The aim of this informal news "scope" is
to facilitate the interchange of infor-
mation on items of mutual interest to
users of the PDP-1 and its peripheral
equipment.

DECUSCOPE will attempt to implement
the goals and objectives of DECUS,
by keeping "in-touch" with members
on a monthly basis.

It is hoped that members will contribute
ideas, program summaries, routines,
comments and suggestions before the
10th of each month for inclusion in
that month's issue.

Address communications to:
Elsa Newman, Editor
DECUSCOPE
Digital Equipment Corporation
Maynard, Massachusetts

EXECUTIVE BOARD MET APRIL 4, '62

After completing old business, which pri-
marily concerned the modified pro-
cedure for nominating and electing
the new slate of DECUS officers, the
DECUS Executive Board approved the
name DECUSCOPE for the monthly
newsletter.

A TECHNICAL MEETING was planned for
May 17th.

ITEK's invitation from Lawrence Buckland
to meet at ITEK was accepted.

FIRST ANNIVERSARY FOR DECUS

As the first issue of DECUSCOPE went to press, DECUS,
Digital Equipment Computer Users Society, became a one-
year old. DECUSCOPE wishes to salute those PDP-1 users
who met in March, 1961 to set goals for the group.

The Primary objective of DECUS is to advance the effect-
iveness of utilization of the PDP-1 and its peripheral equip-
ment by promoting the free interchange of information.
The specific objectives as stated in the by-laws are:

To advance the art of automatic data processing through
mutual education and interchange of ideas.

To establish standards and to provide channels to facil-
itate the exchange of programs among members.

To provide feedback to the computer industry pertain-
ing to equipment and programming needs.

At the first DECUS meeting in 1961, the following officers
were elected:

President: Charlton M. Walter (AFCRL)
Secretary: John Koudela, Jr. (DEC)
Programming Committee Chairman: Edward Fredkin,
(formerly BBN, now Information International)
Meetings Committee Chairman: Lawrence Buckland,
(ITEK)
Equipment Committee Chairman: William Fletcher,
(BBN)

These members constitute the DECUS Executive Board.

At the second DECUS meeting the standard PDP-1 tape cod-
ing called Concise III was unanimously accepted as the
standard for PDP-1.

At the two-day September meeting in Lexington, Massa-
achusetts, papers concerned primarily with programming and

PDP-1 PLAYS AT SPACEWAR

by D.J. Edwards, MIT
J.M. Graetz, MIT

If, when walking down the halls of MIT, you should happen to hear strange cries of "No! No! Turn! Fire! ARRRGGGHHH!!;" do not be alarmed. Another western is not being filmed - MIT students and others are merely participating in a new sport, SPACEWAR!

Planned and programmed by Stephen R. Russell under the auspices of the Hingham Institute Study Group on Space Warfare, SPACEWAR is an exciting game for two players, many kibitzers, and a PDP-1.

The game starts with each player in control of a spaceship (displayed on PDP's scope face) equipped with propulsion rockets, rotation gyros, and space torpedos. The use of switches to control apparent motion of displayed objects amply demonstrates the real-time capabilities of the PDP-1.

Also displayed on the scope is a central sun which exerts a gravitational influence on the spaceships. The entire battle is conducted against a slowly moving background of stars of the equatorial sky. The object of the game is to destroy the opponent's ship with torpedos. The computer follows the targets and participants have an opportunity to develop tactics which would be employed in any future warfare in space.

Your editor visited the MIT Computer in Room 26265 and can verify an excellent performance. She learned that the best "Aces" had only a 50% chance of survival. Enthusiasm nevertheless ran high and the battle continued while young Mr. Russell tried to explain his program.

applications of the PDP-1 were given. One afternoon session conducted by Ed Fredkin was devoted to DECAL.

PROGRAM LIBRARY ESTABLISHED

Of special significance was the establishment of a DECUS Program Library at DEC for the purpose of maintaining tapes of utility programs and subroutines. Mrs. Beverly Clohset of DEC is program librarian.

The Program Library is now available as a service to DECUS members. It will be up-dated as new programming materials are received.

NOTEBOOK DISTRIBUTED

In March of this year, a notebook of write-ups and corresponding tapes constituting a basic programming library were distributed to members and DECUS representatives. For further information, please see your DECUS Delegate.

Mrs. Clohset, whose efforts, along with the generous contributions of programmers, made this possible, has listed below five of the programs included.

1. ADA-3 Prim: A means of punching out information from sections of core memory in a read-in mode tape. It occupies 77_8 registers and is relocatable.

2. BBN-1 FRAP: An assembly program for the PDP-1 computer. It occupies all of memory for maximum symbol table storage and is not relocatable.

3. BBN-3 Binary Punch and Load Package: A routine allowing the user to punch out any area in memory in the binary format. It is available in three locations:

High	7520-7777
Medium	4000-4256
Low	0001-0257

4. BBN-67 Debug: A debugging program which occupies 3041_8 registers and is relocatable. The program has the following features:

    a. Examine a word or block of words in memory;
    b. Change a word or block of words;
    c. Find all instances in a block of a given word;
    d. Find effective addresses;
    e. Save a block to compare with an original, typing out discrepancies;
    f. Restore a saved block;

DECUS TECHNICAL MEETING

Date   May 17, 1962

Place   ITEK, Lexington, Mass.

Program Chairman   L. Buckland

Theme Chosen for Morning Symposium

"Image Processing and Display" is the subject of the morning symposium.

"Use of Displays in Optical Design" will be given by R. Shannon.

"Functional Description of the ITEK Flicker-Free Display" will be presented by Earle Pughe. The morning session will be followed by a demonstration.

The afternoon session will include a presentation by John Gilmore on "A Dynamic Data Processing System for the Oregon Primate Research Center."

Call for Papers

Speakers are urged to forward a brief summary of papers by May 5, to Elsa Newman for inclusion in the Program of the Meeting.

A summary sheet is appended for your convenience.

Except where subject matter demands more time, delivery of paper should be limited to 15 minutes.

A complete listing of papers will appear in the May issue of DECUSCOPE.

g. Run a program, terminating the run upon fulfillment of a stated set of conditions;

h. Print the instructions executed by a stated portion of the program during a run.

5. MIT - 2 Expensive Typewriter: Facilitates editing of tapes punched in FIO-DEC code. It can read paper tape into its buffer, accept additions, and corrections on the typewriter, and punch amended buffer contents. It can perform direct tape-to-tape and tape-to-typewriter translations. The program occupies 1151_8 registers, but the buffer occupies the rest of memory.

The subroutine program which follows is more fully explained in its DECUS Program "Write-Up". ("Write-up" forms are available to anyone wishing to contribute programming materials to the Program Library) Several other routines have been received and are in the process of beind edited.

INPUT-OUTPUT SUBROUTINE PROGRAM FOR DECAL

Programmed by R. Silver, Consultant to DEC

This system consists of a set of routines for performing the input - output operations of reading (from paper to tape) punching, getting (typing in), and typing (out) words, characters, numbers and strings. It is a somewhat heterogeneous collection of subroutines written to facilitate input - output operations for DECAL programs. It consists of the following separate programs, each containing one or more subroutines.

Get and Type Routines

to transmit characters and strings of characters to and from the typewriter, i.e., typewriter initialize, get a character, type one character, typewriter eject, type a string of concise characters, type out a message, error routine.

Read Routines

to read characters from paper tape, i.e., reader initialize, read one character.

Punch Routines

to punch characters on paper tape, i.e., punch initialize, punch character.

PDP-1 PLAYS AT SPACEWAR!

"The most important feature of the program," he said, "is that one can simulate a reasonably complicated physical system and actually see what is going on."

Mr. Russell also said that symbolic and binary tapes were available. Please contact Mr. Russell for additional information.

MAY DECUSCOPE WILL BE READY ON MAY 10

The Editor regrets that two articles:
1. MACRO Assembly Program
2. DDT (DEC Debugging Tape)

were received too late for this issue of DECUSCOPE. Both will be included in the MAY issue.

MAINTENANCE COURSE

A two-week PDP-1 maintenance and familiarization course using the PDP-1 Maintenance Manual as a basic text, has been initiated at DEC. Mr. Ronald Wilson, a member of DEC's Customer Relations Section is the instructor.

Members of the March 5th class were: Paul Artis, E. Choate and William Spradlin from NASA; David Neilson, Richard Oliver and Glenn Strahl from Lawrence Radiation Laboratory.

Members of the March 19th class were: John Bala from ITEK Laboratories; Ray Proffitt and Charles Levan, Jr., from NASA; William Ollenschleger from ITT; and Robert D. Smith from Aetron.

Future classes are scheduled for approximately the last two weeks of each month.

INPUT-OUTPUT SUBROUTINE PROGRAM FOR DECAL
(Continued)

Get Decimal Number
to type in a decimal string and convert it to a binary integer.

Read Decimal Number
to read in a decimal string and convert it to a binary integer.

Type Decimal Number
to convert a binary integer to decimal and type it out.

Punch Decimal Number
to convert a binary integer to decimal and punch it out.

Punch String
to punch a string of concise characters.

Punch Three Characters
to punch three characters packed into one word.

Buffered Read Routine
to read 8-bit codes from the reader, using a buffer area, so that a group of code may be read together to avoid reader chatter.

Classify Character
to classify a character as case character, non-printing character, or printing character and make selective return accordingly.

Parity Routine
used to compute an 8-bit code consisting of the character C with correct parity.

PROGRAM LIBRARY WRITE-UPS

In order that programs may be useful to other programmers, the following headings for write-ups are suggested by the program librarian.

1. Identification (Source symbol-BBN, etc.)
2. Abstract (include mnemonic or symbolic code-FRAP, DECAL, MACRO, etc.
3. Purpose
4. Usage
5. Calling Sequences
6. Restrictions
7. Properties
8. Method
9. Notes

RE: DECUS TECHNICAL MEETING – MAY 17, 1962
        (At Itek, Lexington, Massachusetts)

Prospective Speakers should submit the following material by May 5, 1962
        To: Elsa Newman, Digital Equipment Corporation
            Maynard, Massachusetts

TITLE OF PAPER: _____

SUMMARY: (Not more than 100 words) _____

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NAME AND ADDRESS OF AUTHOR: _____

                            _____

NOTE: Any necessary military or company clearance of papers must be granted
        before submission of the Summary.