significant changes in that area.

Thank you again for your offer.

Sincerely yours,

Kenneth H. Olsen
President

KHO:ecc

December 22, 1965

COPY

Mr. Harvey Conover, Jr.
President
Conover-Mast Publications, Inc.
205 East 42nd Street
New York, New York 10017

Dear Mr. Conover:

Thank you for your kind invitation to be your guest at the American Business Press 15th Annual State of the Nation and Silver Quill Award dinner on January 27, 1966.

I appreciate your invitation, but will be unable to attend.

Sincerely,

Kenneth H. Olsen
President

KHO:ecc

Conover-Mast Publications, Inc.

Conover-Mast Building / 205 East 42nd Street / New York, N.Y. 10017 / (212) 689-3250

December 14, 1965

Mr. Kenneth H. Olsen
President
Digital Equipment Corporation
Maynard, Massachusetts 01754

Dear Mr. Olsen:

It is a real pleasure to invite you to be the guest of Conover-Mast at the American Business Press 15th Annual State of the Nation and Silver Quill Award Dinner to be held in Washington, Thursday, January 27, 1966.

This has become one of the nation's most memorable events. Senators Everett McKinley Dirksen and Michael Mansfield, the Senate Minority and Majority Leaders, will be presented with the 1965 Silver Quill Award.

The Republican and Democratic Senate leaders -- of opposite political parties but public-spirited colleagues -- were chosen for this extraordinary dual award for their "distinguished Congressional service, particularly during the period of unusual legislative and national urgency of the past two years."

Cabinet members, national legislators and other outstanding leaders in government, science and business will be present and will participate in a panel on the "State of the Nation."

Conover-Mast publishers and your other friends in this organization will be on hand to greet you. We sincerely hope it will be convenient for you to be our guests. It will be a pleasure to see you and we know you will find it most enjoyable.

We will want you to be with us, of course, at the Conover-Mast cocktail party preceding the Dinner, and at the "nightcap" party following the Dinner. All functions will be held in The Sheraton-Park Hotel, Washington. Cocktails will begin at 5:30 in the Cotillion Room. The Dinner and Award Presentation will start at 7 P. M. sharp in the Grand Ballroom. After the Dinner and Award ceremonies we will return to the Cotillion Room for "nightcaps."

Thank you for letting us know, as soon as possible, whether we can count on your being with us.

Sincerely,

Harvey Conover, Jr.

Harvey Conover, Jr.
President

HC:mc

BOATING INDUSTRY
Bernard Wain, *Publisher*

CONOVER-MAST FOOD INDUSTRY PUBLICATIONS
Webb Young, *Publishing Director*

FOOD TOPICS
RESTAURANT EQUIPMENT DEALER
VOLUME FEEDING MANAGEMENT

CONOVER-MAST PURCHASING DIRECTORY
Richard T. Roney, *Publisher*

CONSTRUCTION EQUIPMENT AND MATERIALS
Michael A. Spronck, *Publisher*

ELECTRO-TECHNOLOGY
Don Scott, *Publisher*

INTERNATIONAL SCIENCE AND TECHNOLOGY
Daniel I. Cooper, *Publisher*

MILL & FACTORY
Ellsworth Brown, *Publisher*

PURCHASING
PURCHASING INTERNATIONAL
Ray Richards, *Publishing Director*

SPACE/AERONAUTICS
Bruce R. Beard, *Publisher*

December 17, 1965

COPY

S. LaRose, Inc.
Greensboro
North Carolina

Gentlemen:

Please send me a copy of 1965's "Keep Book," catalog no. 112. Enclosed is $1.00 to cover the cost.

Very truly yours,

Kenneth H. Olsen
President

KHO:ecc

Enclosure

December 3, 1965

COPY

Mr. Paul S. Brentlinger
Manager of Industrial Development
Harris-Intertype Corporation
55 Public Square
Cleveland 13, Ohio

Dear Mr. Brentlinger:

We were pleased to hear of your continued interest in Digital Equipment Corporation and I am happy to enclose these copies of our latest annual report.

Sincerely,

Kenneth H. Olsen

KHO:ecc
Enclosures

HARRIS
INTERTYPE
CORPORATION

HARRIS-INTERTYPE CORPORATION

GENERAL OFFICE: 55 PUBLIC SQUARE • CLEVELAND 13, OHIO • TOWER 1-7900

November 30, 1965

Mr. Kenneth H. Olsen
President
Digital Equipment Corporation
146 Main Street
Maynard, Massachusetts

Dear Mr. Olsen:

Mr. Dively has asked me to acknowledge for him the receipt of literature describing your company's products.

We have in our files the Digital Equipment annual report for the year ended June 27, 1964. If your 1965 report is available, we would appreciate receiving a couple of copies of it to round out our knowledge of your organization.

Sincerely,

Paul S. Brentlinger
Manager of Industrial Development

PSB:lam

December 3, 1965

COPY

Department 201
Member Relations
Research Institute of America
589 Fifth Avenue
New York, New York 10017

Gentlemen:

As advertised in the recent issue of ALERT, please send me a copy of the report, "Tax Sheltered Foundations Offer Many Advantages."

Sincerely,

Kenneth H. Olsen
President

KHO:ecc

December 1, 1965

COPY

Mr. James B. Cutter
23 Concord Street
Maynard, Massachusetts

Dear Mr. Cutter:

In reply to your letter to Mr. Olsen requesting reemployment with Digital Equipment Corporation, I regret to advise you that we have decided not to rehire you for evening work.

The nature of our evening work makes it necessary for us to ask our people to perform a variety of tasks, and therefore we feel that your own work requirements are not compatible with the requirements of the job.

Our decision is based solely on compatibility of assignment and in no way reflects upon your performance or abilities.

Sincerely,

Robert T. Lassen
Personnel Manager

RTL/jfr

cc: K. H. Olsen
M. Sandler

23 Concord Street
Maynard, Mass.
November 22, 1965

Mr. Kenneth H. Olsen
President
Digital Equipment Corporation
147 Main Street
Maynard, Massachusetts 01754

Dear Sir,

This is a request for reinstatement in your company.

Recently, I was absent for a period of eight days due to a severe cold. During that time each of my fellow workers, Messrs. King, Mc Donough and Sambuchi were asked to act as guard at the Thompson St. parking lot (lower) for the women leaving work at 10:00PM. They went out several times and then refused to go in the future. Because they refused it was decided I was the ideal person to assume the duty; because of the four 'Daddy Shift' workers, I worked until 10:30PM.

Upon my return Mr. Hermel Cassivi told me of the assignment. That night I performed the guard duty but with the next opportunity to talk to Mr. Cassivi about it, I informed him of my refusal to continue. He replied the matter would be brought to the attention of Mr. John Culkins.

When Mr. Culkins approached me concerning this matter I told him of my refusal but offered the suggestion that if a shelter with heat was at the parking lot site I would be willing to do the guard assignment. Mr. Culkins said it was an idea worth thinking about and left it at that.

The next evening, Mr. Culkins was waiting for me when I arrived and said either do the assignment or leave the company. Then I requested an interview with someone with more authority and was sent in to see Mr. Maynard Sandler.

Mr. Sandler insisted I was hired to perform any duty given to me even if it had nothing to do with cleaning, etc..

I could see after talking with him awhile that he would not listen, which was an unhappy discovery.

Until this experience I had been pleased to be associated with Digital. I have a need for the job and feel my attendance record should prove this.

The following are reasons why I feel my release was unnecessary:

1. Hired for cleaning, etc..

2. If others can refuse an assignment, why can't I and why should I be given the ultramatum? Shouldn't the first man asked be given the ultramtum first?

3. I am not the junior man! Senority should count.

4. My attendance record rates either first or second in comparision with my fellow 'Daddy Shift' workers.

Please give this letter your consideration.

Respectfully yours,

James B. Cutter

James B. Cutter

December 1, 1965

Mr. Brewster W. Kopp
Assistant Secretary of the Army
Washington, D. C.

Dear Brewster:

I was pleased to hear from you again last week, and we look forward to hearing from your colleague in the Navy.

We appreciate your suggestion that we consider making computers for use by the Army. In considering this, however, I have concluded that this would not be consistent with our goal to become a producer of a standard line of competitive computers. Therefore, I don't think we will pursue your suggestion. We feel we are becoming successful in our attempts to produce a limited but profitable product line to be made in quantity, and to get out of the rat race most electronic firms are in where they scramble to get specific orders.

Enclosed is a copy of our latest Annual Report and a few pieces of our product literature.

Sincerely yours,

Kenneth H. Olsen

KHOtecc

equipment corporation
MAYNARD, MASS. 01754
TWinoaks 7-8822 TWX MAYN 816

December 1, 1965

Dr. Donald F. Wann
Department of Electrical Engineering
School of Engineering & Applied Sciences
Washington University
St. Louis, Missouri

Dear Dr. Wann:

It was with great pleasure that Digital Equipment Corporation donated to Washington University, School of Engineering and Applied Sciences, the PDP-5 computer. We hope that the students and faculty at Washington University will find many needs and uses for the PDP-5. In the future we hope the association with Digital Equipment Corporation and Washington University will continue.

For purposes of the Ford matching grant, the cost of the PDP-5 computer with the ASR-33 teletype-writer, paper tape reader and punch is $27,000.

If there are any other areas in which Digital Equipment Corporation can be of assistance, please feel free to call upon us at any time.

Sincerely yours,

Morton E. Ruderman
Applications Engineer

MER:dc

CC: K. Olsen - Digital Equipment Corp.
M. Huntsinger - Comptroller
Washington University

WASHINGTON UNIVERSITY

ST. LOUIS 30, MISSOURI

OFFICE OF THE COMPTROLLER

November 17, 1965

Mr. Kenneth H. Olsen, President
Digital Equipment Corporation
Maynard, Massachusetts

Dear Mr. Olsen:

A few months ago, Digital Equipment Corporation very generously contributed a PDP-5 computer to Washington University. Mr. Papian and his associates are delighted with the computer and very thankful for your firm's generosity.

The University is the recipient of a large Ford Foundation matching grant. The rules on the matching require us to report the figure which the Digital Equipment Corporation places on the computer for income tax gift purposes. It is our understanding that your company is entitled to use the retail value for gift purposes. It is, of course, to our advantage to report the highest reasonable value possible.

Can you provide us with the figure that Digital Equipment Corporation intends to use for income tax purposes?

Sincerely yours,

M. M. Huntsinger

M. M. Huntsinger
Comptroller

MMH:bp

$27,000
quoted from
Dick Mazzarese

BOESEA B221

DIGITAL MAYN
MSG. 6189 11/30/65
TO:

MR. EDWARD CARLBERG
AEROSPACE DIVISION
BOEING COMPANY
POST OFFICE BOX 3707
SEATTLE, WASHINGTON 98124

DEAR MR. CARLBERG:

WE ARE VERY PLEASED TO HEAR OF YOUR ENTHUSIASM FOR THE DEMONSTRATION TO NASA USING THE PDP-7 AND DISPLAY SCOPE. WE FEEL THAT WE CAN ASSURE YOU WITH COMPLETE CONFIDENCE THAT WE WILL HAVE THE EQUIPMENT FOR YOU AND IN WORKING ORDER FOR THE DEMONSTRATION. WE NOW HAVE THE EQUIPMENT COMPLETED AND ARE SENDING IT OUT TO THE FJCC. AFTER THE CONFERENCE WE WILL SET IT UP IN THE LOS ANGELES OFFICE AND WILL KEEP IT IN OPERATING ORDER UNTIL THE DEMONSTRATION.

WE FELL THAT WITH THIS SCHEDULE WE COULD GUARANTEE HAVING THE EQUIPMENT IN WORKING ORDER FOR YOU BY THE TIME OF THE DEMONSTRATION.

SINCERELY,
KENNETH H. OLSEN

DIGITAL EQUIPMENT CORP.
146 MAIN STREET
MAYNARD, MASS.
TWX 710-347-0212

END

BOESEA B221

DIGITAL MAYN

November 29, 1965

COPY

Mr. Edward Carlberg
Aerospace Division
Boeing Company
Post Office Box 3707
Seattle, Washington 98124

Dear Mr. Carlberg:

We are very pleased to hear of your enthusiasm for the demonstration to NASA using the PDP-7 and Display Scope. We feel that we can assure you with complete confidence that we will have the equipment for you and in working order for the demonstration. We now have the equipment completed and are sending it out to the FJCC. After the conference we will set it up in the Los Angeles office and will keep it in operating order until the demonstration.

We feel that with this schedule we could guarantee having the equipment in working order for you by the time of the demonstration.

Sincerely,

Kenneth H. Olsen

KHO:mcs

bcc: N. Mazzarese
J. Jones

cc: K. Olsen
R. Wilkinson
N. Mazzarese
D. Cotton
T. Whalen
Los Angeles

29 November 1965

Re: 2-4414-2-433
Boeing Company ltr dtd
November 24, 1965

The Boeing Company
Aero-Space Division
Post Office Box 3707
Seattle, Washington 98124

Attention Mr. Clark Goss

Gentlemen:

Digital Equipment Corporation would like to thank and acknowledge The Boeing Company's Letter of Intent for the use of a PDP-7/340 computer system for Los Angeles Demonstration of a Remote Graphical Communications System.

Digital Equipment Corporation further agrees with Items 1 through 6 of the above referenced letter.

Thank you for your continued interest in our products.

Very truly yours,

JAJ:oh

John Allen Jones
Small Computer
Marketing Manager

Ed Carlberg
Boeing Carlberg
Jerry

7 & scope → L.A. for Demo →
Dick Willkenson - Local Man. -
Demo to Nasa & J.P.L. - for Voyager Program.
→ 27 of Dec. for 2 wks.
Meeting with Management - very enthusiastic -
→ ironclad agreement from D.E.C.
Early next week - - guarantee

Denver - AGM -
Online interrogation of data
7 w/ 5 m word disc.
8 w display
letters of intent → - 7, 8, 2 scopes, disc

November 23, 1965

COPY

Mr. George S. Dively, Chairman
Harris-Intertype Corporation
55 Public Square
Cleveland, Ohio 44113

Dear George:

I enjoyed very much visiting with you at General Doriot's last week. We are still very much interested in the use of computers in the printing industry. Enclosed is a brochure showing the system which we are now marketing, plus a few pieces of general literature.

I look forward to taking advantage of your invitation to visit with you in Cleveland.

Sincerely yours,

Kenneth H. Olsen

KHO:ecc

Enclosures PDP-8 Typesetting
PDP-7, 8 Brochures
FLIP CHIP Manual
DECtape System

11/16/65

Ken -

Harris Intertype has a line casting machine with a paper tape reader which will accept the hyphenated-justified output of the PDP-8 Type setting system (see attached).

Neither John Jones' nor Mike Ford's files indicate indicate any contact with Harris Intertype. I understand that Mike visited H-I about 6 mos. ago, but nothing has come of it yet.

Only relationship at this point is that some of their customers are also our customers.

Howie

5.2.6 SUMMARY - July '65

In summary then, the basic automated typesetting system consists of:

1. A number of operators punching tape on keyboards or perforators.
2. A computer that reads unjustified tape and punches justified-hyphenated tape containing the copy and all the control codes appropriate to the type of typesetting machine to be used.
3. Either hot-metal or photo-composition typesetting machines capable of running from paper tape.

The type of typesetter used depends on the quantity and quality of the printing job and the type of printing press that will turn out the end product.

Keyboards that can be used to generate tape for our System:

1. Fairchild Standard
2. Fairchild Multi-face
3. Dura-Mach-10
4. Flexowriter
5. Stor-Parts
6. Any non-counting 6-level TTS tape generating keyboard

Hot Metal Line Casting Machines We Can Drive:

1.	Mergenthaller's	- Comet	up to 10 lpm
		- Elektron	up to 14 lpm
2.	Intertype's	- older models	up to 10 lpm
		- Monarch	up to 14 lpm

Photo-Comp Machines That We Can Drive:

a)	Photon's	Textmaster	30 lines/minute
b)	Mergenthaller's	Linofilm "Quick"	16 lines/minute
c)	A.T.F.'s	Model B-8	10 lines/minute

Our basic program is a straight text program that generates 6-level TTS tape as an output. We are considering the following changes and developments:

1. Development of a program with the capability to set Display Ad guts on machines such as:

   a) Photon — Addmaster
   b) Mergenthaller — Linofilm

2. Development of a program with the capability to set text matter and produce a punched tape compatible with the following non-standard tape driven devices:

   a) Alpha-type - photo unit (being written now) — 16 lines/minute
   b) Monotype - photo unit — 10 lines/minute
   c) Monotype - hot metal unit — 8 lines/minute

CUTLER • HAMMER

MILWAUKEE WISCONSIN

EXECUTIVE OFFICE
315 N. 12TH STREE
MILWAUKEE 1, WISCONSI
PHONE: BROADWAY 1-780

Kenneth Olsen
Digital Equipment Corp

Maynard Mass.

Dear Sir:

The literature that you recently requested is enclosed. We hope that you will find it interesting and helpful -- and that Cutler-Hammer products may be able to give you that "something extra" for which they are known.

If you have any questions or desire further information on any Cutler-Hammer products, our local sales office, indicated below, is at your service.

Thank you for your interest.

Yours very truly,

CUTLER-HAMMER, Inc.

YOUR NEAREST CH OFFICE IS AT Boston /

CUTLER-HAMMER SALES OFFICES

ALABAMA
BIRMINGHAM 35223.....15 Office Park Circle — 205 871-1166
MOBILE.....c/o 1000 Howard Ave., New Orleans, La. 70113 — 205 432-8910

ARIZONA
PHOENIX 85012.....1741 E. Thomas Road — 602 279-0031

CALIFORNIA
FRESNO 93703.....1244 N. Mariposa St. — 209 268-3301
LOS ANGELES 90022.....6431 Bandini Blvd. — 213 723-8391
OAKLAND.....c/o 1661 Industrial Way, Belmont, Calif. 94002 — 415 834-1580
RIVERSIDE 92501.....8237 Sherwood Pl. — 714 688-2860
SACRAMENTO 95807.....1331 "T" Street — 916 446-4827
SAN DIEGO 92103.....3780 5th Avenue — 714 298-5432
SAN FRANCISCO..1661 Industrial Way, Belmont, Calif. 94002 — 415 591-7361

COLORADO
DENVER 80223.....1030 West Ellsworth Ave. — 303 222-3628

CONNECTICUT
HARTFORD..500 Silas Deane Hwy., Wethersfield, Conn. 06109 — 203 563-0104
NEW HAVEN...c, o 500 Silas Deane Hwy., Wethersfield, Conn. 06109 — 203 787-3622

DISTRICT OF COLUMBIA
WASHINGTON.....8055 13th St., Silver Spring, Md. 20910 — 301 587-5952

FLORIDA
JACKSONVILLE 32211.....6957 Lillian Rd. — 305 725-2845
ORLANDO.....1320-B Palmetto Ave., Winter Park, Fla. 32789 — 305 647-7508
PALM BEACH.....217 So. 57th Way, Hollywood, Fla. 33023 — 305 989-8086
TAMPA 33609.....2909 Bay to Bay Blvd. — 813 893-5493

GEORGIA
ATLANTA 2115 American Industrial Way, Chamblee, Ga. 30005 — 404 451-2331

ILLINOIS
CHICAGO.....2375 Touhy Ave., Elk Grove Village, Ill. 60007 — 312 439-1910
PEORIA 61602.....301 S. Adams Street — 309 674-4131
ROCKFORD 61103.....1404 N. Main St. — 815 965-9469

INDIANA
HAMMOND 46324.....6719 Calumet Avenue — 219 931-8890
INDIANAPOLIS 46205.....2511 E. 46th Street — 317 546-4096
SOUTH BEND 46615.....435 S. Ironwood Dr. — 219 288-0601

IOWA
DAVENPORT 52801.....220 Main Street — 319 323-8057

KANSAS
WICHITA 67203.....1818 W. Douglas Ave. — 316 363-5216

KENTUCKY
LOUISVILLE 40207.....195 Colony Way — 502 896-1786

LOUISIANA
BATON ROUGE c/o 1000 Howard Ave., New Orleans. La. 70113 — 504 348-1212
NEW ORLEANS 70113.....1000 Howard Ave. — 504 522-3691
SHREVEPORT 71104.....2210 Line Ave. — 318 424-1505

MARYLAND
BALTIMORE.....320 Hillen Rd., Towson, Md. 21204 — 301 825-6041

MASSACHUSETTS
BOSTON.....415 Western Ave., Brighton, Mass. 02135 — 617 254-6210
SPRINGFIELD.....83 Parkside St., Longmeadow, Mass. 01106 — 413 567-8851
WORCESTER.....c 'o 415 Western Ave., Brighton, Mass. 02135 — 616 757-4842

MICHIGAN
DETROIT 48238.....15427 Woodrow Wilson Avenue — 313 883-1600
GRAND RAPIDS 49507.....733 Alger Street, S.E. — 616 243-0152
SAGINAW 48602.....529 W. Genesee Ave. — 517 755-0417

MINNESOTA
MINNEAPOLIS 55406.....4439 Hiawatha Avenue — 612 721-4453

MISSOURI
KANSAS CITY 64112.....4916 Main Street — 816 931-2787
ST. LOUIS 63130.....8118 Page Blvd. — 314 429-7711

NEBRASKA
OMAHA 68104.....6926 Maple Street — 402 553-6553

NEW HAMPSHIRE
MANCHESTER 03101.....306 Pickering Street — 603 622-8550

NEW JERSEY
NEWARK.....370 Chestnut St., Union, N. J. 07083 — 201 687-4433
TRENTON 08614.....1432 Brunswick Avenue — 609 695-6763

NEW MEXICO
ALBUQUERQUE 87110.....1405 "D" San Mateo Blvd., N.E. — 505 268-7190

NEW YORK
ALBANY 12207.....90 State Street — 518 434-4242
BUFFALO 14225.....3385 Harlem Road — 716 836-4444
MELVILLE.....c/o 733 N. Third Ave., New York, N. Y. 10017 — 692-7499
NEW YORK 10017.....733 Third Avenue — 212 687-0707
NO. SYRACUSE 13212.....Northern Lights Office Park — 315 455-6631

NORTH CAROLINA
CHARLOTTE 28203.....2505 South Blvd. — 704 523-3056
GREENSBORO 27408.....1813 Pembroke Road — 919 272-4567

OHIO
AKRON 44313.....2800 W. Market St. — 216 836-9711
CINCINNATI 45218.....11322 Southland Road, Forest Park — 513 825-5252
CLEVELAND 44107.....1521 W. 117th Street — 216 221-0100
COLUMBUS 43212.....1580 King Avenue — 614 486-2935
DAYTON 45420.....1221 Wilmington Ave. — 513 293-2117
TOLEDO c 'o 15427 Woodrow Wilson Ave., Detroit, Mich. 48238 — 313 883-1600
YOUNGSTOWN 45512.....5609 Market Street — 216 788-8751

OKLAHOMA
OKLAHOMA CITY 73112.....2241 N.W. 40th St. — 405 524-9945
TULSA 74114.....2570 S. Harvard Avenue — 918 747-7531

OREGON
PORTLAND 97214.....936 S. E. Ankeny — 503 234-6488

PENNSYLVANIA
ALLENTOWN 18104.....501 N. 17th Street — 215 437-4469
PHILADELPHIA....2 Radnor Station Bldg., Radnor, Pa. 19008 — 215 878-0820
PITTSBURGH 15205.....2240 Noblestown Road — 412 922-2707
YORK 17401.....12 E. King Street — 717 854-9515

RHODE ISLAND
E. PROVIDENCE c 'o 415 Western Ave., Brighton, Mass. 02135 — 617 254-6210

SOUTH CAROLINA
GREENVILLE 29607.....2026 Laurens Road — 803 232-4639

TENNESSEE
KNOXVILLE 37921.....1301 Hannah Ave., N.W. — 615 546-1480
MEMPHIS 38111.....3340 Poplar Ave. — 901 458-2631
NASHVILLE 37204.....2508-B Franklin Road — 615 298-1186

TEXAS
DALLAS 75247.....9209 Chancellor Row — 214 631-3460
EL PASO 79902.....1429 E. Yandell — 915 532-7047
HOUSTON 77006.....3303 Montrose Blvd. — 713 526-1205
LUBBOCK 79408.....1926 34th Street — 806 744-4159

UTAH
SALT LAKE CITY 84101.....253 Rio Grande Street — 801 328-0233

VIRGINIA
NORFOLK 23510.....1309 Granby Street — 703 622-0462
RICHMOND 23230.....3122 W. Clay Street — 703 353-4413

WASHINGTON
SEATTLE 98104.....623 8th Avenue So. — 206 624-3545
SPOKANE 99218.....14508 N. Cincinnati Avenue — 509 489-0979

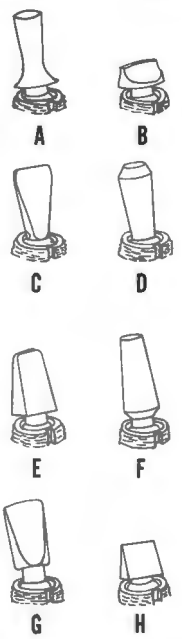
WEST VIRGINIA
CHARLESTON 25301.....1018 Kanawha Blvd., E. — 304 343-4141

WISCONSIN
APPLETON 54913.....526 W. Wisconsin Ave. — 414 734-5651
MILWAUKEE 53206.....2312 W. Capitol Drive — 414 442-7800, X2500

HOW TO ORDER *Designer Line* SWITCHES

*A complete ordering number consists of a basic switch followed by a two digit lever color suffix number and an alpha lever shape suffix letter. First determine basic switch by desired ampere rating, terminal arrangement and description from table . . . then select desired color suffix . . . and add alpha suffix for lever style.

NOMINAL RATING				*COMPLETE DESIGNER LINE CATALOG NUMBER		
250 Volts, AC—DC	125 Volts, AC—DC	Terminal Type	Description	Basic Switch Number	Color Suffix No. (Select One)	Lever Shape Suffix No. (Select One)
3	—	Solder Lug	SPST	8280K		
1	3	Solder Lug	3 Way (SPDT)	8282K		
1	3	Solder Lug	Two Circuit	8284K		
3	—	Wire Leads	SPST	8290K		
1	3	Wire Leads	3 Way (SPDT)	8292K		
1	3	Wire Leads	Two Circuit	8294K	21 (white)	
3	—	Screw	SPST	8295K		
1	3	Screw	3 Way (SPDT)	8297K	22 (red)	
1	3	Screw	Two Circuit	8299K		
3	—	Solder Lug	DPST	8360K	23 (grey)	
3	—	Wire Leads	DPST	8361K		
3	—	Screw	DPST	8362K	24 (green)	
3	—	Solder Lug	DPDT	8363K		
3	—	Wire Leads	DPDT	8364K	25 (yellow)	
3	—	Screw	DPDT	8365K		
3	6	Solder Lug	DPST	8370K	26 (blue)	
3	6	Wire Leads	DPST	8371K		
3	6	Screw	DPST	8372K	27 (black)	
3	6	Solder Lug	DPDT	8373K		
3	6	Wire Leads	DPDT	8374K		
3	6	Screw	DPDT	8375K		
3	6	Solder Lug	SPST	8381K		
3	6	Wire Leads	SPST	8391K		
3	6	Screw	SPST	8396K		



ORDERING EXAMPLE: A SPST switch, rated 3 amperes, 250 volts ac—dc with solder lug terminations identifies as **8280K**; red lever as **22**; lever style as **A**:

8280K — BASIC SWITCH

22 — COLOR

A — LEVER STYLE

or

8280K22A — COMPLETE ORDERING NUMBER

NOTE: For switches with other than standard bushing length (11/32″); with other than listed ampere ratings, terminations, descriptions and colors — consult Cutler-Hammer, Milwaukee.

NOTE: For prices and delivery — consult Cutler-Hammer, Milwaukee or local authorized switch distributor.

November 19, 1965

COPY

The Honorable John T. Connor
Secretary of Commerce
Washington, D.C. 20230

Dear Secretary Connor:

In reply to your letter of November 1, 1965, the Digital Equipment Corporation is in complete agreement with the proposal of the Standards Panel of the ADP Advisory Council that the American Standard Code for Information Interchange (ASCII) should be adopted as a Federal Standard.

For several years, we have been supplying ASCII input/output equipment as standard items with our PDP-5, PDP-6, PDP-7 and PDP-8 general purpose, digital computers. Our data interfaces to telephone and TWX lines are also compatible with ASCII.

Digital Equipment Corporation can supply equipment responsive to the proposed ASCII Federal Standard policy in one year, i.e., November 19, 1965.

Sincerely yours,

James P. Hastings, Jr.
Assistant to the Manager
Small Computer Products

JPH/bl

THE SECRETARY OF COMMERCE
WASHINGTON, D.C. 20230

November 1, 1965

Kenneth Olsen
Mr. ~~G. F. Doriot~~, President
Digital Equipment Corporation
John Hancock Building
Boston 16, Massachusetts

Dear Mr. Doriot:

Subject: American Standard Code for Information Interchange (ASCII)

The Bureau of the Budget has asked the Department of Commerce and the General Services Administration for a recommendation on whether the American Standard Code for Information Interchange should be adopted as a Federal Standard.

Before we make such a recommendation we would like to know the economic impact of such action upon suppliers of computers and information processing equipment including communications and the earliest feasible time at which each supplier could provide the Federal Government with equipment responsive to the proposed standard. The desirability of maximum feasible compatibility among Federal agencies in the input-output characteristics of the equipment which they use for automatic data processing was emphasized in the Bureau of the Budget's Report to the President on the Management of Automatic Data Processing in the Federal Government.

As you know, President Johnson approved this report and forwarded it to Congress on March 2, 1965. It is presently available in Senate Document 15, printed at the request of the Senate Committee on Government Operations, and we presume that copies of this document have been studied by members of your company.

As the Bureau of the Budget has said, "The attainment of greater compatibility among ADP systems is an essential element of the Government's program to achieve more effective and economical use of this equipment, and requires a coordinated and unified effort among all who have primary responsibilities in this regard."

Accordingly we will appreciate it if you will provide, no later than November 19, 1965, a written response to the undersigned commenting upon the economic impact of the attached proposed policy statement which has been recommended by the Standards Panel of the Bureau of the Budget's ADP Advisory Council. Your reply should also indicate the earliest date at which your firm can supply equipment responsive to the proposed policy (making ASCII a Federal Standard).

If further information is needed, inquiries may be directed to Mr. L. L. Griffin, Office for the Coordination and Development of ADP Standards, (Area Code 202, EM-2-4040 x 7742) Center for Computer Sciences and Technology, National Bureau of Standards, or Mr. Marvin Burris, Data Processing Coordination Staff, (Area Code 202, 343-5863) General Services Administration.

John T. Connor

Secretary of Commerce

Acting Administrator of General Services

Enclosure

Proposal of the Standards Panel

The Standards Panel of the ADP Advisory Council, at its meeting on January 25, 1965, agreed to the following statement in connection with the adoption of the American Standard Code for Information Interchange (ASCII) by the Federal Government and recommends that the statement be issued as a policy announcement.

1. Objective. The objective of the Federal Government is to achieve, through the adoption and implementation of appropriate information processing system standards, the highest practical degree of compatibility for the interchange of information in machine-processable form within and between information processing systems, including input-output equipment, source data automation equipment, other associated equipment and communication systems. Included in this objective is the maximum use of standard programming languages and a minimum need for reprocessing, reordering or conversion of information in interchange operations. This objective is not limited to interchange within the Federal Government but is to be extended, wherever practical, to interchange with other Governmental bodies, Government contractors and the public at large.

2. Policy. In support of this objective, it is the policy of the Federal Government to acquire and use systems and equipment which utilize the ASCII and the associated principal media standards (i.e., magnetic tape, punched tape and cards) for character input-output and transmission operations. Future planning for the development and procurement of general purpose electronic digital computer systems and associated hardware, including communication systems and source data automation equipment, should therefore be based on the use of the ASCII.

The following magnetic tape input-output practices will be considered consistent with the above policy:

a. Packing two numeric digits with a common parity bit in a single character frame for high performance magnetic tape file maintenance and similar local operations, provided non-numeric information is recorded in the prescribed ASCII mode.

b. The recording of information in binary word form when used in association with a binary mode of computer operation.

3. Implementation. In order to provide for the earliest practical implementation of this policy, the General Services Administration should include provision for the use of the ASCII in input-output operations as a specification in the FY 1967 Federal Supply Schedule term contracts for ADP equipment.

Prior to FY 1967, the cost of converting to and from ASCII for information interchange operations shall be taken into consideration by all Federal agencies in considering the selection of systems and equipment which do not utilize the ASCII and associated media standards for input-output purposes. The cost of converting to and from ASCII will be the responsibility of the organization obtaining the equipment utilizing a non-standard code.

4. Exceptions. In unusual cases where departments and agencies find it necessary to deviate from the stated policy, the Director of the National Bureau of Standards will be notified in writing as soon as the need for deviation becomes evident. Such notification should include a complete statement of the reasons why a deviation is being authorized, so that the problems being encountered can be resolved or given appropriate consideration in the future development or revision of information processing standards. A copy of the notification will be sent to the Director, Bureau of the Budget.

November 19, 1965

Mr. Arnold Haase-Dubosc, President
American Radio
445 Park Avenue
New York, New York 10022

Dear Mr. Haase-Dubosc:

We are pleased to hear of your interest in supplying semiconductors to Digital Equipment Corporation. Enclosed are the purchase specifications for several of the units that we use in quantity. We are interested in obtaining components from the European sources so that it would be easier to sell computers in Europe. We also have the idea that if we develop confidence in European component supplies, we may want to manufacture in Europe.

The price we pay in this country for diodes is between 9¢ and 10¢ for a D664 and 12¢ for a D662. We pay approximately 25¢ for the transistors (DEC 2894-1B, 2B, 3B and DEC 3639) which are encapsulated in plastic.

We look forward to hearing from you.

Sincerely yours,

Kenneth H. Olsen

KHO:scc

Enclosures: D662
D664
DEC 2894-1B
DEC 2894-2B
DEC 2894-3B
DEC 3639A
DEC 3639B

November 2, 1965

Mr. Harald H. Rossi
Professor of Radiology (Physics)
College of Physicians & Surgeons of Columbia University
630 West 168th Street
New York, New York 10032

Dear Professor Rossi:

We are sorry that we are late in the delivery of your PDP-8. We feel very badly about this delay but it is due to circumstances over which we have only limited control. We have worked hard to hire the staff and develop the production methods for making large numbers of PDP-8's but our material suppliers have simply fallen down on their deliveries to us. I believe that the booming economy and expanded military purchasing have caught our suppliers by surprise.

We have, of course, been working very hard at solving the supply problem and we are paying a premium for certain of our components. We now have our production line working smoothly and at almost scheduled rate. We feel confident that we will make the present planned date of shipping your machine, which is the week of November 15.

We now have sixty PDP-8's in the field and everyone seems happy with them. We hope that you will be equally pleased with yours.

Sincerely,

Kenneth H. Olsen

KHO:ecc

579-3543

College of Physicians & Surgeons of Columbia University | New York, N.Y. 10032

DEPARTMENT OF RADIOLOGY
Radiological Research Laboratories

630 West 168th Street

October 29, 1965

Mr. Ken Olson, President
Digital Equipment Corporation
Maynard, Massachusetts

Dear Mr. Olson:

As you may know we have ordered a PDP8 computer from your firm about five months ago. At the time we placed the final order we were informed by your representative in New York City that delivery would take place sometime during September. When Drs. Gross and Biavati came to Maynard to take your maintenance course, they were told that delivery would be delayed until sometime in early October. The month of October is just about over, but we still have not yet received this computer.

Will you please inform me at your earliest convenience how soon we may expect delivery? We are most anxious to receive this instrument since it is required for a number of important projects.

Yours sincerely,

H. H. Rossi

Harald H. Rossi
Professor of Radiology (Physics)

HHR:gho

Ken

Del during week of Nov. 15

John Jones talked with Biavati on Fri 10/29 and gave mid Nov. date

Harold

November 2, 1965

COPY

Mr. T. C. Laurin
Managing Editor
The Optical Industry and Systems Directory
Seven North Street
Pittsfield, Massachusetts 01202

Dear Mr. Laurin:

In answer to your letter of October 29 regarding information for the 1966 issue of THE OPTICAL INDUSTRY AND SYSTEMS DIRECTORY, please address all questionnaires to Mr. Kenneth H. Olsen, President.

We will be happy to give you our prompt attention.

Sincerely,

(Mrs.) Elsa C. Carlson
Secretary to the President

THE OPTICAL INDUSTRY AND SYSTEMS DIRECTORY
Seven North Street, Pittsfield, Massachusetts 01202
443-5153 (413)

October 29, 1965

TO: Secretary to the President
Digital Equipment Corp.
146 Main St.
Maynard, Mass. 01754

Your company is listed in our 1965 OPTICAL INDUSTRY AND SYSTEMS DIRECTORY.

We are preparing the Twelfth anniversary 1966 issue of THE OPTICAL INDUSTRY AND SYSTEMS DIRECTORY and will be mailing to your company in early November a questionnaire to update the information we have about your company activities.

The questionnaire should be addressed to an individual in your organization who knows your products and who will be responsible for seeing that the data are returned to us by our deadline date of December 5, 1965. Directory listing is free.

There will be about 900 categories covering the field of scientific optics. We do want to emphasize the importance to your company of being correctly and completely listed. The Directory is the only medium covering the field and is purchased by those companies who are seriously concerned with scientific optics and systems engineering.

Will you be so good as to supply us with the name best qualified to answer. We thank you for your assistance. K. Olsen

Sincerely,

T. C. Laurin

TCL/csj
enclosure

T. C. Laurin
Managing Editor

November 2, 1965

Dr. Bruce D. Waxman, Chief
Special Research Resources Branch
Division of Research Facilities and Resources
Department of Health, Education and Welfare
Public Health Service
Bethesda, Maryland 49.6-8310

Dear Dr. Waxman:

We were very pleased to hear of your interest in having a PDP-6 at the University of Pennsylvania. The application of digital techniques to medical research is of great interest to us and we do want to encourage the use of our products in this field. Following your call, we again considered the possibility of renting this PDP-6 to the University, but I'm afraid that it is not possible.

We would like to consider with you the possibility of using the amount of money that DEC would grant as an educational discount as a special gift to the University to pay for interest payments on a bank loan. Indeed, this is not additional generosity on our part but does eliminate the need for interest payments. This may, however, be significantly less expensive than renting a machine because we, and all others, charge higher interest rates than a bank would charge.

This idea is one that we would like very much to talk with you about in some detail. If it were convenient for you to visit our plant in Maynard, we could discuss it and at the same time show you our facilities and programs. Of course, we will be happy to visit you at your office should that fit more appropriately with your schedule.

I hope it is possible for you to visit and look forward to hearing further from you.

Sincerely,

Kenneth H. Olsen

KHO:ecc

November 2, 1965

Dr. M. Genser
10 Lancer Drive
Short Hills, New Jersey

Dear Dr. Genser:

We want to thank you for asking us to consider your proposal to make FLIP CHIP integrated circuits. Your proposal sounds attractive but in considering it we realize that it is wisest for us to continue the program as I outlined it to you on the telephone; where we will not for some time consider flipping our chips but will bond fine wire in the traditional transistor way.

Thank you again for your consideration.

Sincerely yours,

Kenneth H. Olsen

KHO:ecc

10 Lancer Drive
Short Hills, N.J.

September 20, 1965

Mr. K. Olson
Digital Equipment Corp.
Maynard, Massachusetts

Dear Mr. Olson:

I have enclosed a copy of a proposal we have prepared to set up an organization to produce Flip-Chip linear microcircuits, which we have developed at General Precision Aerospace.

As I told you, General Precision Aerospace is terminating its present activities in microcircuits because of a contraction of demand for these products in its own product lines.

We have a small team of people who would be available to form a cadre about which a production capability could be set up. We did not make a serious effort to market these products outside of the General Precision Aerospace organization and therefore, we were never able to realize the potential of which this technology is capable.

Again, of course, digital devices could be produced, as you know, as well as linear devices. The present material is intended only to be suggestive.

I would be happy to pursue anyway in which we could work together, if you are interested.

Very truly yours,

M Genser

Dr. M. Genser

MG:ps

Encl: (1)

Pd 2 c of 5

INTRODUCTION

This is a proposal to establish a company for the sale and production of specialized microcircuits for commercial and military applications. These microcircuits will be produced by unique processes which evolved from an intensive development program carried out over the past three years. In addition to the development of processing techniques, a line of microcircuit products have been designed and produced including a complete line of circuit modules for use in the computer and automation industries. These include sensitive amplifiers for signal conditioning, modulator/demodulators, power amplifiers for driving 1, 3, and 5 watt motors and a microminiature servo amplifier for use in a wide variety of instrumentation.

WHAT IS MICROELECTRONICS

Microelectronics is the term applied to the new revolutionary processing techniques for fabrication of electronic circuits. By means of these processes it is now possible to fabricate electronic circuits at lower cost, higher reliability and smaller size than can be achieved by the more conventional techniques of assembling discrete individual resistors, capacitors, transistors and the like. The lower cost is achieved because the circuits are produced in large batches as distinguished from the conventional assemblies which are produced one at a time. The enhanced reliability is achieved because the newer processes eliminate wholly or in part the laborious point to point wiring and soldering characteristic of conventional circuits. Smaller size results from the elimination of the extraneous and redundant packages required for individual resistors, capacitors, etc., which was necessary in the

older methods of circuit assembly.

Microelectronics technology centers around two basic processes or disciplines. These are the processes for deposition of thin metallic films for use as resistors and interconnections, and the process of solid state diffusion in silicon for production of a wide variety of active elements such as transistors, resistors, diodes, etc.

Both the thin film circuit and the all-silicon circuit possess many advantages as well as limitations. Because of these limitations the all-silicon microcircuit has found its uses primarily in small signal switching applications characteristic of digital computers. The thin film circuit has been limited in its application because of the lack of a suitable complement of active elements, so readily available in silicon. We have developed a circuit fabrication process, the "Flip-Chip Process", which combines the desirable features of both technologies. The "Flip-Chip Process", See Figure 1, permits the incorporation of a wide variety of dissimilar elements into a low cost circuit with enhanced reliability.

The nature of the "Flip-Chip Process" is such that it will find its application in the fabrication of specialized circuits requiring precise component values, significant power handling capability and the isolation qualities necessary for high frequency applications in communications equipment. In Table I are shown the specifications of a unique family of microcircuit modules designed for such applications as inertial guidance and control in military aircraft and missiles, programmed machine tools, automated process control, and in a wide variety of commercial and scientific instrumentation. Additional microcircuits can be produced for use in peripheral equipments in

Reprinted from
EDN MICROELECTRONICS
MARCH 1964

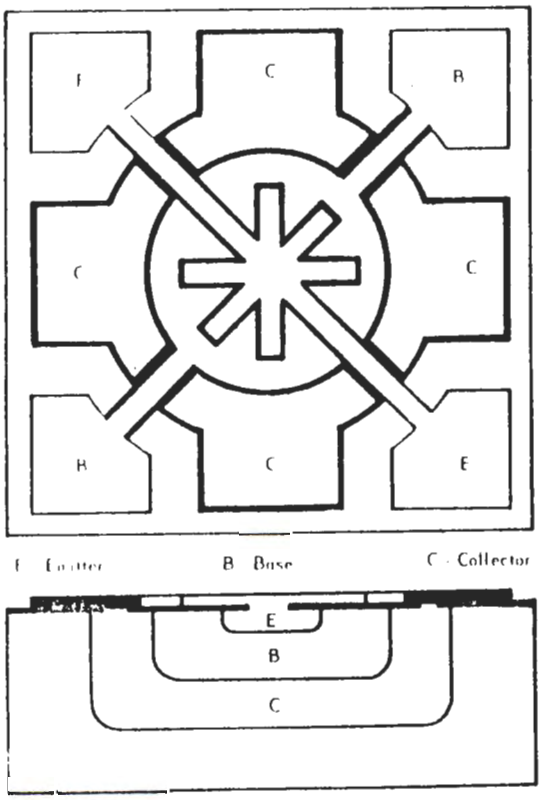
Starred Connecting Pattern Provides Multiple Access

A. SOCOLOVSKY, *Eastern Editor*

A starred pattern of interconnections simplifies registration and provides multiple access to active devices diffused in silicon substrates. The pattern is especially suitable for hybrid circuits comprising both thin-film and diffused components.

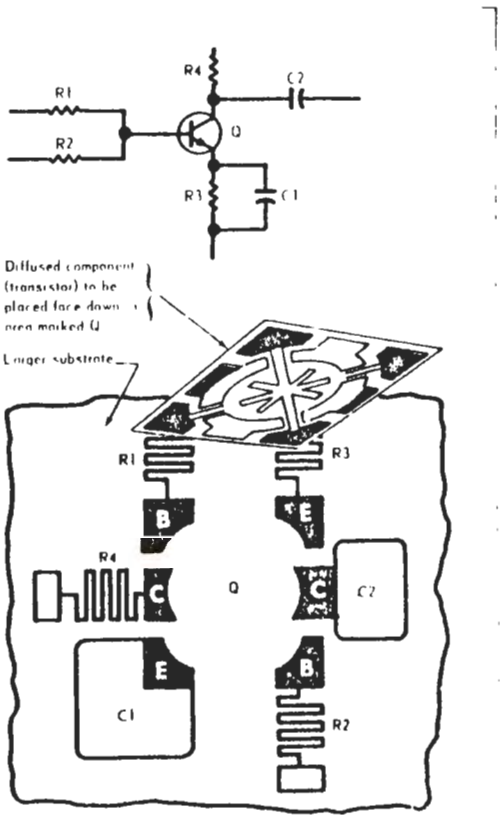
The pattern was designed for inverted registration. In this technique a diffused component or circuit is connected to thin-film components deposited on a larger substrate by registering their respective terminal lands. This eliminates interconnections and thermocompression bonds because the lands are pretinned for oven-soldering.

The starred pattern eases the restrictions placed by terminal arrangement on the layout of passive components on the substrate. This pattern has been designed by the Microelectronics Dept., Aerospace Group of General Precision, Inc., Little Falls, N. J.



E - Emitter B - Base C - Collector

DIFFUSED DISCRETE COMPONENTS *may be ... one or more resistors or capacitors. Diffused substrate is passivated with oxide film for isolation. Aluminum interconnections deposited over oxide film make contact to silicon through holes etched in film. Terminal lands are coated with solderable metal film.*

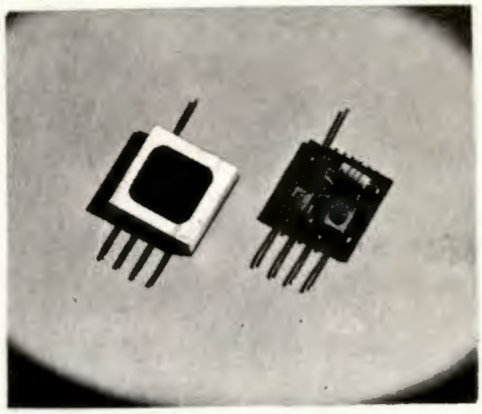


INVERTED REGISTRATION *of terminals of diffused component with lands of circuit substrate. Starred pattern can be placed in different positions, allowing best layout of the thin film components deposited on substrate.*

PRE-AMPLIFIER MP 601

The MP 601 is a thin film integrated circuit preamplifier which is characterized by high reliability small size and low weight.

Principal features are high input impedance, low noise and good linearity. High input impedance is achieved by bootstrap connection of the input stage. Low noise results from the use of a high stability field effect transistor. Linearity is achieved by means of local and over-all feedback.



KEARFOTT MICRO-PAT 601

C70 561 8003

APPLICATIONS

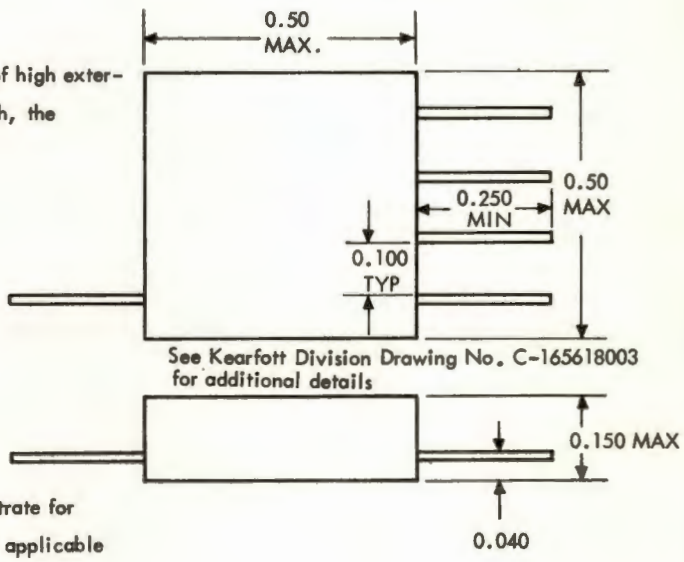
The high input impedance of the MP 601 makes it particularly useful with a source of high external impedance, such as capacitive pickoffs and electrostrictive transducers. As such, the MP 601 has wide range of uses, such as: --

- Accelerometer loops
- Temperature control loops
- Gimbal loops

In addition, the MP 601 can be used as: --

- Amplifier-buffer from 3 kc to 100 kc
- High linearity ac amplifier
- Line driver

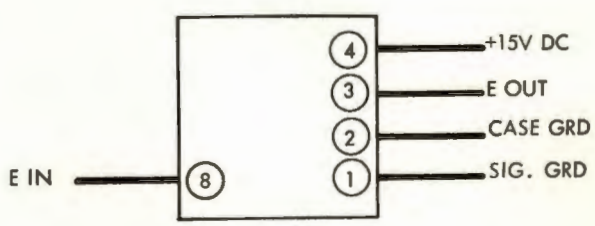
The MP 601 is a ruggedly constructed hermetically sealed unit using a thin film substrate for passive components and Flip-Chip active devices, which permits it to withstand the applicable shock, vibration and environmental requirements of MIL-E-5272-C and MIL-STD-810-A.



See Kearfott Division Drawing No. C-165618003 for additional details

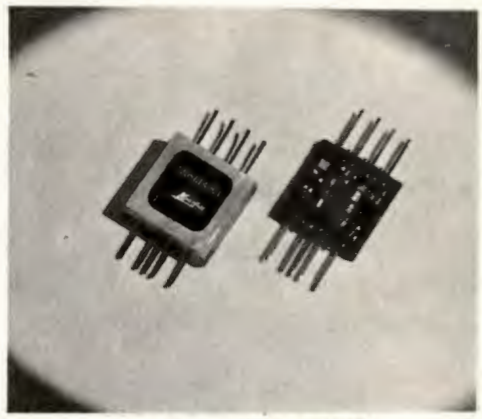
CHARACTERISTICS

Input impedance	4 megohms, 2 kc to 10 kc 4 megohms to 1 megohm, 10 kc to 40 kc
Gain	20 $\frac{\text{volts}}{\text{volt}}$
Output impedance	500 ohms max
Load impedance	5000 ohms min
Output voltage	7.5 volts peak max, 2.0 volts rms min
Phase shift	± 3° max (inputs to 25 mv) ± 5° (inputs 26 mv to 100 mv)
Linearity	± 5% from 400 mv to 2.0 volts rms
Operating temperature	-10°C to 100°C
Power required	+15 volts, 0.10 watts
Weight	0.028 oz



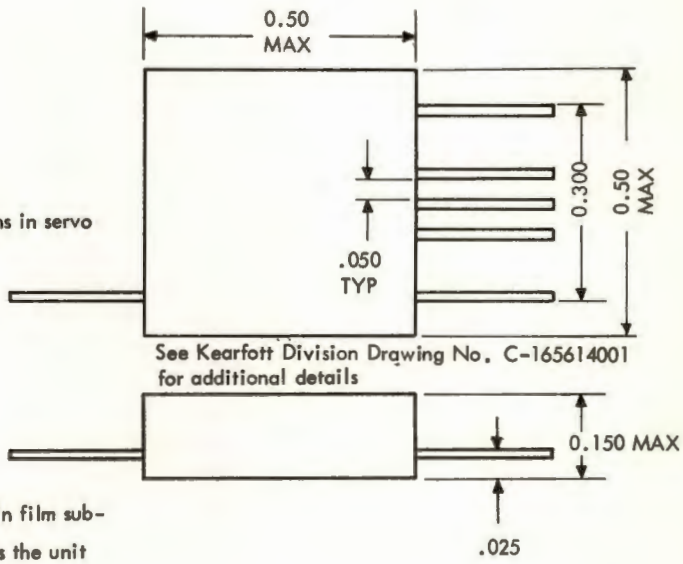
AMPLIFIER-DEMODULATOR MP 602

The MP 602 is a highly reliable, lightweight, compact, thin film, integrated circuit amplifier-demodulator. The salient features of the unit are -- good stability and quadrature rejection, low offset voltage and modulation noise. The input stage is a phase splitter having outputs where each drive a separate gain stage. The outputs of each gain stage provide a differential input to the demodulation section. The amplifier outputs drive a transformerless phase sensitive demodulator, which consists of two chopper type transistors that are driven alternatively on and off by the reference voltage. This produces a dc voltage that is proportional to the input signal.



KEARFOTT MICRO-PAT 602

C 70 561 4001



APPLICATIONS

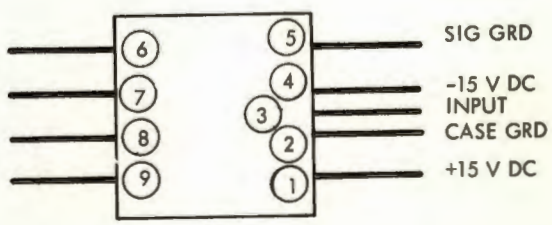
The MP 602 is suitable for use as a carrier demodulator in a variety of applications in servo and control systems, such as: -

- Gimbal loops
- Accelerometer capture loops
- Temperature control loops
- Low-current load driver
- Phase detector

The MP 602 is extremely rugged and is a hermetically sealed unit employing a thin film substrate for passive devices and Flip-Chip active devices. This construction permits the unit to meet or exceed the environmental requirements of MIL-E-5272-C and MIL-STD-810-A.

CHARACTERISTICS

Input impedance	35,000 ohms ± 25%
Gain	2.6 $\frac{\text{volts dc}}{\text{volt rms}}$
Output impedance	4300 ohms ± 10%
Quadrature rejection ratio	-26 db min
Minimum output voltage at saturation	4.5 volts dc
Output offset	4 mv dc max
Output frequency	dc to 1 kc
Operating temperature	- 10°C to 100°C
Power required	± 15 volts, 500 mw
Reference voltage	± 12 volts, 50 mw
Weight	0.030 oz
Output noise level	20 mv rms max (with input shorted)



digital computers; such as, analogue to digital converters, memories, tape recorders and like.

THE MARKET FOR MICROCIRCUITS

From the broad range of applicability of microcircuits it is apparent that a huge market for these products is developing. Several market estimates have been carried out by the Stanford Research Institute, Arthur D. Little and others which indicate an expansion in dollar volume of $700,000,000. in 1970 from the present volume of $100,000,000. While the bulk of this market is in digital computer switching applications, it is estimated that 100 to 150 million of this is in peripheral equipment and non-digital applications.

Servo Amplifiers

The devices are used to control a servo motor as part of a feedback loop. Present discrete circuit amplifiers sell for $40. to $50. each in quantity. These conventional units are large and bulky and can be larger than the motor itself. A microcircuit servo amplifier (0.1 to 0.2 cu.in. as compared to the conventional 2 to 3 cu.in.) can be easily sold for $70. to $100. in quantity. There is a 20 to 30 million dollar market for servo amplifiers. However, many organizations build these amplifiers of discrete elements for their own applications. The small microcircuit amplifier, described in the specification sheets, can attract this new market.

Microcircuits #601, #602, #614

These units find immediate application in a wide variety of military avionics programs. An inertial guidance system would require about 20 to 30 units per system. It has been

estimated that about 2000 to 3000 such systems are produced per year yielding a requirement of 40,000 to 90,000 units per year. However, there is a great likelihood that this market can expand rapidly in the next five years as the price of such inertial systems is reduced from the present $100,000. to $150,000. to the projected $25,000. to $50,000. per system.

In the industrial fields; such as, programmed machine tools, process control, and instrumentation there is probably a larger market for these circuits than the military market mentioned above. One typical machine tool manufacturer we have sampled indicated a requirement for 3 to 4 thousand units per year.

Although we cannot quote a definitive dollar volume for this seris of microcircuits, it is seen that the market is large enough to use $1,000,000. worth of these products per year in the next two to three years.

Finally, there are the peripheral areas of digital computers which hold forth promise for future growth. Again it is difficult to estimate the size of this market; but when one considers that a single core memory plane sells for $100, and that the associated circuitry for 10 times that amount, it is apparent that the market can be quite large.

COMPETITION

There are several very large organizations such as Texas Instruments, Fairchild, Westinghouse, etc., who are now striving for dominant positions in the field of digital microcircuits. Price cutting has occurred for these units, however, this was to be expected since the

original prices included the attempts by these organizations to recover a portion of their research and development costs. Prices had to be reduced to compete successfully with conventional circuits so that high volume could be achieved.

In the field of specialized circuits, in which we propose to operate, the competition is not nearly so severe, The organizations presently in this field are fewer and smaller. Indeed, none of these smaller organizations quite duplicates the type of business we propose. For one thing the smaller organizations do not offer off-the-shelf items as we propose. They offer primarily a custom service in which they will build circuits to a customers design. Secondly, they are limited in their capability, generally confined to the production of thin films. As such, they must buy the silicon elements from the larger organizations, generally at a price penalty. Some of these smaller companies are Alpha Microelectronics, CTS Corporation, Intellux, Varo, etc. We believe that with our capability in silicon technology and in thin film technology and with the unique assembly process we have developed, we can achieve a front rank position in the industry as a small specialized vendor-service organization.

Since the microcircuit industry is relatively new, we can examine the semiconductor field for patterns of development of various type companies. It is well known that semiconductors are dominated by Texas Instruments, Fairchild, Motorola, etc. However, there are several specialty organizations which have developed and are operating quite profitably. To mention a few, there is Solitron Devices which has grown over the past five years from a dollar volume of $200,000. in its first year to $3,000,000 volume last year, which is the fourth year of operation, with profits expanding proportionately. Continental Devices,

National Semiconductor, Dickson Electronics are a few companies exhibiting similar growth patterns. There have also been orgainzations which did not succeed. The major problem facing these groups was high cost of developing and setting up their processes. We, however, have completed the process development phase over the past three years at General Precision Aerospace, and are now ready to enter the production phase.

MARKETS TO BE APPROACHED & METHODOLOGY EMPLOYED

- Markets

  We intend to sell our line of servo components to all major electronic firms. These firms include, amongst others, General Precision Aerospace, Litton Industries, General Dynamics, Nortronics, Teledyne, Honeywell, Bendix and I.T.T. We also intend to approach the smaller firms presently marketing discrete circuit modules; such as, Burr-Brown, Philbrick Associates and Nexus, who are presently concerned with protecting their D.C. amplifier module business. We will offer them Flip-Chip sub-assemblies for incorporation in their present products or for new products. We also intend to offer a custom fabrication service to many other firms in addition to the above named organizations. These services and products again may be complete circuits or sub-assemblies including precision resistor networks multiple transistor/resistor diode assemblies and the like. We do not plan to compete in the conventional transistor business.

- Methodology

  We intend to sell our products and services through selected manufacturers representatives backed up by our own sales force and experienced applications and design engineers. We are selling a highly technical product and service. As such, all

initial selling must be carried out on an engineering level. The manufacturers representatives will be required to develop leads and to "open doors". Our own technical personnel from the president on down will participate in the selling process. However, we do intend to hire in the beginning one highly experienced electronic component salesman to coordinate the selling effort.

We recognize that there is a two to three year period before volume sales develop for an electronic component. Initial sales are small sample orders for design approval and for the initial engineering model of the equipment. After three to six months a modest order can be expected for the pre-production models from which the designs are finalized. Volume orders then can be expected after an additional six months to one year. We see then, that sales develop slowly over the first year. We project that after one year we can reach a shipment level of $50,000. per month based on a product mix of linear servo components, custom circuits and sub-assemblies. While the intensive selling effort is underway in the first year, we will maintain a minimum cadre of engineers and technicians to turn out the relatively small lots of units which will be required. In exhibit #1 we show the initial organization required for this function. We project a first years total business of $150,000. consisting of the engineering and pre-production units. In the second year, we can confidently anticipate a rapid expansion in our dollar volume as we begin shipments for production equipment and additional engineering units. We anticipate a volume of about $900,000. for the second year.

As the succeeding years pass the growth in volume can be expected, based on the growth in the customer service business and as we introduce new products in the specialized peripheral areas in computers, which we describe above. It should be noted, that our estimates do not exceed more than 1% of the projected market for microcircuits from 1965 to 1970, when the market expands from $100,000,000. to $700,000,000.

We believe that our estimates are reasonably conservative. We project the following sales picture for a four year period:

At The End Of:	Shipment Rate Will Be:
6 months	$ 3,000/month
12 months	$ 50,000/month
18 months	$ 75,000/month
24 months	$100,000/month
36 months	$200,000/month
48 months	$400,000/month

PRODUCTION EFFORT - First Year

We propose to acquire about $125,000. worth of capital equipment. A list of this equipment is attached with the original cost. We would require a cadre of 5 engineers and technicians for sample preparation and set-up around which the production force can be built. An 8,000 sq. ft. air-conditioned plant should be adequate to house the facility in the early years.

From our previous discussion we indicated that a microcircuit servo amplifier could be easily sold for $80. in quantity. This price compares to $125 for a small discrete unit presently on the market. We will use the servo amplifier as a typical unit from the product mix to show the first year production cost of such a unit.

The prime cost of a servo amplifier microcircuit can be demonstrated as follows: (rate of 500/month)

Labor:	
Silicon chips @ 35¢ each (10 required/circuit	$ 3.50
Thin Film Substrates (1 required)	6.45
Assembly	10.25
Test	2.06
Total Direct Labor	$22.26
Purchased Materials:	
Capacitors	$ 4.00
Substrates (each)	1.13
Cases	5.00
Miscellaneous Supplies	1.50
Total Materials	$11.63
Prime Cost	$33.89/ Microcircuit

It should be noted that the silicon chips when purchased as transistors would sell for $2 to $3 in quantity. The thin film resistors, which are precision resistors, cost about 20¢ each which compares favorably with discrete precision resistors whose price commercially is $1 each. Finally, assembly labor is capable of great reduction as volume increases.

PROJECTIONS

We have prepared a projection of the performance to be expected from this operation. Exhibit I shows a breakdown of the capital equipment required for the start-up of this operation. Exhibit II contains cash flow and profitability projections. In Exhibit III we show the capital required for this operation. We see, that to start, an investment of $475,000 is required which would provide for capital equipment, working capital and a reserve. At the end of the second year an additional investment in equipment of $100,000 would be required for expansion of our production and the setting-up of a small developmental group.

EXHIBIT I

CAPITAL EQUIPMENT

ITEM	AMOUNT
Evaporators and Fixtures	$ 20,000
Photo Resist Stations	$ 10,000
Substrate Dicer and Fixtures	$ 10,000
Diffusion Ovens and Fixtures	$ 20,000
Wafer Probe	$ 5,000
Wafer Scriber	$ 5,000
Chip Selection Apparatus	$ 5,000
Assembly Equipment	$ 10,000
Test Equipment	$ 10,000
Case Sealing Equipment	$ 10,000
Installation and Set-up	$ 20,000
Total	$125,000

EXHIBIT II

CONSOLIDATED PRO FORMA PROJECTION OF PROFIT AND LOSS

ENGINEERING AND PRODUCTION

	FIRST YEAR	SECOND YEAR	THIRD YEAR
SALES	$155,000.	$900,000.	$1,800,000
MATERIALS & SUPPLIES & EQUIPMENT USE RATE	$ 25,500.	$143,000.	$ 270,000
ENGINEERING, LAB TECH & LABOR WAGES	$ 49,000.	$227,500.	$ 642,000
COST OF GOODS SOLD	$ 74,500.	$370,500.	$ 912,000
GROSS MARGIN	$ 80,500.	$529,500.	$ 888,000
G & A	$ 32,500.	$ 32,500.	$ 42,500
ENGINEERING SALARIES	33,000.	72,000.	92,000
RENT	16,000.	20,000.	20,000
UTILITIES	12,000.	18,000.	23,000
SELLING EXPENSES	25,000.	90,000,	120,000
DEPRECIATION	20,000.	20,000.	40,000
TOTAL OPERATING EXPENSES	$138,500.	$252,500.	$ 337,500
GROSS PROFIT (LOSS)	($ 58,000.)	$277,000.	$ 550,500
CUMULATIVE PROFIT (LOSS)	($ 58,000.)	$219,000.	$ 769,500

CASH FLOW

(First Year)

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FORTH QUARTER
SALES	$ 9,000	$ 9,000	$48,000	$89,000
RECEIVABLES	$ 3,000	$ 3,000	$ 6,000	$25,000
CASH FLOW-IN	$ 6,000	$ 9,000	$46,000	$70,000
CASH FLOW-OUT:				
Materials	$ 2,500	$ 2,500	$ 9,000	$11,000
Labor Wages	$12,000	$12,000	$12,000	$13,600
Engineer Salaries	$ 8,250	$ 8,250	$ 8,250	$ 8,250
Selling Expense	$ 6,250	$ 6,250	$ 6,250	$ 6,250
Rent	$ 4,000	$ 4,000	$ 4,000	$ 4,000
Utilities	$ 3,000	$ 3,000	$ 3,000	$ 3,000
G & A	$ 8,100	$ 8,100	$ 8,100	$ 8,100
TOTAL OUT-FLOW	$44,100	$44,100	$50,600	$54,200
CASH FLOW-IN (OUT)	($38,100)	($35,100)	($ 4,600)	$15,800
CUMULATIVE	($38,100)	($73,200)	($77,800)	($62,000)

CASH FLOW

(Second Year)

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FORTH QUARTER
SALES	$180,000	$215,000	$240,000	$265,000
RECEIVABLES	$ 55,000	$ 75,000	$ 80,000	$ 90,000
CASH FLOW-IN	$150,000	$195,000	$235,000	$255,000
CASH FLOW-OUT:				
Materials	$ 28,600	$ 34,200	$ 38,100	$ 42,100
Labor Wages	46,800	55,600	60,100	65,000
Engineer Salaries	18,000	18,000	18,000	18,000
Selling Expenses	18,000	21,500	24,000	26,500
Rent	5,000	5,000	5,000	5,000
Utilities	4,500	4,500	4,500	4,500
G & A	8,100	8,100	8,100	8,100
TOTAL OUT-FLOW	$129,000	$146,900	$157,800	$169,200
CASH FLOW-IN (OUT)	$ 21,000	$ 48,100	$ 77,200	$ 85,800
CUMULATIVE	($ 41,000)	$ 7,000	$ 84,200	$170,000

EXHIBIT III

INVESTMENT REQUIRED

A.	Capital Equipment	$125,000	At Start
B.	Capital Equipment	$100,000	Beginning of Third Year
C.	Working Capital	$200,000	At Start
D.	Safety Margin	$100,000	At Start

A. Capital Equipment

This equipment is sufficient to reach a production level of $900,000 per year of product.

B. This additional funding is required to permit expansion of our production capability and to set-up a small development facility.

C. Working Capital

Working capital is estimated at some three times our maximum cash needs as projected for the first years operation. We feel that this margin is necessary should our volume develop out of phase with our estimates.

D. Safety Margin

We feel that these funds should be available to cover any unforseen exigencies; such as, process difficulties, availability of new equipment, etc.

November 1, 1965

Mr. Wallace M. Juechter
Manager of Long Range Product Planning
Xerox Corporation
P. O. Box 1540
Rochester, New York 14603

Dear Mr. Juechter:

We were pleased to have you visit with us last Thursday and to have the opportunity to show you what we are doing.

The name of the consulting firm which is a neighbor to us that I recommended as being expert in the computer use in the graphic field is Inforonics, Inc. The name of the President is Lawrence Buckland and their address is P. O. Box 267, Maynard, Massachusetts.

If you are ever interested in what we are doing in the justification/hyphenation for newspapers, our expert in that field is Mike Ford and I'm sure he will be glad to talk with you any time. I am enclosing a piece of literature describing what we are doing in that field.

Sincerely yours,

Kenneth H. Olsen

KHO:ecc

Enclosure

October 28, 1965

COPY

Mr. William J. Hanley
225 Broadway
New York 7, New York

Dear Mr. Hanley:

We appreciate the interest you have shown in suggesting that we meet with Lear Siegler, Inc. Our immediate plans are well laid out before us and we see no need, nor have any desire, to consider making ties with another company in the immediate future.

Sincerely,

Kenneth H. Olsen

KHO:ecc

TEL. WORTH 4-8271

WILLIAM J. HANLEY

Business, Finance and Tax Consultants

Acquisitions, Mergers.

WESTCHESTER OFFICE
31 CHURCH LANE
SCARSDALE, N. Y.

225 BROADWAY
NEW YORK 7, N. Y.

October 22, 1965

Mr. Kenneth H. Olsen, President
Digital Equipment Corp.
146 Main Street
Maynard, Mass.

Dear Mr. Olsen:

Our client, Lear Siegler, Inc. who have a substantial division with products closely related to Digital, would be interested in discussing an affiliation or merger of your companies.

As you know, Lear Siegler is listed on the NYSE and has considerable diversification in their product line. The data and control division is headquartered in the East. It would appear that a surface examination of your respective companies could lead to substantial mutual advantages and benefits.

An exploratory discussion without obligation would appear to be merited. We would be happy to arrange such a meeting without obligation to you at a convenient time and place.

Sincerely yours,

William J. Hanley

WJH/rp

October 22, 1965

COPY

Mr. Robert G. Nordling
Chubb & Son, Inc.
90 John Street
New York, New York 10038

Dear Bob:

I was pleased to receive the note from you in the Spring with a copy of the report on ARD. I am enclosing a copy of our Annual Report which just came out a few weeks ago.

If you are up this way, I would like very much to have you visit us at home and I would like to show you what we are doing here at the plant.

Sincerely yours,

KHO:ecc

Enclosure

Chubb & Son Inc.
Underwriters

Telephone: WOrth 4-1200
Cable Address: "CHUBBSON"

IN REPLY PLEASE REFER TO

90 John Street
New York, N.Y. 10038

May 28, 1965

Mr. Kenneth H. Olsen, President
Digital Equipment Corporation
Maynard, Massachusetts

Dear Ken:

Enclosed is a copy of a report on ARD which gives some indication as to what people on the Street are expecting of you personally. Perhaps you have seen it already.

Best regards.

Yours sincerely,

Robert G. Nordling

rl

Special Report

PUTNAM, COFFIN & BURR
BOSTON • HARTFORD • NEW YORK
141 Milk St. • 482-4400 6 Central Row • 525-1421 64 Wall St. • 943-9313
PCB
MEMBERS NEW YORK, AMERICAN AND BOSTON STOCK EXCHANGES

AMERICAN RESEARCH & DEVELOPMENT CORP.

April, 1965

Recent Market:	23	Net Asset Value:	$25.28 p/sh.
Price Range, 1964-65:	27 3/8 - 18 1/8	Price as % Asset Value:	91%
Shares Outstanding:	1,535,000	Traded:	NYSE - "ARD"

Dividend from Investment Income 1964: $0.13
Income Yield: 0.6%
Distribution from Capital Gains 1964: $0.49

Summary and Opinion

At or near current prices, we believe that the common stock of American Research & Development Corp. possesses substantial prospects for capital appreciation. Our minimum expectation is for a 50% improvement in price over the next 12 - 18 months and our reasoning in this regard may be summarized as follows:

1) Over the past several years, the market has wiped out the 1960-61 bull market overvaluations accorded many of the company's portfolio holdings. In addition, the market has also eliminated the premium over asset value at which A.R.D. stock sold during a good part of the past 3-4 years. Thus, the present stated net asset value rests on sounder ground and the relationship between asset value and the price of the stock is more conservatively stated than has been the case for some years.

2) Over the next 12 - 18 months, we believe it likely that A.R.D.'s stated net asset value will show considerable improvement based on higher prices for many of the portfolio holdings. In particular, we feel that A.R.D.'s largest current holding -- Digital Equipment Corp. -- will show major growth in sales and earnings and that the values being created by Digital Equipment's growth will begin to be tangibly realized by the shareholders of A.R.D.

3) While no plans have been announced with respect to creating a public market for Digital Equipment, we think it a reasonable assumption that such an event will take place within 18 months. As time progresses, the large and growing earning power of Digital Equipment will become increasingly apparent, and we believe the market place will evaluate these earnings at a significantly higher multiple than the 20 times earnings multiple currently employed by A.R.D. in setting the Digital Equipment valuation on its own books.

4) The combination of the above factors leads us to conclude that as stated asset value increases, the chances strongly favor the gradual elimination of the price/asset value discount which currently prevails. If, for example, the market evaluated Digital Equipment's estimated fiscal 1965 earnings at a 30 times multiple and the balance of the portfolio sold at 20% below stated value, A.R.D.'s stock might well sell in the area of 32 within six months. Beyond that, we visualize a substantial jump in Digital Equipment's earnings in fiscal 1965-66 and a 30 times multiple on those earnings might well result in a market price of $40 or more per share of A.R.D.

5) While there are risks in any investment, the downside risks in A.R.D. at current prices seem to us to be minimal and to be far outweighed by upside potential.

Brief History - American Research & Development Corporation was founded in 1946 as the first publicly owned venture capital investment company. The basic concept of the corporation was derived by former Senator Ralph E. Flanders, who as the then president of the Federal Reserve Bank of Boston, felt strongly that there was a basic need to support new ideas and technologies in order to insure the vitality of post-war expansion.

Together with Karl Compton, president of Mass. Institute of Technology and Merrill Griswold, then Chairman of Massachusetts Investors Trust, Flanders developed the specific plans for the new venture capital company and in June of 1946, the project was launched with an initial paid in capital of $3.4 million.

Flanders served as the first President of A.R.D., but following his election to the U.S. Senate in late 1946, he resigned the post and was succeeded by Gen. Georges F. Doriot who had been serving as chairman of the fledgling company's advisory board. General Doriot has continued in the post of president since late 1946 and has guided A.R.D. to a notable record of success in a field of endeavor noted for its difficulty and economic risk.

Basic Purposes & Objectives - The basic purpose of A.R.D. is stated clearly in the company's Annual Report as follows:

> "The task of A.R.D. is to create, build and develop new enterprises. It is a constructive effort which should be judged on a long-term basis. Our job is to study projects, the ones we conceive and the ones we receive, and then give all our help to those companies which we finance, hoping that they will grow, mature and provide A.R.D. with capital appreciation which will keep on increasing the net asset value of A.R.D.'s shares and thereby enhance the value of the stockholders' participation in venture capital enterprises."

While there are instances where A.R.D. holds a controlling interest in portfolio companies, the primary objective is not to control or manage but to provide financial "seed money" to bright, competent people with bright, competent ideas for profitable growth.

While A.R.D. has for some years now been paying small dividends from income, the basic objective has always been to increase asset value and income considerations have been and will undoubtedly remain of secondary importance. This, of course, seems entirely reasonable in the light of A.R.D.'s "venture capital" status.

Legal Status - The Company is a closed-end, non-diversified investment company of the management type and as such is registered under the Investment Act of 1940. A.R.D. has qualified as a regulated investment company under the Internal Revenue Code.

At the Annual Meeting on March 3, 1965, stockholders approved a modification in policy to permit investment in companies engaged, or formed for the purpose of engaging, primarily in the business of owning, dealing in, developing, operating or managing real estate. Such real estate investments are restricted as to the percentage of assets that may be so directed.

Short term borrowing, including for such purposes the pledging of assets, is permitted. There are no restrictions with respect to the percentage of assets that may be held in any one security either on the basis of initial cost or of subsequent valuation.

Operating Procedure - A.R.D. does not limit its investment interest to any one industry or any particular group of industries, nor has the company adopted specific guideposts as to the percentage of assets that should be allocated to certain industries. In its most recent Annual Report, the company states: "Investment opportunities in any field of endeavor which is felt to be constructive and to possess exceptional possibilities for growth are considered."

A.R.D.'s management team not only receives proposals for investment from outside sources, but also in many instances seeks out opportunities to put men, ideas and money together to capitalize on construction opportunities that are apparent to them.

Investment projects are studied by A.R.D.'s staff and recommendations are presented to the Board of Directors for acceptance or rejection, and if accepted, the project is directed to the Executive Committee for approval of specific details and terms. In addition to their duties with respect to the approval of new investments, the Board is responsible for determining A.R.D.'s asset value on a quarterly basis. In the case of holdings where a public market already exists, the question of setting a valuation is obviously very simple. On the other hand, many of the portfolio companies have no public market and, therefore, the determination of valuation requires a great deal of experience and judgment and this occasionally leaves the management open to criticism by outsiders, who for one reason or another, may not agree with A.R.D.'s method of valuation. This matter will be discussed at greater length elsewhere in this report.

The general record of A.R. D. indicates that the basic concept of the company is to provide the money and advice which is hoped will assist in bringing an idea to successful commercialization and to retain an investment interest until such time as the subject company has reached maturity. A good deal of flexibility is maintained with respect to judging whether or not a portfolio company has "matured" and whether or not it should be either distributed to stockholders or sold outright. Such judgments necessarily involve the outlook for the particular company and alternative uses for the capital funds so employed. Thus, in the case of High Voltage Engineering, A.R.D. began a three stage distribution to its stockholders of A.R.D.'s investment in High Voltage as early as 1956 when High Voltage's sales were at a rate of only $2.8 million annually. Having distributed some two-thirds of its High Voltage holdings by the end of 1958, A.R.D. has continued to hold the bulk of the remaining balance of its initial investment not because High Voltage "needed A.R.D.", but because the long range future outlook for High Voltage appeared to be outstandingly attractive and the company was still of rather moderate size.

The point that should be stressed here is that there are no strict rules or historical precedents that point to the definite distribution or outright sale of portfolio holdings when the subject companies reach a specific level of sales and/or earning power. Each case is judged on its own merits in the light of what is deemed in the best long term interest of A.R.D. stockholders.

Performance Record - The following statistical data shows the Company's financial achievements since its inception in 1946.

Yr. to 12/31	Paid In on Outstg. shs. (000's Omitted) (note)	Net Asset Value	Per Share Data: Asset Value	Distrib. from Capital Gains	Income Dividend	Price Range
1946	$ 3,408 (1)	$ 3,375	$ 8.04	---	---	
1947	3,658	3,532	7.83	---	---	6 2/3 - 3 1/3
1948	3,436	3,442	8.59	---	---	7 2/3 - 5 2/3
1949	4,465 (2)	4,526	8.52	---	---	8 - 7
1950	5,153	5,353	8.68	---	---	8 1/4 - 7 1/8
1951	7,482 (3)	7,899	8.78	---	---	9 3/4 - 6 1/2
1952	7,482	8,640	9.60	---	---	9 5/8 - 6 5/8
1953	7,482	8,549	9.50	---	---	8 1/8 - 5 1/8
1954	7,482	10,998	12.22	$.08	---	9 3/8 - 5 3/4
1955	7,482	12,366	13.74	.37	$.047	10 5/8 - 9 1/8
1956	7,357	10,811	12.22	.63*	---	10 1/4 - 8
1957	7,357	9,822	11.10	.53*	---	10 1/4 - 6 5/8
1958	7,357	14,796	16.72	.80*	---	12 1/2 - 6 3/4
1959	11,107 (4)	23,459	19.80	.33	.10	15 - 9 5/8
1960	19,111 (5)	38,875	25.33	.46	---	28 3/4 - 11 7/8
1961	19,111	37,050	24.14	.425	.125	42 1/4 - 22
1962	19,111	30,708	20.01	.53	.08	30 7/8 - 14
1963	19,111	34,771	22.65	.48	.13	33 3/8 - 16 1/2
1964	19,111	38,799	25.28	.49	.13	27 3/8 - 18 1/8

* - In High Voltage Engineering Corporation common stock at market on dates of distribution, and includes amount of unrealized gain on shares distributed.

(note) - Capital funds have been raised by common stock sale to the public as follows:
(1) - 8/8 /46 153,000 shs. sold at $25.00 p/sh.
(2) - 4/25/49 84,855 shs. sold at $25.00 p/sh.
(3) - 3/29/51 81,615 shs. sold at $25.00 p/sh.
(4) - 4/21/59 100,000 shs. sold at $40.00 p/sh.

The number of shares and the offering prices shown above are not corrected to reflect a three-for-one stock split on March 3, 1960. The offering shown below reflects the stock split.

(5) - 8/10/60 350,000 shs. sold at $24.70 p/sh.

In appraising the above record, investors should keep in mind that while stated asset value has more than tripled since 1946, actual performance has been considerably better than that. Each present share of A.R.D. purchased prior to 1957 would have received in distribution (after all necessary adjustments due to stock dividends and splits) the equivalent of approximately 0.38 shares of High Voltage Engineering. Assuming that this distribution were retained, and using a current price of 20 for High Voltage, the market value of this distribution is currently worth about $7.60. In addition, A.R.D. has made other capital gains distributions in cash totaling $3.165 per share. The aggregate of the above two items together with the stated book value of $25.28 p/sh. as of 12/31/64, indicates that the original stockholder, or even one who joined the stockholder ranks as late as 1953, has seen his investment grow to about $36 p/sh. or nearly four times the initial book value.

Several interesting points can be made regarding the over-all record:

First: The growth in book value has come in spurts. Note for example the relatively flat performance between 1946 and 1951. A substantial growth occurred between 1951 and 1955, followed by declines in 1956 and 1957. Another period of vigorous growth occurred from 1957 to 1960 which in turn was followed by declines for two years and more recently by improvements from the bottom of 1962.

Taking the period 1960-1964 as a whole, the record appears quite static while underneath the surface, significant changes were taking place. In brief, these changes were represented by the drastic declines in such portfolio holdings as High Voltage, Giannini Controls, Itek, Laboratory for Electronics, etc., which were largely offset by major valuation increases in other holdings, the principal item being Digital Equipment Corp., the valuation of which increased from $875,000 to $12,250,000 between 1960 and 1964.

Our feeling is that A.R.D. is poised on the threshold of another significant increase in book value similar to and perhaps of greater magnitude than any of the "spurts" demonstrated in the past. Our view is based on the likelihood of further valuation increases in Digital Equipment which now represents nearly a third of total assets, together with a resumption of upward market valuation for stocks such as High Voltage, etc. whose performance has severely penalized A.R.D.'s asset value over the past several years.

Second: Between 1954 and 1959, the market price of A.R.D. common stock fluctuated between 113% and 54% of book value as stated at the close of the prior year, the average price perhaps coming to roughly 75% of book value. This was a period of general skepticism towards small untested companies and the market place would buy prospects and dreams only at substantial discounts.

Beginning in 1960, the picture changed and by late 1961, Wall Street was paying higher prices for vain hopes and distant dreams than it was for past history and current performance. There is no need here to labor the history of the market decline that started in the spring of 1962. Suffice to say that some of the declines that took place in "growth" (?) stocks were dramatic and left stockholders definitely sadder and poorer and perhaps (but not necessarily) wiser.

To cite just a few examples of individual stock fluctuations over the period 1960-1964:

	High		Low	
Barden Corp.	42	(1960)	9 5/8	(1963)
Giannini Controls	41 1/8	(1961)	9 3/4	(1963)
Glass-Tite Industries	26 1/4	(1961)	2 7/8	(1964)
High Voltage	55	(1963)	16 5/8	(1964)
Itek	82	(1960)	9 1/2	(1962)
Telex Corp.	44	(1961)	3	(1964)

Note: All the above were in the A.R.D. portfolio as of December 31, 1964, although Glass-Tite Indistries and Telex were not owned at the time their respective highs were made.

While these and other similar stocks moved rapidly upward in price in 1960 and 1961, the market place first began to eliminate the discount from asset value at which A.R.D.'s common stock had normally sold and then began paying a premium. By early 1961, the stock was selling at a substantial premium -- 167% of asset value as of 1960's year-end. The decline in stock prices that culminated in 1962 brought with it a reduction in the premium as shown below:

	Price As % of Net Asset Value as of December 31 of Prior Year	
	High	Low
1958	112.6%	60.8%
1959	89.7	57.6
1960	145.2	60.0
1961	166.8	86.9
1962	127.9	58.0
1963	166.8	82.5
1964	120.9	80.0
As of 4/15/65	91.0	

Thus, a combination of a 21% reduction in asset value between 1960 and 1962 and the elimination of the premium resulted in a 67% decline in A.R.D.'s common from a high of 42 1/2 in 1961 to a low of 14 in the following year.

The essential point is that over the past three to four years, the market place has wiped out not only the overvaluation of individual holdings, but also the premium on A.R.D.'s stock and we would seem to have a much more soundly priced situation than has existed for the past five years from which to form judgments as to likely future trends.

In this regard, our opinion is that in view of a likely major increase in asset value over the next 12-24 months, chances favor A.R.D.'s stock moving towards a premium once again. At the least, we see no reason to expect an increase in the current discount.

Portfolio Analysis - As of December 31, 1964, A.R.D.'s portfolio showed the following industry diversification with the dollar amounts shown to include the aggregate investment in each whether in the form of notes, preferred, common or options:

Applied Physics Equipment - 10.8%	
The Geotechnical Corporation	$ 763,700
High Voltage Engineering Corp.	2,695,140
	$3,458,840
Chemical Processing and Equipment - 9.3%	
Autoclave Engineers, Inc.	$ 431,875
Ionics, Incorporated	2,196,406
Separation Processes Corp.	99,960
Synco Resins, Inc.	135,917
Synergy Chemicals, Inc.	100,000
	$2,964,158
Construction Materials - 2.4%	
Eastern Schokcrete Corp.	$ 755,700

Data Processing Equipment & Services - 45.2%	
Adage, Inc.	$ 381,500
Computer Usage Co., Inc.	121,125
Data Products Corporation	91,640
Digital Equipment Corp.	12,611,250
Digitek Corporation	895,000
Itek Corporation	363,375
	$14,463,890
Diversified Manufacturing - 6.6%	
Cutler-Hammer, Inc. (1)	$ 1,555,848
Textron Electronics, Inc. (2)	562,500
	$ 2,118,348
Educational Supplies - 1.1%	
Cambosco Scientific Co., Inc.	$ 338,000
Electronic Components and Devices - 7.5%	
Avien, Inc.	$ 25,000
General Atronics Corporation	15,000
Giannini Controls Corporation	1,388,038
Glass-Tite Industries, Inc.	162,353
Laboratory for Electronics, Inc.	122,856
Litton Industries (options)	-0-
Sillicon Transistor Corporation	115,000
Teledyne, Inc.	363,438
Telex Corporation (3)	89,599
Teradyne, Inc.	111,800
	$ 2,393,084
Farm and Garden Equipment - 1.1%	
Hahn, Inc.	$ 360,000
International - 2.5%	
Canadian Enterprise Develop. Corp. Ltd.	$ 464,305
European Enterprises Develop Co. EED,SA	250,964
Technical Studies	75,000
	$ 790,269
Management Services - 1.5%	
American Research Management Corp.	$ 25,000
United Research, Inc.	24,250
	$ 49,250
Mechanical Components and Devices - 0.7%	
The Barden Corporation	$ 127,356
Trident Industries	97,600
	$ 224,956
Petroleum Equipment and Services - 6.8%	
Amata Gas Corp.	$ 150,400
Camco, Inc.	1,399,650
El Charvon Corp.	300,000
Zapata Off-Shore Co.	325,000
	$ 2,175,050
Pharmaceuticals and Medical Equip. - 3.3%	
Cooper, Tinsley Labs., Inc.	$ 600,000
Cordis Corp.	442,500
	$ 1,042,500

Publishing - 2.8%	
Industrial Research, Inc.	$ 448,278
Medical & Science Commun, Develop. Corp.	150,500
United Technical Publications	300,000
	$ 898,778
Grand Total	$32,032,823
Cash & Short Term Notes	6,565,410
Other Miscellaneous Assets	219,688
Total Assets	$38,817,921
Less Accounts Payable and accrued expenses	18,693
Net Assets at Market or Fair Value	$38,799,228
Per Share (1,535,000 shs.)	25.28
Unrealized Appreciation of Investments	19,150,103
Per Share	12.48

(1) 16,500 shares sold @ $83 p/sh. in January, 1965. $130,000 of 5 3/4 Debentures subsequently converted.

(2) Exchanged for Textron, Inc. in January, 1965.

(3) Sold in January, 1965 for $124,660.

An alternative breakdown of the portfolio as of 12/31/64 would show the following:

	Cost	Market or Fair Value	Per Share
1) Non-Convertible Bonds & Notes	$ 2,667,130	$ 2,693,590	$ 1.76
2) Convertible Bonds & Notes	630,000	719,348	.47
Sub-Total Bonds & Notes	$ 3,297,130	$ 3,412,938	$ 2.23
3) Convertible Preferred	$ 160,000	$ 35,000	$ .02
4) Common Stocks			
a) Listed NYSE	$ 510,714	$ 4,154,496	$ 2.71
b) Listed ASE	1,712,393	2,552,891	1.66
c) Listed Over-the-Counter	3,627,588	5,555,539	3.62
d) Assigned Fair Values	3,546,245	16,293,309	10.61
Sub-Total Common	$ 9,396,940	$28,556,235	$18.60
5) Options & Warrants	$ 28,650	$ 28,650	$ .02
Total Investment A/C	$12,882,720	$32,032,823	$20.87
Cash & short term notes		6,565,410	4.28
Misc. Assets less misc. Liabilities		200,995	.13
Total Net Assets		$38,799,228	$25.28

Commentary on Portfolio Holdings - While it is clearly beyond the scope of this report to analyze each of the portfolio holdings on an individual basis, we nevertheless believe it worthwhile to make the following comments with respect to the portfolio breakdown as portrayed above. Significant individual holdings are discussed later in this report.

Non-Convertible Bonds & Notes - There are 15 items in this category representing obligations of 13 companies. All items are carried at cost or par, whichever is higher. The three largest items are: Digitek - total of several notes = $790,000; Cooper, Tinsley Laboratories - $594,000; Digital Equipment - total of two notes = $361,250. Interest rates are generally 6% and maturities range from 1965 to 1971, averaging about 1968.

Convertible Bonds & Notes - At the 1964 year-end, there were three items in this category including $130,000 of Cutler-Hammer 5 3/4% Debentures which have subsequently been converted into common stock at $24 per share (new basis). The remaining two convertible holdings were $300,000 of Cambosco Scientific Co. 6% Notes due 1971 and $200,000 of Autoclave Engineers, Inc. 6% Notes due 1972. No information has as yet been made public with regard to either of these companies or with regard to the conversion terms. The former is a manufacturer and distributor of a general line of laboratory supplies for schools and colleges. The latter designs and manufactures high pressure and temperature autoclaves, reactors, valves and fittings for primary use in the research industry. Both investments are carried at cost (par).

Convertible Preferred - Two issues were in the portfolio at 12/31/64; the first, 100 shares of Teradyne 6% convertible preferred carried at the cost figure of $10,000 and the second was represented by 3,750 shares of "A" 5% convertible preferred of Avien, Inc. No information is publicly available on Teradyne. Avien has experienced substantial losses in recent years and the investment is carried at $25,000 compared with a cost of $150,000.

Common Stock: Listed on New York Stock Exchange - The principal item in this category is 149,730 shares of High Voltage Engineering carried at $2,695,140 compared with cost of $56,455.

As of 12/31/64, a holding of 16,500 shares in Cutler-Hammer was shown at a market value of $1,336,500 versus a cost of $44,355. As mentioned previously, this holding was sold subsequently resulting in a gain of $1,323,957. The $130,000 of C-H debentures were also subsequently converted resulting in a current holding of approximately 5,400 shares (adjusted for recent 2-1 split).

The final item in this category is 19,657 shares of Laboratory for Electronics carried at $122,856 versus a cost of $409,904.

Listed American Stock Exchange - The year-end holding of 100,000 shares of Textron Electronics has been exchanged on a 1-for-9 basis into Textron, Inc. thus moving the holding into the NYSE category. The Textron Electronics investment had been carried at $562,500 against cost of $750,000.

Other holdings in this category include:

	Cost	Value 12/31/64
83,491 Giannini Controls	$352,395	$1,388,038
20,800 Zapata Off-Shore	190,000	325,000
51,953 Glass-Tite Industries	349,998	162,353
20,000 Silicon Transistor	70,000	115,000

Over-the-Counter - As of 12/31/64, there were 11 individual holdings in this category, the largest of which was 216,929 shares of Ionics carried at $2,196,406 compared with a cost of $402,843. The second largest holding was 90,300 shares of Camco, Inc. valued at $1,399,650 against a cost of $356,993. Other holdings in this category were:

		Cost	Value 12/31/64
109,100	Geotechnical	$300,025	$763,700
11,630	Teledyne, Inc.	281,301	363,438
10,000	Itek	440,000	363,375
10,613	Barden Corp.	266,250	127,356
4,750	Computer Usage	124,750	121,125
40,729	Data Products	341,311	91,640
31,165	Telex	912,015	89,599
9,700	United Research	82,100	24,250
15,000	General Atronics	120,000	15,000

In January of 1965, the company disposed of its Telex holdings at $4 per share resulting in a loss of $787,356.

Assigned Fair Values - There were 24 individual holdings in this category carried at a valuation of $16,293,309 versus cost of $3,546,245. Approximately 75% of this total valuation was represented by a holding of 35,000 shares of Digital Equipment Corporation which stood at a cost of $70,000 and a valuation of $12,250,000. The next largest holding was 229 shares of Eastern Schokcrete valued at $755,700 compared with a cost of $316,325. Other holdings were as follows:

		Cost	Value 12/31/64
2,500	Canadian Enterprise Dev.	$464,305	$464,305
1,500	Cordis Corp.	182,625	375,000
19,735	Industrial Research	328,288	328,288
87,500	El Charvon	373,019	300,000
1,251	European Enterprises Dev.	250,964	250,964
875 "A"	Autoclave Engineers	23,187	23,187
7,875 "B"	Autoclave Engineers	208,688	208,688
10,000	Adage, Inc.	202,500	202,500
25,000	Medical & Science Commun.	150,500	150,500
96,886	Synco Resins	135,917	135,917
2,500	Hahn, Inc.	120,000	120,000
70,000	Digitek	105,000	105,000
5,576	Amata Gas	103,300	103,300
49,000	Separation Processes	99,960	99,960
102	Tech/Publishers	99,000	99,000
15	Technical Studies	66,667	75,000
102	United Catalog Publishers	60,500	60,500
37,000	Cambosco Scientific	38,000	38,000
102	UCP Services	37,000	37,000
32	Synergy Chemicals	32,000	32,000
102	Type Masters	29,500	29,500
25,000	American Research Manage.	25,000	25,000
102	File-O-Matic	24,000	24,000

Options & Warrants - The following options and warrants were held in the portfolio as of the 1964 year-end:

		Cost	Value 12/31/64
Wts. 120,000	Cooper, Tinsley @ $5 p/sh.	$ 6,000	$ 6,000
Wts. 3,583	Industrial Research	-0-	-0-
Opts. 1,500	Hahn, Inc.	-0-	-0-
Wts. 58	Synergy Chemicals	18,000	18,000
Opts. 5,000	Adage, Inc.	1,250	1,250
Opts. 37,567	Trident Industries	1,600	1,600
Opts. 9,000	Teradyne	1,800	1,800
Opts. 25,000	General Atronics	-0-	-0-
Opts. 4,125	Litton Industries	-0-	-0-

In March of 1965, A.R.D. exercised its option of 5,000 shares of Adage at a cost of $27.50 per share. The specific terms of most of the options and warrants shown above are not, at the present, publicly available.

Estimated Increase in Asset Value December 31, 1964 - March 31, 1965 - Based on recent prices on the NYSE, ASE and the over-the-counter market, we estimate that during the first quarter of the current year, A.R.D.'s portion of asset value represented by holdings for which there is a public market probably increased by approximately $2.1 million or about $1.40 per share. In addition, it appears possible (but not necessarily likely) that A.R.D. will make a minor upward revision in the valuation of its 68% interest in Digital Equipment, a company that has already become the most successful individual investment in A.R.D.'s history and whose bright prospects now loom so large in A.R.D.'s own future. Regardless of whether or not the valuation of Digital Equipment is increased on A.R.D.'s books as of 3/31/65 (figures to be released around May 1), the values being created through the investment are large and are expected to grow rapidly over the next several years. Our thinking with respect to Digital Equipment Corp. is outlined below.

Digital Equipment Corporation - The Company was formed in October of 1957 by Kenneth H. Olsen (President) and Harlan E. Anderson (Vice President and Treasurer), using $70,000 of equity capital supplied by A.R.D. Both men had been associated with M.I.T.'s Lincoln Laboratories during the early and mid 1950's.

The first products of D.E.C. were transistorized computer components or circuit modules which were sold to a sophisticated market of scientists and engineers who in turn assembled computers for their own specific use.

In December of 1959, D.E.C. introduced its first computer, the PDP #1, aimed at the scientific market and priced on the average in the area of $120,000 - $300,000 depending upon configuration. Some 50 of this model computer have since been sold with roughly one-third of them sold at prices in excess of $300,000.

Following the PDP #1, D.E.C. introduced the PDP #4 at about one-half the price of the PDP #1 and with less sophisticated performance characteristics. The PDP #4 had particular application in process control and a number of these computers have been sold to the Foxboro Company for incorporation in process control systems.

A still smaller computer, the PDP #5 was later introduced to the scientific and engineering research markets at prices ranging between $27,000 and $50,000.

While the PDP #1, PDP #4, and PDP #5 remain in the product line they have, for the most part, been phased out and replaced by the PDP #6, PDP #7, and PDP #8, the latter two incorporating the company developed "flip-chip" modules. Price ranges and markets served are as follows:

Model	Cost	Purpose
PDP 6	$400,000 average to $1 million	Chiefly University Research
PDP 7	$45,000 - $200,000	Instrument & Process Control
PDP 8	$18,000 - $50,000	Scientific, Engineering Research, and Process Control

With these computers, we believe that D.E.C. is in a sound competitive position in the scientific and process control computer markets with a well-rounded line of hybrid integrated equipment which is technologically equivalent to the "solid" systems that will be employed by I.B.M. in its forthcoming 360 series.

At the present time, Digital Equipment's sales break down approximately as follows:

Computers - 65%, modules - 25%, memory core testing devices - 10%. A further breakdown of computer sales might show 40% to nuclear and other physics research, 20% to process control applications, 20% to missile and space installations and the remaining 20% to varied university and laboratory research applications.

None of D.E.C.'s computers is programmed for COBOL -- the computer language used in most business applications -- but instead is programmed for FORTRAN, a scientific language. This fact serves to emphasize D.E.C.'s intention of remaining in the scientific area and avoiding the business application field which entails large scale and costly service requirements plus vigorous competition from I.B.M., General Electric, National Cash Register, etc.

An exception to this general rule is to be found in the installation of a PDP #6 computer at the Chas. Adams Associates facility at Technology Square, Cambridge, Mass., which is designed to provide computer service to medium and small sized business and research firms. D.E.C.'s computer installation ran to approximately $1 million and is capable of servicing up to 100 clients simultaneously with the clients feeding in and taking out questions and answers through peripheral equipment located at their individual offices. Closely akin to M.I.T.'s project MAC (multiple access computation), further installations of this type by D.E.C. seem quite possible although this is as close to the "business" market as D.E.C. presently intends to get.

Another interesting new D.E.C. product is a computer designed specifically for medical applications. The computer is named LINC (laboratory instrument computer) and its development evolved from the sale of circuit modules to M.I.T. who had been commissioned by the National Institute of Health to design and produce a computer for the medical field.

The financial success of D.E.C. since its formation in 1957 is rather phenomenal, with the company having recorded a profit in each year of its existence and a total of $3.4 million over the period as a whole. Only one Annual Report has been published (fiscal year ending June 30, 1964) and this report did not show an historical record of sales and earnings. Results for fiscal 1964 were shown as follows:

	Dollars	As % of Sales
Net Sales and Other Revenues	$10,911,563	100.0%
Cost of Goods Sold	4,472,744	41.0
Research & Engineering Exp.	1,811,477	16.6
Selling, Gen. & Admin. Exp.	2,846,713	26.1
Pre-Tax Profits	1,780,629	16.3
Income Taxes	891,472	8.2
Net Income	889,157	8.1

As of June 27 last, D.E.C. showed current assets of $4,999,711 against current liabilities of $1,796,346, for a current ratio of 2.8:1. There were $354,375 of 6% serial notes outstanding due variously to June of 1966 -- all of the notes being held by A.R.D. There was no other debt or preferred stock ahead of the 51,100 shares of $1 par common stock outstanding of which A.R.D. held 35,000 shares or 68.5%. In addition to the outstanding stock, 2,000 shares were reserved under a restricted stock option plan.

Evaluating D.E.C. - Since the publication of D.E.C.'s first and only publicly released annual report in the summer of 1964, there has been considerable speculation by outside sources regarding the likelihood of D.E.C.'s "going public" in one way or another -- the principal speculation centering around the possibility of A.R.D. distributing D.E.C. stock to A.R.D.'s own stockholders in much the same manner as employed in the case of High Voltage Engineering.

Speculation along these lines has led to appraisals of D.E.C. far above the carrying value as shown on A.R.D.'s books as of 12/31/64. Needless to say, this state of affairs has brought with it a good deal of unsolicited advice to A.R.D.'s management with respect to what should be done with D.E.C. as a portfolio holding either in terms of going public, marking up the valuation or some combination thereof.

Whatever one's personal feelings may be, the facts of the matter are that the decision to "go public", distribute stock, or increase the valuation rests not with outsiders but with A.R.D.'s and D.E.C.'s top management. What they have to say on the subject boils down to the fact that there are no immediate plans to go public and the ultimate decision will be based on what is considered to be in the best long range interest of A.R.D. and D.E.C. stockholders. This hardly satisfies those looking for a near term distribution but should, in our opinion, satisfy those willing to wait for say 12 - 18 months. We say this for the simple reason that whether D.E.C. goes public or not over the near term, the values being built up in this A.R.D. holding are very large and are growing at a rate that will unquestionably focus increasing investment interest on A.R.D. as a "mother" vehicle.

In order to estimate the values involved, we show below the changes that have taken place in D.E.C.'s reported net worth over the past several years. These figures probably closely correspond to net earnings after taxes although we have no official verification of that fact.

Fiscal Year	Approximate Change in Net Worth
1960	$ 125,000
1961	343,000
1962	807,000
1963	1,158,000
1964	889,157 Actual Reported Earns.

The drop in earnings in fiscal 1964 was due in large measure, if not entirely, to a large increase in research and engineering expenditures which came to 16.6% of sales. Incidentally, this decline in 1964 earnings points to the additional freedom of action with respect to expenditures deemed desirable by management who might not have felt so "free" if D.E.C. had been publicly held.

Estimates for D.E.C.'s Fiscal 1965 - Any estimates with regard to D.E.C.'s sales and earnings for the fiscal year ending this coming June 30, must necessarily be considered extremely rough as the company does not as yet release interim reports. Notwithstanding the unavailability of factual information that might permit a reasonably accurate projection, we feel sales should be in the area of $16.5 - $17.0 million. We suspect (but cannot at this time substantiate) that research and development expenses have been considerably increased as fiscal 1965 progressed and the extent of this increase will, in the final analysis, be the determining factor in establishing final net income.

The logic of the situation suggests to us that D.E.C. is currently spending heavily in the area of integral circuitry techniques in order to achieve lower costs, greater reliability, or increased computer speed -- or some combination of these factors. Thus, we believe it entirely possible that expenditures on research and development this year might increase to the area of $2.5 - $2.9 million or even higher and that, as a result, net earnings might be held in the area of $1,250,000 to $1,500,000 or perhaps lower.

Being still a privately held company, it would certainly seem sound and sensible for D.E.C. to expense this major research activity or at least get the bulk of it out of the way at a time when decisions can be made by a few people and explanations are not owed to clamoring throngs of indignant stockholders.

In effect, we are suggesting that fiscal 1965 results are not apt to be exciting enough to cause A.R.D. to increase its valuation of D.E.C. significantly -- perhaps about $4 per A.R.D. share at the outside -- and this assumes that A.R.D. does not make an upward revision in the current 20 times earnings multiple.

Further than that, we are stressing that D.E.C.'s fiscal 1965 results, whatever they may be, are not of primary importance because such earnings will reflect abnormally high R & D expenses which will only bear fruit in fiscal 1966 and beyond. From the point of view of A.R.D. stockholders, tangible realization of D.E.C.'s growth prospects can take place in one of two ways; either a small increase in the valuation of D.E.C. on A.R.D.'s books in 1965 followed by a large increase in 1966, or a small increase in 1965 followed by the initiation of a public market sometime during the following year.

Irrespective of the exact timing of D.E.C.'s public debut, as time progresses we are necessarily moving closer to some form of value realization by A.R.D. and its stockholders. As this progression takes place and as increased investor attention is focused on the situation, we question whether the market place will accept A.R.D.'s 20 times earnings multiplier in appraising that portion of the portfolio represented by D.E.C.

Putting the situation in another perspective, if A.R.D.'s equity in D.E.C.'s earnings for the year to June 30, 1965 come to about 60¢ per A.R.D. share and the outlook for D.E.C.'s fiscal 1966 performance is excellent (currently seems more than probable), then we would expect the market to appraise A.R.D.'s equity in D.E.C. more in line with what is currently being paid for D.E.C.'s closest competitors, Scientific Data Systems and Computer Control, both of which sell in the area of 35 - 40 times earnings.

Using a price/earnings multiplier of 30 times, the situation might develop along the following lines:

	Multiple	Price P/Sh. A.R.D.
1) A.R.D.'s Equity in D.E.C.'s Earnings Per A.R.D. Share		
D.E.C. Fiscal 1965 Est. - $0.60	30X	$18.00
D.E.C. Fiscal 1966 Est. - $1.00	30X	30.00
2) Value of A.R.D. holdings ex-D.E.C. as of 12/31/64		17.30
3) Increase in (2) as of 3/31/65 - estimated		1.40
Total - Assumed Possible Price Level of A.R.D. Stock		
a) If Portfolio ex-D.E.C. sold at 100% of book value	$36.70	48.70
b) If Portfolio ex-D.E.C. sold at 20% discount	32.95	44.95

In summarizing our feelings with regard to D.E.C., we should restress two points.

a) Our estimate of D.E.C.'s fiscal 1965 results is extremely rough and actual results will not be available until sometime this summer.

b) Whatever D.E.C.'s earnings turn out to be for fiscal 1965, whether some observers are disappointed or not, we believe that the investment significance rests with prospects for fiscal 1966 and beyond and not with near term results which are being penalized by R & D expenditures while the company is still privately held.

Other Promising A.R.D. Holdings - In its recent Annual Report, A.R.D. warns "....against the tendency to overidentify A.R.D. with any one of our portfolio companies from a value standpoint." With D.E.C. now looming so large in the over-all picture, the above philosophy is becoming somewhat tenuous. However, A.R.D. does have a number of other holdings that show significant promise and which should not be over-looked.

Among the larger present holdings, the outlook for High Voltage Engineering seems very promising over the next several years as that company enters another "growth period". Textron, Inc. and Giannini Controls are also expected to make significant progress. In the over-the-counter market, Camco (gas lift equipment for secondary oil recovery, etc.) is showing sharply higher earnings. Ionics, which has experienced difficulties over the years, has new top management and appears to have a good chance to break into the black within the next 18 months and begin to more fully exploit the opportunities in its field of membrane demineralization equipment for water and industrial solutions.

In the "assigned value" portion of the portfolio, while available information in most cases is sparse, we would call attention to at least two holdings that seem to possess considerable potential. Adage, Inc. was founded in 1957 with $15,000 of capital to exploit opportunities in the area of analog - digital converters and data processing equipment. After three years of experiencing losses, Adage broke into the black in fiscal 1961 (June 30 year-end) on sales of approximately $1.4 million. In the most recent fiscal year to 6/27/64, sales totaled $2.2 million and profits were $72,848 or $1.47 per share on 49,400 shares then outstanding of which 5,000 shares were held by A.R.D. Since that time, A.R.D. has exercised options to purchase 5,000 shares at $22.50 p/sh. and 5,000 shares at $27.50 p/sh. bringing A.R.D.'s equity to approximately 25%.

For the current year, Adage expects sales to reach $3 million or more and although research and development expenses are heavy, an improvement in earnings seems very likely.

The future prospects for Adage are closely linked to prospects for the company's latest development, the Ambilog 200 computer which is the first truly hybrid computer -- that is to say the computer is built from the ground up to exploit both analog and digital techniques and is not simply formed by linking separate analog and digital computers. At an average of $80,000 - $100,000, the Ambilog 200 will be priced well below competitive hybrid computers which generally contain complete analog and digital computers originally designed for independent use.

As of 12/31/64, A.R.D. was carrying its 10,000 share investment in Adage (since increased to 15,000 shares) at a value equal to cost; namely, $202,500 or an average of $20.25 p/sh. Chances would seem to favor a significant increase in the value of this holding over the next several years.

Another small, but interesting, investment is represented by 1500 shares (29% of voting securities) of Cordis Corporation. This concern was founded in 1959 and is engaged in the manufacture and distribution of clinical and research instrumentation for hospitals and medical laboratories and also distributes certain products manufactured by others. Among the company's products are angiocardiographic injectors, automatic alternating tourniquets, cardiac monitors, and self-contained synchronous heart pacers (trade style: Atricor and Ventricor) which are permanently implanted within the body of the patient.

Sales and earnings have been as follows:

Fiscal Yr. to 6/30	Sales	Net (Loss)
1960	$100,661	$ (42,300)
1961	132,418	(117,198)
1962	293,307	(76,306)
1963	552,135	(15,819)
1964	806,341	27,253
Six Mos. to 12/31/64	563,096	25,265
vs. 12/31/63	352,582	7,655

Earnings per share in fiscal 1964 equalled $5.35 and for the first six months of the current year were $4.96 per share. As Cordis has only quite recently begun to show profits, a near-term upward revision in A.R.D.'s valuation of its investment of $375,000 or $250 per share may not be a realistic prospect, but continued growth by Cordis along the lines already demonstrated might ultimately result in worthwhile valuation increases.

Directors and Officers - Shown below are the Directors of A.R.D. together with their principal affiliations and stock holdings:

	Shs. of Common Stock of the Corp. Beneficially Owned as of 12/15/64 *
ALISTAIR M. CAMPBELL - President, Sun Life Assurance Company of Canada; Director Canadian Pacific Investments, Ltd.; Canadian Enterprise Development Corporation, Limited.	
+PAUL F. CLARK - Director, John Hancock Mutual Life Insurance Company; Armour & Co.; Sheaton Corporation of America.	500
+GEORGES F. DORIOT - President of the Corporation; Professor, Harvard Graduate School of Business Administration; Director, John Hancock Mutual Life Insurance Company; Director, The National Shawmut Bank of Boston.	1,200*
BYRON K. ELLIOTT - Chairman of the Board, John Hancock Mutual Life Insurance Company; Director, The First National Bank of Boston; Director, Boston Edison Company.	500*
RALPH E. FLANDERS - Director, National Life Insurance Company; former U. S. Senator from Vermont.	600
OSCAR W. HAUSSERMANN - Partner, law firm of Haussermann, Davison & Shattuck (which firm is of counsel for the Corporation); Secretary and Clerk of the Corporation; Trustee, Shareholders' Trust of Boston.	700
LONGSTREET HINTON - Executive Vice President, Morgan Guaranty Trust Company of New York; Director, Transatlantic Reinsurance Company of New York; Treasurer, Nassau Hospital.	1,000
DAVID L. LUKE - Director, West Virginia Pulp and Paper Company; Irving Trust Company; National Dairy Products Corporation.	100*
+JOHN A. LUNN - Director, The Kendall Company (textile manufacturers); Baystate Corporation (bank holding company); United Research Incorporated (consulting services); Director, Laboratory for Electronics, Inc.	150
WARREN MOTLEY - Partner, law firm of Gaston, Snow Motley & Holt (which firm is of counsel for the Corporation); Trustee, Consolidated Investment Trust; Trustee, Eastern Utilities Associates.	1,500

	Shs. of Common Stock of the Corp. Beneficially Owned as of 12/15/64
DWIGHT P. ROBINSON, JR. - Member Advisory Board Massachusetts Investors Trust and Massachusetts Investors Growth Stock Fund, Inc.; Former Chairman of Trustees Mass. Investors Trust and Chairman of Board of Directors Mass. Investors Growth Stock Fund, Inc.; Director, Texaco, Inc.	800*
LESSING J. ROSENWALD - Trustee, The Lessing and Edith Rosenwald Foundation (charitable foundation).	*

+ - Member of Executive Committee.

* - As of December 15, 1964 Sun Life Assurance Company of Canada, of which Alistair M. Campbell is President, owned beneficially 32,400 shares of Common Stock of the Corporation; Mr. Doriot's wife owned beneficially 2,100 shares; the John Hancock Mutual Life Insurance Company, of which Byron K. Elliott is Chairman of the Board, owned beneficially 80,000 shares; West Virginia Pulp and Paper Company, of which David L. Luke was formerly Chairman of the Board, owned beneficially 8,985 shares; Massachusetts Investors Trust and Massachusetts Investors Growth Stock Fund, Inc., investment companies of which Dwight P. Robinson, Jr. was formerly Chairman, owned beneficially 66,000 and 70,000 shares respectively; and members of Mr. Rosenwald's family and The Lessing and Edith Rosenwald Foundation owned beneficially an aggregate of 33,000 shares.

The Officers and Staff are as follows:

GEORGES F. DORIOT, President and Director
University of Paris, 1920; Special Student Harvard Business School, 1921; Associate Professor and Assistant Dean Harvard Business School, 1926; and has been associated with the Harvard Business School as Professor of Industrial Management ever since that time. During World War II, Gen. Doriot ran the Military Planning Division of the Office of the Quartermaster General and was Deputy Director of Research & Development of the War Department General Staff.

WILLIAM ELFERS, Vice President - Age 47
Princeton University and Harvard Business School. Served in the U. S. Navy in World War II. Joined A.R.D. in 1947.

HENRY W. HOAGLAND, Vice President - Age 52
Stanford University, Stanford Law School and Harvard Business School. During the War he served as a civilian as Executive Assistant to the Director of Military Planning Division of the Office of the Quartermaster General. Subsequently, Deputy Director, Joint Congressional Committee, Atomic Energy. Joined A.R.D. in 1949.

WILLIAM HL CONGLETON, Vice President - Age 42
Princeton University and Harvard Business School. Previously associated with the Research Department of Standard Oil of Indiana. Joined A.R.D. in 1952, first as Technical Director then as Vice President.

DOROTHY E. ROWE, Treasurer
Syracuse University and Burdett College. During the War, served in the U. S. Navy in the Production Division in the Bureau of Ordinance. Joined A.R.D. in 1949 as secretary to the President and then as Assistant Treasurer. Elected Treasurer in 1954.

CHARLES P. WAITE, Assistant Vice President - Age 34
University of Connecticut and Harvard Business School. Served as an assistant to Gen. Doriot at the Business School. Joined A.R.D. in 1960 as a Staff Associate.

JOHN A.SHANE - Assistant Vice President - Age 31
Princeton University and Harvard Business School. Also served as assistant to Gen. Doriot at the Business School and joined A.R.D. in 1961.

PHILIP L. PLATT - Staff Associate - Age 26
Cornell University and Harvard Business School. Joined A.R.D. in 1963.

SAMUEL W. BODMAN III, Technical Advisor - Age 27
Cornell University. Holds Doctorate in Chemical Engineering. Assistant Professor at M.I.T. in Chemical Engineering.

Stock Comment - From a high of 42 1/4 in early 1961, A.R.D. stock declined to a low of 14 in the fall of 1962. From that level the stock moved upward in sympathy with a rapid increase in price of High Voltage Engineering, reaching 33 3/8 in the late summer of 1963. Again in concert with the action of High Voltage, A.R.D. declined until mid-1964 bottoming out at the 18 level.

While High Voltage continued to decline over the balance of 1964, A.R.D. rallied to the 27 level in the fall in apparent recognition of the fact that Digital Equipment had replaced High Voltage as the largest single A.R.D. investment. A subsequent decline in the final months of 1964 brought the stock back down to the 21 - 22 level.

Following a rapid rise to 25 1/2 in the first half of January of this year, the stock has generally traded in the relatively narrow range of 24 - 22 with the only noteworthy feature being a moderate rise and heavier than normal trading in anticipation of a possible announcement with respect to Digital Equipment at A.R.D.'s annual meeting on March 3. At this meeting, stockholders were told that there were no immediate plans for D.E.C. to go public and the stock made an irregular retreat throughout the balance of the month of March.

Volume to date in 1965 has averaged approximately 1,500 shares daily with several individual days showing 3,000 shares or more traded. As indicated above, Directors, as a group, either individually or by representation account for some 299,535 shares, or 19.5% of the 1,535,000 shares outstanding.

Conclusion - As we have pointed out elsewhere in this report, the market place over the past several years has eliminated the overvaluation of many of the individual A.R.D. portfolio holdings and at the same time has eliminated the premium over net asset value at which A.R.D. stock had itself sold at various times during the 1960-63 period.

With this "wringing out" process already accomplished, we believe it reasonable to expect that the major increase in asset value that we expect to see over the next 12 - 18 months -- together with increased recognition of the large values being created at Digital Equipment Corp., whether shown on A.R.D.'s books or not -- will find itself reflected in higher prices for A.R.D. stock. Further than this, the chances seem to us to favor a gradual elimination of the present discount from asset value as the asset value moves higher and as the yet unannounced public debut of D.E.C. draws nearer.

While there are obvious risks in each of A.R.D.'s portfolio holdings taken as individual entities, the package taken as a whole seems to us to present fewer downside risks than have been present for a long while and the potential rewards of a current investment in A.R.D. stock are quite substantial.

Purchase of the stock at or near current prices is recommended.

John L. Merrill, Jr.
mrh

Research Department
April 20, 1965

October 20, 1965

COPY

Mr. Melvin J. Gardner
Bear, Stearns & Company
One Wall Street
New York 5, New York

Dear Mel:

I was pleased to hear from you and I am very happy to send a couple copies of our Annual Report to you. We have a new Treasurer, Harry Mann, who joined us a short time ago and is studying our long-term money situation. I sent your letter on to him so that he will know of your offer to help.

Sincerely yours,

Kenneth H. Olsen

KHO:ecc
Enclosures (2)

October 20, 1965

Mr. Wesley A. Clark
Research Professor of Computer Sciences
Washington University
Computer Research Laboratory
700 South Euclid Avenue
St. Louis, Missouri 63110

Dear Wes:

Enclosed is a copy of the workbook which I promised to send you. There is also an extra copy which you might pass on to the associate dean.

I got the impression that Bill Papian wasn't very happy about your consulting for us. If you can do it and still make your boss happy, I would be interested in getting that proposal from you on the specifying and the defining of a drum computer. I am convinced that this is the obvious next product for us to go into and I have been talking about getting someone from MIT to do some preliminary consulting for us. I, of course, have much more confidence in you but I don't want to make Bill unhappy.

Sincerely yours,

KHO:ecc
Enclosures

October 14, 1965

COPY

Mr. Arthur L. Stern
Director of Engineering
Wales-Strippit, Inc.
Akron, New York

Dear Mr. Stern:

We were very pleased to have you visit us yesterday to discuss the application of our PDP-8 to the machine tool industry. I hope we were able to answer the questions you had and to give you a picture of the way we feel we should operate.

We are enthusiastic about the future of this and we do look forward to working with you in the future.

Sincerely,

Kenneth H. Olsen

KHO:ecc

October 14, 1965

COPY

Mr. Robert E. Stanaway
Director of Engineering and Development
Houdaille Industries, Inc.
1280 Main Street
Buffalo 9, New York

Dear Mr. Stanaway:

We enjoyed your visit yesterday and we were very interested to hear about the application of sophisticated numerical control to your machines. We hope that we were able to answer all of the questions you had.

We look forward to working with you on this application in the future.

Sincerely,

Kenneth H. Olsen

KHO:ecc

October 12, 1965

COPY

Reader Service
The IRON AGE
Chestnut & 56th Streets
Philadelphia, Pennsylvania 19139

Gentlemen:

I would appreciate receiving 10 reprints, No. 803, as advertised in the October 7 issue of The IRON AGE magazine.

Your prompt attention to this request will be appreciated.

Sincerely,

Kenneth H. Olsen

KHO:ecc

Massachusetts Institute of Technology
Alfred P. Sloan School of Management
50 Memorial Drive
Cambridge, Massachusetts, 02139

Digital Equipment Corp.

October 8, 1965

RESEARCH PROGRAM ON NEW ENTERPRISE FORMATION

I am sure that you remember the study of new enterprises formed by people who once worked at Lincoln Laboratory in which you so kindly participated recently. We have found after extensive data analysis that several revisions in the questionnaire were necessary to provide us with the breadth of information desired. We have compiled some of these changes into a short-form questionnaire for those individuals whom we have already interviewed.

We would really appreciate your help just this one more time. Complete information on each of our cases is vital to the success of our project. Enclosed is the short-form questionnaire which will take about 10-15 minutes of your time to complete. A self-addressed mailing envelope (stamped) is also included for your convenience.

A working paper written by another individual on our research staff was included for your general interest. Hopefully this will compensate you to some degree for your time spent on the questionnaire.

Cordially,

Edward Roberts

Edward B. Roberts
Associate Director
Research Program on the Management
of Science and Technology

EBR:bb
Enclosures

1. Please indicate your father's occupation and then classify it by checking the appropriate employment type:

Father's occupation (exact specification) Sales Engineer

Employment type:

(1) Professional (non-technical);_____ (2) Professional (technical); X
(3) Managerial (non-technical);_____ (4) Managerial (technical);_____
(5) Clerical & sales;_____ (6) Skilled labor;_____ (7) Unskilled labor;_____ (8) Farmer;_____

3-0

2. Referring to your work at the laboratory, please check one of the following which best describes the nature of your work over the entire time which you spent at the lab. If wide differences exist over time, give added weight to the most recent.

_____ (1) Investigations in pure and applied mathematics and theoretical studies concerning natural phenomena.

_____ (2) Experimental validation of theory and accumulation of data concerning natural phenomena.

_____ (3) Combined theoretical and experimental studies of new or unexplored fields of natural phenomena.

_____ (4) Conception and/or demonstration of the capability of performing a specific and elementary function, using new or untried concepts, principles, techniques, materials, etc.

_____ (5) Theoretical analysis and/or experimental measurement of the characteristics or behavior of materials, equipment, etc., as required for design.

_____ (6) Development of a new material necessary for the performance of a function.

_____ (7) First demonstration of the capability of performing a specific and elementary function, using established concepts, principles, materials, etc.

_____ (8) Development of a new manufacturing, fabrication or materials-processing technique.

X (9) First development of a complete system, component, equipment or major element of such equipment, using established concepts, principles, materials, etc. - Prototype development.

20-0

3. To what extent were the personal contacts (internal and external) you made while at the lab important to the forming of your company and its subsequent operations?

17-2

1 — 2 — 3 — X — 5 — 6 — 7

1: no effect

7: very important (indispensible)

Comments:

4. Please indicate on the following chart how many papers you have published and/or patents you have been granted.

	Before working at M. I. T.	While working at M. I. T.	Since leaving M. I. T.
Papers Published	0	2	0
Patents Granted	0	1	2

29 30-① 31 32-① 33 34-① 35 36-① 37 38-① 39 40-①

5. a) What per cent (%) of your time did you spend at the lab? (i.e. if you were a professor at M.I.T. and spent approximately 50% of your time at the Institute and 50% of your time at the laboratory you would check the 40-59% group).

47-①

(1) 0-19%_____ (2) 20-39%_____ (3) 40-59%_____ (4) 60-79%_____
(5) 80-99%_____ (6) Full Time Employee X

b) In general, what per cent (%) of your time, while at the lab, was spent on:

(Indicate % of total time)

48 49-① 50 51-① 52 53-① 54 55-① 56 57-① 58 59-① 60 61-①

10 Report writing (technical) (1)

10 Administrative duties (paper work) (2)

10 Meetings (3)

30 Research (pure experimental and theoretical) (4)

35 Development (prototype design and construction, etc.) (5)

10 Personnel supervision (6)

_____ Other (7)

62-① 63-①

c) Which type of work did you enjoy most? 5

d) Which did you least enjoy? 3

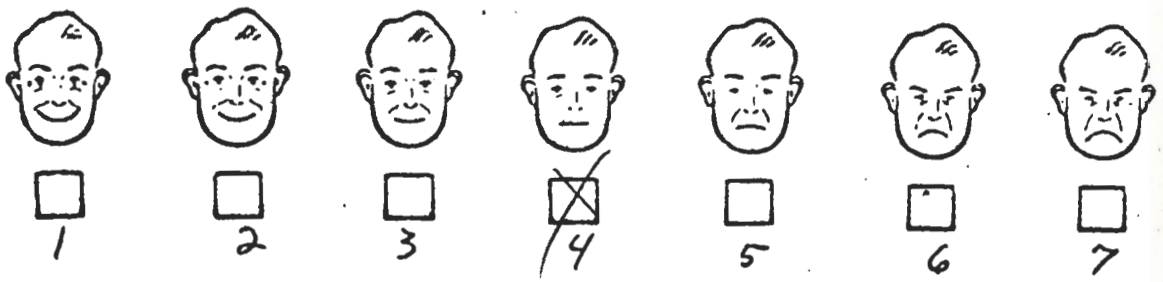
6. Family:

a) When you left to start your own business were you married?

Yes X No ____ Number of children 2

66 - ①
67 - ①

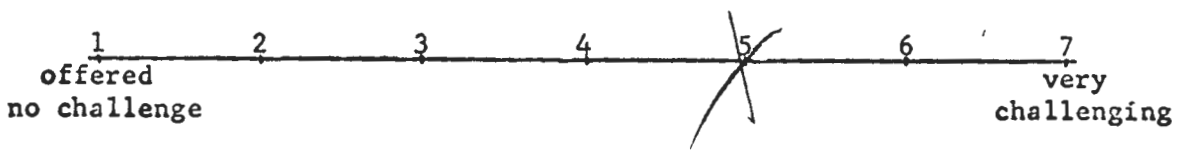
b) If yes, at that time how did you perceive your family's support and understanding of your proposed venture?



68 - ①

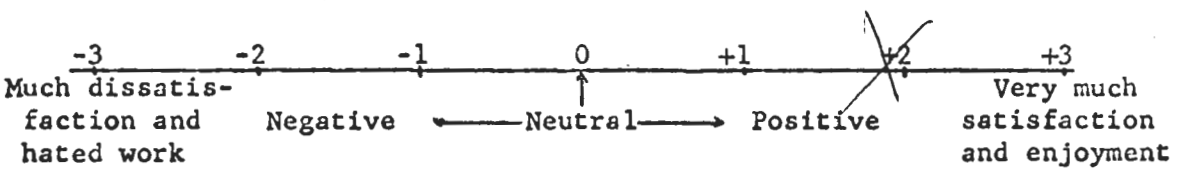
7. Please rank the following statements on the scale from 1 to 7, indicating the degree to which they apply.

a) Was your work at the lab challenging?



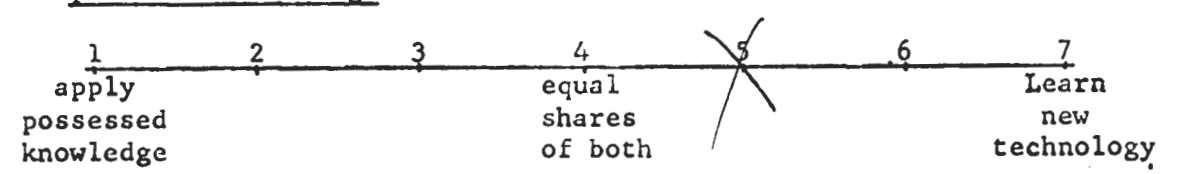
42 - ①

b) How much enjoyment and personal satisfaction did you get from your work at the lab?



43 - ①

c) For yourself, was the lab a place to <u>learn new technology</u> or <u>apply possessed knowledge</u>?



44 - ①

8. With respect to your new enterprise:

a) Did you have the idea for forming this particular type of business before coming to work for the lab? (1) Yes ____ (2) No X

1 - ②

b) If yes, why did you not implement it at that time?

9. a) Did you pursue this effort to start the business on a part-time basis prior to actually terminating your employment with the lab? 2 -②

(1) Yes_____ (2) No X

b) If so, how much time was spent?

c) How was this time spent? (preparing prospectives, designing product, market research, etc.)

Business Aspects_____% Describe briefly: 3 4 -②

Technological Aspects_____% Describe briefly: 5 6 -②

10. a) Was the intended use of technology you had learned at the lab your prime reason for leaving? (1) Yes X (2) No_____. 15 -②

b) Would you have left without this technology? (1) Yes X (2) No_____ 16 -②

c) If the answer to (b) is yes, from which source (your work experience, education, or whatever) is the work of your company most related technologically? Please be as specific as possible (i.e. name of school or professor, exact name of company or lab, etc.)

?

d) From which source is the work of your company second most related technologically?

?

11. a) How many people did you know of at the lab who had left to start their own companies prior to your decision to leave and start your own company? almost none 18 -②

b) What effect did this have on your decision to leave and start your own company?

none

12. a) How many people (including founders) were employed by the firm when it was founded? 35 36 -②

3

b) How many of these (exclusive of founders) were from the lab? 1 37-(2)

c) What skills did they (exclusive of founders) have that you wanted?

The following question relates to how the company's marketing policies and procedures have affected its growth, and how the company has dealt with this major business area.
Marketing would be defined as that of the business dealing with market information collection, sales, distribution, advertising, and promotion.

13. a) Do you have a marketing department (or a special section of the company) devoted to the marketing aspect of the business? 65-(2)

Yes X No

b) How many in-house marketing people does the company have? 150 66-(2)

c) What are the functions of these people and at what point in time were they added to the company's employment?

2nd year

d) Who handled the marketing function in the beginning? Technical people

e) Does the firm use marketing consultants? little If yes, to what extent? 67-(2)

f) Do you do any sales forecasting? yes If so, how is this done? 68-(2)

For what is this information used?

g) Have you done any studies to analyze potential markets? yes 69-(2)

If yes, what was done?

If no, how do you get market information?

h) What were the results thus obtained and how were these results utilized or implemented? (Please be as specific as possible)?

14. What fraction of your total sales are to the government or to government contractors?

Year	Govt. (defense)	NASA	Govt. (non-defense) and non-space)	*Non-government	Total
1964	30	10	30	30	100%
1963	↓	↓	↓	↓	100%
1962					100%
1961					100%
1960					100%
1959					100%
1958	↓	↓	↓	↓	100%
1957					100%
1956					100%
1955					100%
1954					100%
1953					100%
1952					100%
1951					100%
1950					100%

*Non-government includes universities, hospitals, etc. unless definitely serving as a prime or sub-contractor to the government.

15. a) Are any of your products patentable? yes

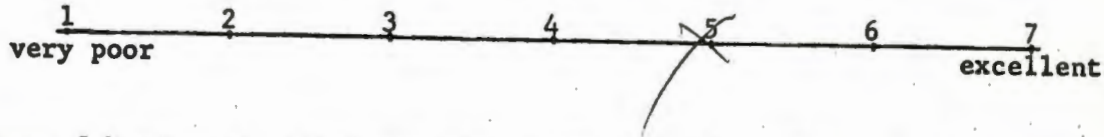
b) If so, have you patented these products? Yes X No

c) What effect do you feel this action (or decision) has had on your business success? 1. Title

16. How would you rate your company's success at this date?

1 complete failure — 2 — 3 — 4 — 5 — 6 — 7 complete success

17. How would you rate your company's prospects for future growth and success (i.e. chances of attaining your own corporate goals)?



37-③

18. Type of business: (Indicate with a "B" the classification of your company when it began and with an "N" for its classification now)

B N (1) Production - hardware

_____ (2) Production - software, i.e. programming, consulting, services

38-③

_____ (3) R & D (contracted)

_____ (4) Non-profit

39-③

_____ (5) Individual Consultant

_____ (6) R & D and Production (hardware)

_____ (7) R & D and Production (software)

_____ (8) Production (hardware and software)

_____ (9) R & D and Production (hardware and software)

19. Please indicate the degree to which you feel your company has transferred technology from the laboratory. Please consider the definitions carefully. Check the proper definition below.

X (1) Direct technology transfer - The company in its present form would not have been started without laboratory-learned technologies. It utilizes or utilized at the beginning mostly what the founder(s) learned at the laboratory.

_____ (2) Partial technology transfer - An important aspect of the company's work originated with laboratory-learned technologies. The individual who transferred the technology might have broadened the laboratory-learned technologies at other employment between the laboratory and the new enterprise.

40-③

_____ (3) Vague technology transfer - Nothing specific was transferred. However, general background and knowhow learned at the laboratory were very important. In this case, the company might have been started without the laboratory experience.

(LIST CONTINUED ON NEXT PAGE)

_____ (4) No technology transfer - Essentially nothing that the company does is related in any manner to laboratory technologies. The individual who started the company may have learned an extensive amount at the laboratory, but he is not utilizing this (from a technological standpoint) in his new enterprise.

_____ (5) Special case: Please specify:

October 7, 1965

COPY

Mr. David Packard
Chairman of the Board
Hewlett-Packard Company
1501 Page Mill Road
Palo Alto, California 94304

Dear Mr. Packard:

I am sorry that I have not as yet been able to take advantage of your invitation to visit your plant. We have made a significant increase in our production facilities lately and it has kept me tied up.

We have just completed another fiscal year and I am enclosing a copy of our new Annual Report.

Sincerely,

Kenneth H. Olsen

KHO:ecc
Enclosure

October 7, 1965

COPY

Mr. Philip Braun, President
Tag-O-Matic Machine Company
2204 Erie Boulevard, East
Syracuse, New York

Dear Mr. Braun:

We were pleased to have you visit with us on Wednesday and we enjoyed hearing about your business and plans for the future. I am sorry that we were not in a position to solve your problems, but I do hope that, even giving a negative answer, we were helpful to you.

Sincerely yours,

Kenneth H. Olsen

KHO:ecc

October 7, 1965

Mr. Rudolf Biebl
Amselweg 2
Konigstein/Taunus
Deutschland, Germany

Dear Mr. Biebl:

We were very interested to receive your proposal and we have given it very careful consideration. We are sure that you and your group are very competent and could make a real contribution, but, after reviewing our resources and plans, we have decided to continue to be cautious in our approach to selling in Europe and so we feel we have to give a negative answer to your proposal.

We want to thank you very much for the interest you have shown and for making this proposal to us.

Sincerely yours,

Kenneth H. Olsen

KHO:ecc

RUDOLF BIEBL
Industrieberatung

624 Königstein / Taunus
Amselweg 2
Telefon 4077

September 12,1965

Personal & Confidential

Mr.
K. H. Olsen
President
Digital Equipment Corporation
146 Main Street
Maynard, Massachusetts

Dear Mr. Olsen:

As promised in our telephone conversation I confirm my offer to discuss with you a possible employment with Digital Equipment Corporation in Germany. I propose that we meet in the near future in Europe or in the United States (I plan a trip in october) in case you are interested.

To start a new subsidiary of an US computer manufacturer I have built up a nucleus of 4 professionals (including me) able to meet a minimum sales figure of $ 1.5 mio during the first year and of $ 2.5 mio during the second year of operation. The team consists of

1) a managing director (myself),
2) a sales manager.
3) a maintenance manager,
4) a software manager,
and clerical staff.

In the recent two years I have sold computers and related products worth more than $ 4 mio, the sales manager of our team achieved $ 3 mio. Our maintenance manager has 7 years of experience and has spent 16 month of training and education in the United States. The software manager was selected to give sales support as well as to supervise the writing of Algol compilers in Europe. Every member of the nucleus has international experience. Language knowledge: Managing director: german, english, (french). Sales manager: german, (english). Maintenance manager: german, english, spanish, french. Software manager: swedish, english, german, (french). The team can also be taken on step by step.

Excellent contacts to many German and Swiss prospects and to the German Government exist. An important subject for a further discussion could be the trade with Eastern Europe and much groundwork is already done in this respect.

I look forward to hear from you in the near future.

Your sincerely

R. Biebl

R. Biebl

October 5, 1965

Dr. Ivan Flores
931 President Street
Brooklyn 15, New York

Dear Dr. Flores:

Thank you for sending me your new brochure. It is important that I keep up-to-date with services like yours because I am often asked for suggestions from people who are looking for consultants.

Enclosed is literature on our PDP-7 and PDP-8 computers. If you need further information, please either call me direct or contact our office in your area. The address there is 1259 Route 46, Parsippany, New Jersey, and the telephone number is Area Code 201 - 335-0711.

Sincerely,

Kenneth H. Olsen

KHO:ecc

Enclosures: PDP-7, PDP-8 brochures

bcc: Dave Denniston

LOGICAL DESIGN · MATH MODELS · SOFTWARE · SYSTEMS ANALYSIS

Dr. Ivan Flores

COMPUTER CONSULTANT

931 PRESIDENT STREET
BROOKLYN 15, N. Y.
212-789-1312

September 17, 1965

Mr. Kenneth Olson, President
Digital Equipment Corporation
Main Street
Maynard, Massachusetts

Dear Mr. Olson:

I have not contacted you since my visit to your facility about two years ago. I would like to take this opportunity to furnish you with my new brochure and a copy of a recent article.

A client of mine is interested in your smallest computer for on line testing. I would appreciate it if you could forward full information about that computer to me.

Sincerely yours,

Ivan Flores
ddb

IF:ddb
Encs.

Computers & Data Processing NEWS

A Manager's Simulation Primer

Ivan Flores, Private Consultant
and
Burt H. Liebowitz, Airborne Instrument Labs

Simulation can be classified into three types: physical, analog, and digital computer simulation. The latter two require mathematical models. Such models, in turn, can be classified into probablistic and deterministic. The latter type is further broken down into exact, simplified and heuristic models. Simulation can be used for the following purposes: analysis and verification of system performance; system design optimization; personnel training; subsystem test. Applicability and model choice are determined from the system specifications. Simulation is intimately concerned with time. Realtime simulation is defined as a ratio of system activity duration to simulation duration of approximately one. A set of steps for setting up a simulation concludes the article.

What is Simulation?

Simulation is the indirect investigation of system performance. This investigation can be done in one of three fashions:

a. physical
b. analog
c. digital computation

Physical

A model of the system under study is prepared identical with the system in every *important* detail. This model is subjected to the same input phenomena that would be required of the original system. The reaction to the model should theoretically duplicate that of the original system. The factors of congruence should be chosen so that system performance is essentially reproduced.

A model of an aircraft for wind-tunnel experiments is an example. Reproducing the details of the cabin is obviously of no importance to the aerodynamic performance of the system. The shape and weight ratio is important.

Mathematical Model

To set up analog or digital simulation requires a mathematical model. This is a set of equations which describes the system activity in terms of 1) time, 2) initial conditions, 3) system parameters.

Take the equations which describe the activity of a loudspeaker. The output is the motion of the diaphragm. The initial and input conditions describe the portions of the various components and the electrical disturbance supplied them. The parameters of the system are descriptions of the mass, compliance, elasticity, and so forth.

Analog Simulation

If we find a system which is described by the same mathematical model as the original system, then the activity of the two systems is analogous. If it is easier to examine the behavior of one system than another, then the system which we observe is said to be an analog simulation to that for which we desire knowledge.

For example, an electrical analog of the loudspeaker system is easy to construct and observe. It is an analog simulation of the loudspeaker.

Digital Simulation

Again, we start with the mathematical model. Activity of the system under study is described by equations. Now the procedure is to solve these equations on a digital computer. The solution of these equations is presented by a numerical printout, which can then be interpreted and/or graphed.

An example of a digital simulation is the reactor study. Here the behavior of a nuclear reactor is investigated by examining the results of a long series of calculations wherein various parameters and initial conditions are altered.

Digital simulation allows us to represent the activity of an as yet unborn digital computer on another dissimiliar digital computer.

Uses of Simulation

There are at least four uses to which simulation can be put:

1. analysis and vertification thereof
2. design tool
3. training
4. test.

Analysis

The engineer and scientist are required to analyze and understand many kinds of systems. Their analysis frequently takes the form of a mathematical model. Simulation using this model can be compared with observations, and this constitutes a verification, at least in part, of the analysis which preceded it.

Design

A verified mathematical model for a system provides the means for optimizing system design. The desired range of input is presented to the simulator. Design parameters of the system are varied within the simulator. The response of the simulator is examined. Parameters for which the response is best should provide the best system design.

Training

A simulated system can produce outputs for training system operators at a cost much below that of the initial system, in most cases. For instance, an air traffic control system might have its input system simulated. Thus, aircraft flights and their detection can be provided synthetically with a great variety of situations and in a completely safe manner. A further reduction in cost can be achieved by replacing the radar system and processors by a simulation.

Test

The testing of interconnected subsystems can be facilitated by replacing a. but the one under study by simulations. These simulations produce or accept data which is used to evaluate the system under study.

Models

A system under study consists of subsystems. Each of these may be modeled. Each model may have a unique philosophy.

Model Philosophy

Several philosophies of building models may be possible:

1) Probablistic
2) Deterministic
   a. exact
   b. simplified
3) Heuristic

Probablistic

Study of the system in either an analytic or heuristic manner should reveal a description of the input and output phenomena. Should these phenomena be probablistic in nature, a substitution for a synthetic distribution is possible. For instance, the operation of a telephone exchange over a short interval of time is described in this manner. The distribution of incoming calls is found to be random.

Exact

Detailed study of a subsystem may reveal the precise relationship of the variables. This can be verified on a physical system. The equation description thus provided can be the basis of a simulation. For instance, the exact equations for the behavior of an electronic amplifier are presently available. These provide a model for digital or analog simulation.

Simplified

A simplified system of equations is one which disregards second-order effects upon the total system. The biggest task is to determine which effects may be disregarded safely.

An example is provided by the amplifier when its job in the system is to handle pulse inputs. Simplification consists of disregarding the low frequency response, idealizing the input waveforms, and ignoring the effects of noise.

Heuristic

If we investigate the given subsystem only for the range of operation with which it is concerned in the overall system, we can relate its output to its input. This activity can be recorded in the form of a graph or table, or possibly a set of simple equations. The subsystem can be replaced by this table or graph, provided that it is complete enough and meets all eventualities.

Other Considerations

Applicability and Need

Simulation can provide savings in time, money, personal safety and efficiency. Eventually, all these factors could be converted into dollars and cents. This can be compared with the cost of other alternatives and a choice made between simulation and other procedures.

over

Model Choice

The kind of model for simulation depends upon the subsystem specifications and its interrelation with the main system. The main consideration is the depth of knowledge required. Too detailed a simulation costs more in time and money and may only complicate the evaluation procedure. Too shallow a simulation may provide insufficient or misleading information.

Relation of Time to Simulation

Let us make a few definitions:

1) System event time: unit time interval in the system being simulated.
2) Simulation event time: the corresponding time interval for the simulator.
3) Simulation time scale: the quotient of the simulation event time by the system event time.
4) System activity duration: a larger time period over which the system is active and during which it produces a set of significant results.
5) Simulation duration: the time required to simulate the system activity, including waiting time required while new information is entered into the simulator.
6) Simulation time ratio: ratio of the simulation duration to the system activity duration.

Realtime simulation is a phrase often bandied about. It is defined here as a simulation time ratio of approximately one. In order for this requirement to be met, the simulation time scale must be less than or equal to one. If it is very much less than one, we might wonder at the efficiency of the simulation, since the simulator requires so much waiting time.

Time vs. Event-Based Simulation

Simulation can be based on the occurrence of discreet events or upon a continuity based upon time variation.

Verification

The comparison between the simulator and the subsystem being simulated is an important procedure.

Conclusions

To conclude, we present some of the steps in setting up a problem for a digital computer simulation.

1) State problem.
2) Reduce system to subsystems, subsubsystems, etc.
3) Prepare chart of information flow.
4) Determine type of model for each subsystem.
5) Prepare model.
6) Simplify model.
7) Analyze model for digital computer.
8) Code.
9) Run and debug program and model.
10) Verify fidelity and alter to suit, redoing previous steps if necessary.
11) Use.

Dr. Ivan Flores & Associates
Computer Consulting Services

Design and Build Computers

from large general and special purpose machines to instrumentation and digital devices for military and business use.

Select and Analyze Systems

of electronic data processing.

Programming Analysis

Analyze Feasibility & Markets

Write Proposals (military & industry)

Conduct Seminars

in-plant, focused on company problems; i.e., computer logic, circuits, language.

SECRET FACILITY CLEARANCE

Facilities include access to large memory computers, engineering and drafting equipment.

Associates include design engineers, programmers, mathematicians, management analysts and service personnel.

You are invited to discuss your special computer needs in confidence. Please write or phone:

Dr. Ivan Flores
931 President Street
Brooklyn, New York 11215

Phone: 212-789-1312

Dr. Ivan Flores' clients include:

PHILCO	improved design of computer that was the fastest in the world; helped set up, design automation program; integrated design with software; developed advanced concepts for new computers; indicated proper emphasis in development programs; character recognition development.
RAYTHEON	automation of the design process; macro and micro language design; examination of scope of research program.
LORAL	designed anti-submarine computer; designed navigation computer; assisted proposal effort.
UNITED AIRCRAFT	developed specifications for next-generation ICBM computer.
KOLLSMAN	developed specifications for space-borne computer.
PICARD & BURNS	ultra-high precision atomic clock; navigational computer design.
POTTER	complete system for bank-code deciphering.
CONSOLIDATED CONTROLS	improvements in robot-positioning logic; designed storage equipment for robot program.
REFLECTONE	digitized training devices and simulators.
PHILIP HANKINS	wrote successful sorting bid for IBM 360 system.
INTERTECHNICAL	patent validation.
DUNLAP	improvements in automatic checkout equipment; reviewed decision-making, PERT..
NATIONAL CASH REGISTER	software-hardware integration.
WESTON	complete special computer design, including: task analysis, equation derivation, crude system, feasibility, block design, detailed design including logical equations and programming.
MELPAR	software-hardware integration.
SCHLUMBERGER	improvements for product-line counter.

The Logic of Computer Arithmetic

By Ivan Flores, 1963; 493 pages. (London: Prentice-Hall International, 90s.)

THE COMPUTER BULLETIN

MAR. '64

...“likely to become a reference work on arithmetic methods for computer designers.”

Computing Reviews

ACM

MARCH-APRIL 1964

From a pre-publication review:

“Without doubt this book is by far the most exhaustive treatment available on the subject of the logic of computer arithmetic, and it is sufficiently comprehensive and detailed to be of significant value to every digital computer designer.”

“The prose style is easy and conversational. This book should prove a useful engineering text, both for classroom use and for self-study, for those intent upon the design of powerful, big-budget computers.”

An audit of Prentice-Hall, Inc. records shows that Computer Logic and The Logic of Computer Arithmetic is required reading in over 50 graduate schools, colleges and universities in the United States and Canada.

Computer Logic

By Ivan Flores, 1960; 458 pages. (Englewood Cliffs, N.J.: Prentice-Hall, Inc., $12.)

Computing Reviews

ACM

JULY-AUGUST 1961

...“presents the subject so well, that it deserves serious attention.”

IRE TRANSACTIONS ON ELECTRONIC COMPUTERS

SEPT. 1961

...“fills an important gap in the computer literature.”

“Most books in the computer field are either textbooks to teach a particular subject, such as programming or logic design, or collections of descriptions of various hardware techniques, often those used in existing machines. While such books are valuable as reference material, they provide little understanding of *how all the various components and subsystems of the computer work together to form a coherent system. The present book does this quite effectively.*”

Books in press, all to be published by Prentice-Hall during 1965-66:

Computer Software, the first book to intensively describe Software;

Computer Programming; and The Digital Computer.

17 articles contributed to professional journals; 6 more in press.

Dr. Flores has taught

* Over 20 In-Plant Courses on the Computer

6 to 15 week courses, and
36 to 63 contact hour courses at

IBM SYSTEMS RESEARCH INSTITUTE

POTTER

BENDIX

PITNEY BOWES

WESTERN ELECTRIC

NEW YORK BELL TELEPHONE

Course titles:

Logic Design
Advanced Logic
Computers (Introduction)
Computer Design
Computer Languages
FORTRAN and ALGOL Programming
Switching Circuits
Solid-State Switching.

*** Talks on computer to engineers and executives at conventions, management meetings, etc.**

*** University teaching, Electrical Engineering Department**

1965-	Associate Professor, Stevens Institute of Technology
1962-63	Adjunct Full Professor, New York University
1959-62	Associate Professor, Polytechnic Institute of Brooklyn.

EDUCATION:

Ph.D.	New York University
M.A.	Columbia University
B.A.	Brooklyn College

Dr. Ivan Flores **931 President Street, Brooklyn, N.Y. 11215** **Phone: 212-789-1312**

October 5, 1965

Mr. Braun, President
Tag O Matic Machine Company, Inc.
2204 Erie Boulevard
Syracuse, New York

Dear Mr. Braun:

We understand from you that you are interested in discussing with Digital Equipment Corporation the possibility of using Digital Equipment Corporation products in connection with machinery and equipment manufactured by your company.

We also understand, however, that in order to effectively discuss your problems you must reveal to us certain confidential information which is proprietary in nature. In order to allow these discussions to proceed forthwith, Digital Equipment Corporation agrees that Digital Equipment Corporation shall keep confidential any confidential information, proprietary in nature, received by Digital Equipment Corporation from you except for such information as now is or later becomes publicly known or as is obtained by Digital Equipment Corporation on a non-confidential basis from a third party entitled to so disclose it.

Very truly yours,

DIGITAL EQUIPMENT CORPORATION

By: Kenneth H. Olsen

Kenneth H. Olsen
President

October 4, 1965

Mr. Horace Ford
100 Memorial Drive
Cambridge 39, Mass.

Dear Mr. Ford:

We have just now completed our annual report for 1965 and are happy to send this copy to you. We enjoyed having you visit us a short time ago and we do hope that in the future you will visit us again.

Sincerely,

KHO:ncs
Enc: (1)

October 4, 1965

Mr. William W. Frymoyer
Executive Vice President
The Foxboro Company
548 Neponset Avenue
Foxboro, Massachusetts

Dear Mr. Frymoyer:

We have just completed our annual report and I am very happy to send a copy to you.

Still, I am looking forward to visiting Foxboro Company in the near future.

Sincerely,

Kenneth H. Olsen
President

KHO:mcs
Enc: (1)

October 4, 1965

Mr. Martin Dublier
Executive Vice President
Friden, Incorporated
2350 Washington Avenue
San Leandro, California

Dear Mr. Dublier:

We have just completed our annual report for 1965 and I am sending this copy to you to keep you up to date as to what we are doing.

Sincerely,

Kenneth H. Olsen
President

KHO:ncs
Enc: (1)

October 4, 1965

Mr. Nathan Hubley, President
Carter's Ink Company
239 First Street
Cambridge, Massachusetts

Dear Mr. Hubley:

We have just completed our annual report for 1965 and I am sending this copy to you to keep you up to date as to what we are doing.

Sincerely,

Kenneth H. Olsen
President

KHO:ncs
Enc: (1)

October 4, 1965

Mr. Samuel Giser, President
GPS Instrument Company, Inc.
188 Needham Street
Newton, Massachusetts

Dear Mr. Giser:

We have just completed our annual report for 1965 and I am sending this copy to you to keep you up to date as to what we are doing.

Sincerely,

Kenneth H. Olsen
President

KHO:ncs
Enc: (1)

October 4, 1965

Mr. Robert J. Jeffries, President
Data-Control Systems, Inc.
Danbury, Connecticut

Dear Mr. Jeffries:

We have just completed our annual report for 1965 and I am sending this copy to you to keep you up to date as to what we are doing.

Sincerely,

Kenneth H. Olsen
President

KHO:ncs
Enc: (1)

October 4, 1965

Mr. Leo A. Goodman
Chemical Consultant
2301 Kings Highway
Brooklyn 29, New York

Dear Mr. Goodman:

We are pleased to hear of your interest in the latest DEC annual report and we are happy to answer your question.

DEC stock is not available to the public; therefore, if is not listed on any of the exchanges.

Thank you for your interest.

Sincerely,

Kenneth H. Olsen
President

KHO:ncs
Enc: (1)

LEO A. GOODMAN
Chemical Consultant

Dewey - 8- 5684

2301 Kings Highway
Brooklyn 29, N. Y.

September 29, 1965

Digital Equipment Corporation,
146 Main Street,
Maynard, Massachusetts 01754

Attention: Kenneth H. Olsen, President
Gentlemen:
Thank you for your memo of September 14th addressed to the stockholders of the American Research and Development Corporation, to-gether with the accompanying Annual Report for 1965 in which report was set forth recent developments of the "DEC".

I have found the report very interesting and would ask you to kindly advise me as follows:

1.- Is the "DEC" stock now available to the public?
2.- Is the stock listed on any of the Exchanges in this country?
3.-If the stock is available what is the current price per share?

Very sincerely yours
Leo A. Goodman
Leo A. Goodman

October 4, 1965

Mr. Belmont Towbin
C. E. Unterberg, Towbin Company
61 Broadway
New York, New York 10006

Dear Mr. Towbin:

Thank you for your letter and for the copy of the prospectus of Systems Engineering Laboratories. As you requested I am enclosing the 12 copies of our 1965 Annual Report.

Sincerely,

Kenneth H. Olsen
President

KHO:nes
Enc: (12)

C. E. UNTERBERG, TOWBIN CO.

MEMBERS
NEW YORK STOCK EXCHANGE
AMERICAN STOCK EXCHANGE

61 BROADWAY
NEW YORK, N. Y. 10006

HA 5-3090

September 24, 1965

Mr. Kenneth H. Olsen
Digital Equipment Corporation
146 Main Street
Maynard, Mass. 01754

Dear Ken:

I read with great interest the 1965 annual report of Digital. The progress in the area of new product development and backlog is gratifying. Would you be good enough to have your secretary send us a dozen copies of this annual report.

For your information, you may be interested in the enclosed preliminary prospectus on Systems Engineering Laboratories. The management here also seem to be doing a great job. If you ever have any interest in meeting any of the principals to discuss common problems, I would be delighted to arrange it. We know them well in that we have had a modest common stock investment in this company for the past few years.

Best regards.

Sincerely,

Belmont Towbin

BT/r
Enc.

October 4, 1965

COPY

Mr. Norbert J. Biderman
Executive Vice President
Exchange Capital Corporation
134 So. La Salle Street
Chicago 3, Illinois

Dear Mr. Biderman:

We are pleased to hear of your interest in DEC and are very happy to send you this copy of our recent annual report. We will put your name on the list to receive future annual reports. - noted

Sincerely,

Kenneth H. Olsen
President

KHO:ncs
Enc: (1)

EXCHANGE CAPITAL CORPORATION
134 SO. LA SALLE STREET • CHICAGO 3, ILLINOIS
Telephone 332-2085
Suite 1130

September 28, 1965

Office of the President
Digital Equipment Company
146 Main Street
Maynard, Massachusetts

Dear Sir:

I am a financial analyst in Chicago and would appreciate having you place my name on your stockholder's mailing list so that I may receive all such releases in the normal course of business.

Would you also please send me a copy of your most recent annual report. Thank you very much for your cooperation.

Sincerely yours,

Norbert J. Biderman
Executive Vice President

NJB:amk

5+0

October 1, 1965

Mr. Philip Braun, President
Tag-O-Matic Machine Company
2204 Erie Boulevard East
Syracuse, New York

Dear Mr. Braun:

At Mr. Bocek's request, I have made reservations for three single rooms at the Howard Johnson Motor Lodge on Route 2 in Concord, Mass. for the night of October 5th.

I am enclosing a map of Boston and surrounding area and also a brochure on "How to Get to Digital". These country roads are sometimes confusing, if you should get lost please feel free to call me on Ext. 210 and maybe I can navigate you in.

Mr. Olsen will be expecting you at 9:30 on October 6.

Sincerely,

(Mrs.) N. Survilas, Secretary
Administration Department

Enc: Brochure
Map
cc: R. Bocek

KHW

October 1, 1965

Mr. James B. Walsh
University of Rochester
900 Jefferson Road
Rochester, New York

Dear Mr. Walsh:

I am enclosing the Contractor Price Warranty, Re: Purchase Order No. 20217-C, which we had neglected to enclose with Mr. Olsen's letter to you of September 24.

Hope this negligence on our part has not inconvenienced you.

Sincerely,

DIGITAL EQUIPMENT CORPORATION

(Mrs.) N. Survilas, Secretary
Administration Department

ncs
Enc: Contractor Price Warranty
cc: R. Bocek

THE UNIVERSITY OF ROCHESTER
RIVER CAMPUS STATION
ROCHESTER 20, NEW YORK

PURCHASING DEPARTMENT
S & A Building

PURCHASE ORDER NUMBER
20217-C

CONTRACTOR PRICE WARRANTY

The Contractor warrants that the prices of the items set forth in this purchase order do not exceed those charged by the Contractor to any other customer purchasing or leasing the same items in like or smaller quantities.

Digital Equipment Corporation

September 28, 1965

Molor Motor and Coil Corporation
3737 Industrial Avenue
Rolling Meadows, Illinois

Gentlemen:

Please send descriptive information of your fractional horsepower gear motors.

Sincerely,

Kenneth H. Olsen

KHC:ncs

September 24, 1965

Mr. James B. Walsh
University of Rochester
900 Jefferson Road
Rochester, New York

Dear Mr. Walsh:

We are pleased to hear of your interest in the PDP-8 computer and we do hope that you will be one of our satisfied customers. Bob Bocek has told me that you have some questions regarding our discount policies and I am very happy to explain our policies to you.

For years we offered everyone a quantity discount on all our computers and, in addition, often offered a 20% discount to educational users. After several years of experience, we found that most of our customers fit into either one or the other of these categories. Even the U. S. Government bought under the quantity discount. We had to take this into account in our pricing and set the list price higher than what we expected to sell it at.

We were quite unhappy with this situation because it is not a straightforward way to run a business and we felt that we were not always able to be completely fair with every customer. When the PDP-7 and PDP-8 were new, we decided on a new policy, which is to eliminate all discounts and set the price at exactly what we expected to charge.

There is an exception to this for OEM customers who buy in quantity and to whom we offer less services with the purchase. Our large PDP-6 computer is still sold on discounts but I believe that, when we come out with a new model and re-price it, we will also put it on the simplified, straightforward schedule which we have for the PDP-7 and PDP-8.

Sincerely yours,

Kenneth H. Olsen
President

KHO:ecc

cc: Nick Mazzarese
Bob Bocek

September 24, 1965

COPY

American Saint Gobain Corporation
Department A-9
P. O. Box 929
Kingsport, Tennessee 37662

Gentlemen:

As advertised in the September issue of "Fortune" magazine, please send full information on the diverse family of ASG glasses.

Your prompt attention to this request will be appreciated.

Sincerely,

Kenneth H. Olsen
President

KHO:ecc

September 23, 1965

COPY

Mr. Walter Scott
Vice President, Manufacturing Facilities
Motorola, Inc.
9401 West Grand Street
Franklin Park, Illinois

Dear Mr. Scott:

We want to thank you for your most gracious hospitality. We enjoyed visiting your facility and found it very worthwhile. We were particularly interested and pleased to see the high productivity of your workers and the high morale which they showed.

We felt it was very generous of you to take the time to show us your facility and we want to again offer to show any of your people what we are doing here in Maynard.

Sincerely,

Kenneth H. Olsen

KHO:ecc
Enclosures: paperweight
PDP-7 and 8 brochure
FLIP CHIP catalog
A-D handbook

cc: Ray Kimball

Industrial Maintenance and Plant Operation
plant operating products, methods and equipment
Ames Publishing Company • One West Olney Avenue • Philadelphia, Pa. 19120 • Telephone 215-224-7000

September 9, 1965

Digital Equipment Corporation
Plant Manager
146 Main Street
Maynard, Massachusetts

Zip Code _____

Dear Sir:

Would you like to receive a two year subscription to INDUSTRIAL MAINTENANCE AND PLANT OPERATION FREE? There is nothing special for you to do, no strings attached. It's yours for the asking, if you are responsible for plant maintenance or operation in your plant?

IM & PO is a controlled circulation business magazine distributed free of charge to qualified managers. Each month you will receive new ideas for use in plant operations and maintenance procedures; new ways to cut costs; new uses for new materials; tested suggestions for eliminating waste.

All you need do to receive your own personal copy is answer the few questions below and return the letter to me.

If you wish a free subscription, check here:

(X) Yes, please send me free monthly copies of IM & PO.
( ) No, don't send IM & PO.

Signature Kenneth H Olsen Title President

Plants principle product Digital Computer

Approximate number of employees (peak employment) check one:

_____50-99 _____100-499 X 500-999 _____over 1000

Your FREE subscription will be entered as soon as we receive this letter. Please return it today in the Postage Paid envelope. Thank you.

Sincerely,

Edwin F. Farley
Edwin F. Farley
Director of Circulation

P.S. If you are not connected with maintenance or plant operation, this offer is transferable to someone who is. Have them complete the form and return it and we will enter a free subscription in their name.

THE ELECTRONICS DIVISION

nco

NATIONAL CREDIT OFFICE
1290 AVENUE OF THE AMERICAS
NEW YORK, N.Y. 10019

To: PRESIDENT OF

DIGITAL EQUIPMENT CORP
146 MAIN ST
MAYNARD MASS 01754

Mailed 9/21/65 approved by Win.

CODING FOR EMPLOYEES GROUP	CODING FOR SALES GROUP
1 = Over 1000	1 = Sales over $30,000,000
2 = 500 to 999	2 = $15,000,000 to $30,000,000
3 = 100 to 499	3 = $ 9,000,000 to $15,000,000
4 = 50 to 99	4 = $ 4,500,000 to $ 9,000,000
5 = 20 to 49	5 = $ 2,000,000 to $ 4,500,000
6 = 10 to 19	6 = $900,000 to $2,000,000
7 = Under 10	7 = $450,000 to $900,000
	8 = Under $450,000

EMPLOYEE GROUP	SALES GROUP	FILE
2	3	21270

PLEASE ENTER CORRECT EMPLOYEE CODE AND ALTER SALES CODE IF INCORRECT

PRODUCT CLASSIFICATION

• [illegible] PRODUCTS MANUFACTURED BY YOUR PLANT

Category	SIC	Code	Checked	Items marked *
Data Process Equipment & Off. Machines	Sic-3571	78-1A	X	A Anal.-Dig. Converter & Reverse; [illegible]; [illegible]; L Memory Drums, Discs, Cores; N Memory Sys. Mag-Tap; O Memory Sys. Paper Tape
Electronic Instruments	Sic-3611	78-2B	X	[illegible]
Switchgear & Boards	Sic-3613	78-3C		
Motors, Generators, Controls	[illegible]	[illegible]	~~X~~	
Consumer Electronic Products	Sic-3651	78-5E		
Transmitting, Signaling & Detect. Equip.	Sic-3662	78-6F		
Tubes & Semiconductors	Sic-3671-2-3	78-7G		
Components	Sic-3679 Sic-3612	[illegible]	X	[illegible]; [illegible]
Medical Equipment	Sic-3691	[illegible]		

Data Process Equipment & Off. Machines columns: A Anal.-Dig. Converter & Reverse; B Analog Computers; C Analog Plotters (Oscilloscope); D Analog Plotters (Oscillograph); E Automatic Typewriters; I Elec.-Mech. Data Proc. Equip.; J Electrostatic Printers; K Mag-Tape Readers; L Memory Drums, Discs, Cores; M Memory Sys. Electrostatic; N Memory Sys. Mag-Tap; O Memory Sys. Paper Tape; P Multiplexers (Comput.); Q Paper-Tape Readers (Elec.); R Thermal Printers; S Transcribing Mach.; T Other Electro-Mech. Etc. Mach.

Electronic Instruments columns: A Analyzers; B Bridges (DC and AC) & Decades; C Calibrators; J Indicators (Aircraft, Tube, Meter); K Insulation & Dielectric Testers; L Inspection & Gauging Apparatus; N Meters (Air + Flow, Temp., etc.); O Microscopes (Electronic); P Monitors; Q Nuclear Measuring Equip.; R Oscilloscopes.

Tubes & Semiconductors: K Tube Rebuilders.

Components: K Inductors.

NO

September 17, 1965

Mr. Garth Heisig
Vice President, Engineering
Motorola, Inc.
9401 West Grand Street
Franklin Park, Illinois

Dear Mr. Heisig:

We want to thank you for the most generous invitation to visit your production line. Our business is slowly changing from a high-priced, low-production product to a relatively low-priced, high-production product and we are sure that visiting your plant will be very helpful to us.

I am sure our production methods are quite humble compared to yours, but we would be very happy to tell you about things we are doing and would like to invite you to visit our facility.

We are in no sense competitors, but please feel no embarrassment in not showing us anything about which you feel at all secretative.

Sincerely yours,

Kenneth H. Olsen

KHO:ecc

cc: Mr. Raymond Kimball
Manager, Intracompany Facilities
Motorola, Inc.
Phoenix, Arizona

September 17, 1965

COPY

Mr. Charles F. Bruder
Vice President
The Singer Company
30 Rockefeller Plaza
New York 20, New York

Dear Mr. Bruder:

I was sorry not to be able to be here when you were in the Boston area on Tuesday. I look forward to showing you our plant some time in the near future.

We just mailed our Annual Report to the stockholders of American Research and Development Corporation and I am enclosing a copy for you.

Sincerely yours,

Kenneth H. Olsen

KHO:ecc

Enclosure: Annual Report

September 17, 1965

COPY

Mr. Richard F. Mills
Vice President
Computer Control Corporation
Old Connecticut Path
Framingham, Massachusetts

Dear Dick:

We just now finished our Annual Report and I thought you would like to see a copy of it.

We hope that you find your new job challenging and satisfying.

Sincerely yours,

Kenneth H. Olsen

KHO:ecc

Enclosure: Annual Report

September 17, 1965

COPY

Mr. Laurence S. Fordham
Foley, Hoag & Eliot
10 Post Office Square
Boston, Massachusetts 02109

Dear Mr. Fordham:

We have just now completed our Annual Report and we are happy to send this copy to you.

We have no definite plans for offering public stock in the immediate future.

Sincerely,

Kenneth H. Olsen

KHO:ecc

Enclosure: Annual Report

September 17, 1965

COPY

Mr. Benjamin Kessel, President
Computer Control Corporation
Old Connecticut Path
Framingham, Massachusetts

Dear Ben:

I want to thank you for sending me a copy of your Annual Report some time ago. We have just now come out with our latest Report and I am sending a copy on to you.

Sincerely,

Kenneth H. Olsen

KHO:ecc

Enclosure: Annual Report

September 14, 1965

COPY

General Industries Company
Department G-J
Elyria, Ohio 44036

Gentlemen:

Please send catalog information on your two pole, shaded pole gear motors.

Sincerely,

Kenneth H. Olsen
President

KHO:ecc

September 13, 1965

The American Stationery Co., Inc.
Peru
Indiana

Gentlemen:

Please send catalog information on your printed stationery. Your prompt attention will be appreciated.

Sincerely,

Kenneth H. Olsen

KHO:ecc

September 13, 1965

COPY

Western Wood Products Association
Department T-S
965 Yeon Building
Portland, Oregon 97204

Gentlemen:

Please send your easy-to-follow Do-It-Yourself book on moldings with full colored Woodwork Ideas book as offered in the POPULAR SCIENCE magazine. Enclosed is $.10 to cover the cost.

Sincerely,

Kenneth H. Olsen

Enclosure

September 13, 1965

Constantine
2050 East Chester Road
Department T-5
Bronx, New York 10461

Gentlemen:

Please send catalog and manual as advertised in the POPULAR SCIENCE magazine. Enclosed is $.25 to cover the charges.

Sincerely,

Kenneth H. Olsen

Enclosure

August 31, 1965

Craftsmen Machinery Company
75 West Dedham Street
Boston, Massachusetts

Gentlemen:

Please send a catalog of your printing equipment for hobby use.

Sincerely,

Kenneth H. Olsen

KHO:ecc

August 31, 1965

COPY

Chandler and Price Company
6000 Carnegie Street
Cleveland, Ohio

Gentlemen:

Please send a catalog of your printing equipment for hobby use.

Sincerely,

Kenneth H. Olsen

KHO:ecc

August 31, 1965

Sheffield Corporation
Department EE
721 Springfield Avenue
Dayton 1, Ohio

Gentlemen:

As described in the September "Electrical Equipment" magazine, please send catalog information on your digital coordinate measuring machine.

Sincerely,

Kenneth H. Olsen

KHO:ecc

August 31, 1965

COPY

Solar Systems, Inc.
Department EE
8241 North Kimball Avenue
Skokie, Illinois

Gentlemen:

Please send catalog information on your photo-voltaic card reader assembly as described in the September "Electrical Equipment" magazine.

Sincerely,

Kenneth H. Olsen

KHO:ecc

August 25, 1965

COPY

Mr. J. H. Baron, President
Amleco Corporation
7701 Normandale Road
Minneapolis, Minnesota 55424

Dear Mr. Baron:

We want to thank you for your interest in DEC. However, I feel that we have to give a negative answer to your inquiry. We see the plans for DEC laid out quite clearly before us and do not now see the need for making corporate ties.

Thank you again for your interest.

Sincerely yours,

Kenneth H. Olsen
President

KHO:ecc

AMLECO CORPORATION
7701 NORMANDALE ROAD
MINNEAPOLIS, MINNESOTA 55424
TELEPHONE 927-8827

August 19, 1965

Mr. Kenneth H. Olsen, Pres.
Digital Equipment Corp
146 Main St.
Maynard, Mass.

Dear Mr. Olsen:

Recently, you and your firm have been brought to our attention. Amleco Corporation's activity in the acquisition and merger field amounts to several hundred million dollars. We are not brokers, but we can deliver a number of firms that are immediately available. We are rapidly becoming a meeting place for purchaser and seller. Our confidential performance in creating and negotiating acquisitions and mergers, we believe, to be sound and sophisticated and may prove to be a valuable asset to you.

We would appreciate an opportunity to discuss this with you personally. A reference is Mr. Edward Malo, Trust Officer, LaSalle National Bank, Chicago, telephone State 2-5200.

Yours very truly,

AMLECO CORPORATION

J. H. Baron, President

JHB:gc

August 24, 1965

COPY

Mr. Robert W. Case
Special Representative
McGraw-Hill Publications
Hightstown, New Jersey 08520

Dear Mr. Case:

I am responding to your letter of July 23 to Mr. Olsen regarding BUSINESS WEEK subscriptions. We have decided not to order additional copies, since the copies we now receive are adequate to circulate to all of our senior people.

Thank you for your suggestion.

Sincerely,

W. R. Hindle, Jr.
Assistant to the President

WRH:ecc

McGRAW-HILL PUBLICATIONS
HIGHTSTOWN, NEW JERSEY 08520
A DIVISION OF McGRAW-HILL, INC.

July 23, 1965

Mr. Kenneth H. Olsen
President
Digital Equipment Corporation
146 Main Street
Maynard, Massachusetts

Dear Mr. Olsen:

Thanks for taking the time to hear my story of BUSINESS WEEK'S recommendation to send personal copies to your management people.

Enclosed you'll find several forms which will enable you to decide which plan you will want to use...and which of your management personnel will be included.

As I explained to you on the phone, the regular annual rate is $7.00. But, under this plan you are eligible for our group rate of $5.00 for each one-year, or $12.00 for each three-year subscription.

We will arrange to pro-rate any present subscriptions to have them expire at the same time as the new ones.

When you return your list please include the names, titles and mailing addresses. If you enclose a check please make it payable to McGraw-Hill, Inc.

Thanks again for your interest in BUSINESS WEEK and please let me know if you have any further questions.

Sincerely,

Robert W. Case

Robert W. Case
Special Representative

RWC/dlm

PRESENTATION

In this fast-moving age, reading -- particularly business reading -- has become more important than ever before. Inovations in business technique and development, in science and technology are becoming increasingly complex and it is therefore essential that you key personnel be kept better informed than ever before.

While it is ture there is more reading material available today than there has been in the past, this very fact makes it more difficult for your key people to keep up with the developments important to their work and their growth within your organization. This is where BUSINESS WEEK comes into play -- for in BUSINESS WEEK the entire gamut of the fast-changing business picture is reported concisely and authoritatively every week of the year.

Following is a list of some of the companies who are currently using our reading program to their advantage:

COMPANY	Number of Subscribers
Cutler-Hammer Incorporated	112
E. I. Du Pont de Nemours & Co.	2,127
Ford Motor Company	1,824
General Cable Corporation	485
General Electric Company	5,570
General Motors Corp.	2,522
General Precision Equipment Corporation	232
I.B.M.	3,811
I-T-E Circuit Breaker Company	103
Link-Belt Company	126
Honeywell Corporation	2,806
Prudential Insurance Co. of America	728
Thompson Ramo Wooldridge Corp.	436
Worthington Corp.	160

Listed below are the four main reasons companies have found our program unique. We think you'll agree that any one of these points will prove the program worthwhile to your company:

1. As a part of McGraw-Hill, Inc., publishers of 38 specialized business publications, BUSINESS WEEK has unmatched resources of up-to-the-minute business information. Through a world-wide communications system, the services of 700 editors and a like number of correspondents throughout the world are available to us.
2. BUSINESS WEEK brings to your people timely and in-depth business news in a single, easy-to-read package every week.
3. By arranging to have your key people receive personally-addressed copies of BUSINESS WEEK you eliminate the delays inherent in routed copies, thus assuring that they have each week's rundown of important business developments when these developments are still news.
4. Making BUSINESS WEEK available to your key people enhances their long-range value to your company by keeping them informed of business news of your industry, and of other industries inter-related with your business.

EXPLANATION OF PLANS

PLAN 1: "SPECIAL OFFER PLAN" - Company pays entire cost.

PLAN 2: "HALF-PAY PLAN" - Company and individual share the cost.

PLAN 3: "GROUP RATE PLAN" - Individual pays entire cost.

How to implement the plans:

PLAN 1:

a. You may complete the "Reading Program:" form (Form P1) and return it to us.

b. You may distribute "Business Week Special Offer" (Form P2) forms to selected personnel. Return the forms to us, we will compile the list and bill the company directly.

PLAN 2:

Distribute the "Business Week - Half-Pay" (Form P3) forms to selected personnel. Return the forms to us. Individuals will be billed for their share of the cost and the company will be billed for one-half of the total cost. (NOTE: Individuals who prefer, may include payment.)

PLAN 3:

Distribute the "Business Week - Group Rates" (Form P4) forms to selected personnel. Return the completed forms and payments to us. If you wish, we will bill individual subscribers directly.

NOTE: Many companies and division plants prefer to use their own inter-office memoranda to make these announcements. If you prefer, we will supply the forms for distribution.

Since BUSINESS WEEK is edited for management and engineering personnel we must reserve the right to decline applications that do not meet our specifications.

ENGINEERED BUSINESS READING PROGRAM

As we feel there is merit in having our Key Management Personnel receive BUSINESS WEEK, we wish to enroll the following:

1. Name _____ Title _____

   Address _____

   City _____ State _____ ZIP _____

   Department _____ Chief job Responsibility _____

2. Name _____ Title _____

   Address _____

   City _____ State _____ ZIP _____

   Department _____ Cheif job Responsibility _____

3. Name _____ Title _____

   Address _____

   City _____ State _____ ZIP _____

   Department _____ Chief job Responsibility _____

4. Name _____ Title _____

   Address _____

   City _____ State _____ ZIP _____

   Department _____ Chief job Responsibility _____

5. Name _____ Title _____

   Address _____

   City _____ State _____ ZIP _____

   Department _____ Chief job Responsibility _____

6. Name _____ Title _____

   Address _____

   City _____ State _____ ZIP _____

   Department _____ Chief job Responsibility _____

TO: _____

SUBJECT: BUSINESS WEEK - "Special Offer"

Keeping informed of new methods and ideas and considering their application in our business, is essential to our progress as individuals and as a company. One means of doing this is for management and supervisory personnel to read regularly, a well-chosen business publication.

To encourage such reading, we have entered into an arrangement with McGraw-Hill, Inc., by which our management people may receive personal copies of BUSINESS WEEK.

Here are the essential features of the plan:

1. Participation in the plan is entirely voluntary.
2. The publication, special reports, indexes, etc., will be your property to be sent to either your home or to your office.
3. Present subscribers who wish to participate in this offer will be able to have their service extended.
4. The cost will be paid by your company.

If you would like to take advantage of this opportunity, complete the form and return within two (2) days to _____.

( ) Check here if renewal

Name _____
(Please Print)

Address _____

City _____ State _____ ZIP _____

Title _____ Department _____

THANK YOU!

_____
(Signature)

To: _____

Subject: BUSINESS WEEK - "Half-Pay"

Keeping abreast of new ideas and new methods and considering their application in our business is essential to our progress as individuals and as a company. One means of doing this is for management and supervisory personnel to read, regularly, a well-chosen business publication.

In order to encourage you to keep abreast of the latest developments in the business world, we have entered into an arrangement with McGraw-Hill, Inc., in which you may subscribe to BUSINESS WEEK and we will pay half the cost.

BUSINESS WEEK	Present Rates	Special Rates	Company Pays	Your Cost	Check One
One Year (52 Issues)	$ 7.00	$ 5.00	$ 2.50	$ 2.50	( )
Three Years (156 Issues)	14.00	12.00	6.00	6.00	( )

Essential Features:

1. Participation is purely voluntary.
2. The issues become your property and will be sent to your home or office, wherever you do your most constructive reading.
3. Your investment is tax deductible.
4. If you pay by check, make payable to McGraw-Hill, Inc.

If you would like to take advantage of this offer, please attach your payment, complete the form and return within three (3) days to _____.

( ) Check here, if you prefer to be billed.
( ) Check here, for renewal.

Name _____

Address _____

City _____ State _____ ZIP _____

Title _____ Department _____

THANK YOU!.

TO:_____

SUBJECT: BUSINESS WEEK - Group Rates

Keeping abreast of new ideas and new methods and considering their application in our business is essential to our progress as individuals and as a company. One means of doing this is for management and supervisory personnel to read, regularly, a well-chosen business publication.

In order to encourage you to keep abreast of the latest developments in the business world, we have entered into an arrangement with McGraw-Hill, Inc., in which you may subscribe to BUSINESS WEEK.

BUSINESS WEEK	Regular Rates	Special Rates	New	Renewal
One year (52 issues)	$ 7.00	$ 5.00	( )	( )
Three years (156 issues)	14.00	12.00	( )	( )

Essential Features:

1. Participation is entirely voluntary.
2. Your investment is tax deductible.
3. If you pay by check, make payable to McGraw-Hill, Inc.

If you would like to take advantage of this opportunity, please attach your payment, complete the form and return within three (3) days to _____.

( ) Check here if you prefer to be billed.

Name_____

Address_____

City_____ State_____ ZIP_____

Title_____ Department_____

THANK YOU!

_____

August 6, 1965

COPY

Mrs. Erling Auerdahl
Assistant Director of Placement
Graduate School of Business Administration
Harvard University
Soldiers Field
Boston, Massachusetts 02163

Dear Mrs. Auerdahl:

We want you to know that we just concluded arrangements for bringing a new Treasurer and Controller to DEC. Harry S. Mann, Vice President and Controller of Walter Kidde and Company, Inc., Belleville, New Jersey, has accepted the position and is expected to join us later this month.

We are indebted to you for your efforts in our behalf to locate a Treasurer, and greatly appreciate everything that you have done for us.

Many thanks for helping us along during the past months.

Sincerely,

Kenneth H. Olsen
President

KHOmcs

August 6, 1965

COPY

Mrs. Evelyn Yates
Placement Bureau
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Mrs. Yates:

We want you to know that we just concluded arrangements for bringing a new Treasurer and Controller to DEC. Harry S. Mann, Vice President and Controller of Walter Kidde and Company, Inc., Belleville, New Jersey, has accepted the position and is expected to join us later this month.

We are indebted to you for your efforts in our behalf to locate a Treasurer, and greatly appreciate everything that you have done for us.

Many thanks for helping us along during the past months.

Sincerely,

Kenneth H. Olsen
President

KHOmcs

August 6, 1965

COPY

Hanley Accounting Personnel, Inc.
225 Broadway
New York, New York 10007

Gentlemen:

We just concluded arrangements for Harry S. Mann, Vice President and Controller of Walter Kidde and Company, Inc., Belleville, New Jersey, to join DEC as Treasurer and Controller.

We want to thank you for your help in sending candidates to us during the past months and appreciate everything you did for us in our behalf.

Sincerely,

Kenneth H. Olsen
President

KHO:ecc

August 6, 1965

COPY

Mr. William A. McCulloch
National Placement Manager
Lybrand, Ross Brothers & Montgomery
60 Broad Street
New York, New York 10004

Dear Mr. McCulloch:

We want you to know that arrangements have been completed for Harry Mann to join DEC later this month as Treasurer and Controller. It was through your efforts that we contacted Harry while he was on his vacation at Cape Cod. As you know, we have been enthusiastic about him since our first meeting and have had several opportunities subsequently to meet further and to explore the position in depth.

We are in particular indebted to you for your efforts in our behalf to locate a Treasurer, and greatly appreciate everything that you have done for us. Many thanks for helping us during the past months.

Sincerely yours,

Kenneth H. Olsen
President

KHO:ecc

August 5, 1965

COPY

Mr. William D. Rinehart
Director, Production Department
ANPA Research Institute
750 Third Avenue
New York, New York

Dear Mr. Rinehart:

I want to express my appreciation for the opportunity to exhibit our new PDP-8 Typesetting System at the ANPA/RI Mechanical Conference in Chicago during June, 1965.

The show and the associated promotion served as a vehicle to formally announce the PDP-8 Typesetting System. The response both during and after the show exceeded our most optimistic predictions. As a direct result of the show, we wrote five orders within two weeks and are now following up over one hundred interested inquiries. In addition, our product was subsequently reviewed in numerous production periodicals.

We are looking forward to next year's show.

Sincerely,

Kenneth H. Olsen
President

KHOiecc

August 4, 1965

COPY

Four Continent Book Corporation
Dept. 610
156 Fifth Avenue
New York 10, New York

Gentlemen:

As offered in the August 1965 "Scientific American" magazine, please send me the 1966 catalog listing of Russian magazines and journals in automation, cybernetics engineering, mathematics, and any other computer related fields.

Your prompt attention will be appreciated.

Sincerely,

(Mrs.) Elsa C. Carlson

July 28, 1965

COPY

Mr. Harry M. Roman
Harry Roman Investment Company
Kirkeby Center, Suite 733
10889 Wilshire Boulevard
Los Angeles, California 90024

Dear Mr. Roman:

We want to thank you for your interest in DEC. However, I feel that we have to give a negative answer to your inquiry. We see the plans for DEC laid out quite clearly before us and do not now see the need for making corporate ties.

Thank you again for your interest.

Sincerely yours,

Kenneth H. Olsen
President

KHO:ecc

Eagle-Picher Purchases Davis Wire, Los Angeles

By a WALL STREET JOURNAL *Staff Reporter*

CLEVELAND -- Eagle-Picher Co., Cincinnati, said it has acquired for cash all the common stock of Davis Wire Corp., Los Angeles, a closely held producer of steel wire and wire products distributed principally in Southern California. The price wasn't disclosed.

Davis Wire will operate as a division of Eagle-Picher, and James L. Walker, Davis Wire executive vice president, will become division president and a vice president of Eagle-Picher, officials said. Robert H. Davis, Davis Wire president, will serve as a consultant, they added.

Eagle-Picher is a diversified manufacturer of automotive, chemical, plastic, rubber and procelain enamel products.

In Los Angeles, Mr. Walker described Davis Wire as "one of the major wire makers on the West Coast." He said the company got a "good net return" on sales in 1963 and that it was "very profitable." Examples of Walker products include chain link fencing, bailing wire and manufacturers wire, he added.

National Distillers Buys Aerospace Firm for Cash

By a WALL STREET JOURNAL *Staff Reporter*

NEW YORK—National Distillers & Chemical Corp. said it has purchased H. W. Loud Machine Works, Inc., a closely held California company, for cash: The price wasn't disclosed.

H. W. Loud, a maker of aircraft landing gear, missile fittings and hydraulic equipment, had sales last year of more than $22 million.

Raymond A. Quadt, a vice president of National Distillers' metals division, was named chairman and chief executive officer of H. W. Loud and also a vice president of the parent company. Alanson R. Loud will continue as president of H. W. Loud.

National Distillers said the acquisition is designed to "further National's penetration of the aerospace and defense areas." National Distillers, through its Bridgeport Brass Co. division, produces Zuni rockets and Sidewinder missiles for the Navy. The parent company also is major producer of liquor and basic chemicals.

—TUES., OCT. 20, 1964
Los Angeles Times 2★

Ohio Firm Buys Sterol Company

Assets of Sterol Derivatives, Inc., Los Angeles, have been purchased for an undisclosed sum by Hess & Clark, Ashland, O., the latter company announced Monday.

Hess & Clark, a manufacturer of feed medications and health products for poultry and livestock, is a division of Richardson-Merrill, Inc. Sterol produces products for increasing live weight gains and improving feed conversion in cattle.

METALWORKING NEWS;
July 12, 1965

Buckeye Brass Buys Bronze Bushing Maker

SAN FRANCISCO — Kingwell Bros., Inc. here has been acquired by Buckeye Brass Manufacturing Co., Cleveland, for more than $1 million. Both companies produce bronze bushings.

Kingwell, to be operated as a subsidiary, has sales of more than $2 million a year.

Los Angeles Times★
—THURS., APRIL 1, 1965

Rheem to Buy Suprior Tank

Rheem Manufacturing Co., New York, has agreed to purchase Superior Tank and Construction Co., Los Angeles, A. Lightfoot Walker, president of Rheem, and Stephen F. Jeffers, president of Superior, announced Wednesday.

Metals other materia

Burgess Norton Buys Asco Assets

GENEVA, Ill. — Burgess Norton Manufacturing Co., here, has purchased the assets of Asco Sintering Corp., Los Angeles. F. E. Burgess, president, Burgess Norton, stated the acquisition was for cash of an undisclosed amount. Asco sales are in the $500,000 plus range yearly. The firm produces sintered metal components, including filter, bearings, bushings, and structural parts.

J. R. Boules, former Burgess Norton executive, has been appointed general manager of Asco, which will become a wholly-owned subsidiary.

Asco to Retain Name

LOS ANGELES — Asco Sintering Corp., powder metallurgy firm here acquired by Burgess-Norton Manufacturing Co., Geneva, Ill., will retain its name and continue as a wholly-owned subsidiary, according to J. R. Boulis, general manager and chief executive officer of ASCO.

Mr. Boulis, formerly an administrative assistant to the president of Burgess-Norton, will assume duties formerly performed by Robert St. Clair, previously a major stockholder of ASCO. Mr. St. Clair will continue temporarily with ASCO as a consultant.

Citizen-News A-7
Friday, November 6, 1964

Holga Metal Merges With Eastern Co.

VAN NUYS — Judson Roberts, vice president, general manager of the Holga Metal Production Co. of Van Nuys, today announced the merger of his company with Yawman & Erbe, a leading East Coast manufacturer of office furniture and filing cabinets.

The two firms will operate as a division of the Sterling Precision Corp. of New York, Yawman & Erbe's parent company. According to Roberts, the merger will allow Holga to offer its dealers an expanded line of furniture and supplies.

Several of the products now being manufactured at the Rochester, N.Y., plant of Yawman & Erbe also will be produced in California and conversely Holga's line of shelf files, drafting tables and storage cabinets also will be produced in the East Coast plant.

Planned for the immediate future is the introduction on the West Coast of a new line of standard office furniture manufactured in the Holga factory.

Harry Roman Investment Co.

UNDERWRITERS OF SECURITIES
SALES AND MERGERS

Kirkeby Center, Suite 733
10889 Wilshire Boulevard
Los Angeles, Calif. 90024
BRadshaw 2-0451

July 21, 1965

Mr. Kenneth Olsen, President
Digital Equipment Corporation
8939 Sepulveda
Los Angeles, California

Dear Mr. Olsen:

I have been merging and selling businesses for over twenty years.

Recently I have been approached by a buyer who is looking for a company in your type of business.

Should you be interested in exploring the possibility of selling, please phone me.

Enclosed you will find copies of clippings regarding companies I have sold recently.

Very truly yours,

Harry M. Roman

HR :ea

Encs.