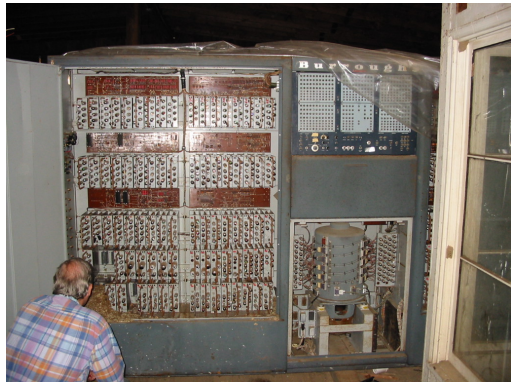
Computers That I Have Known

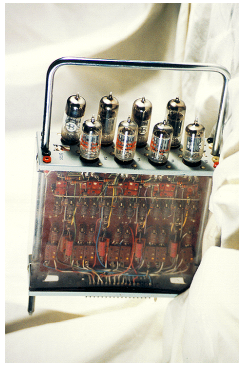
Dongarra 70(++)th

Cleve Moler, MathWorks

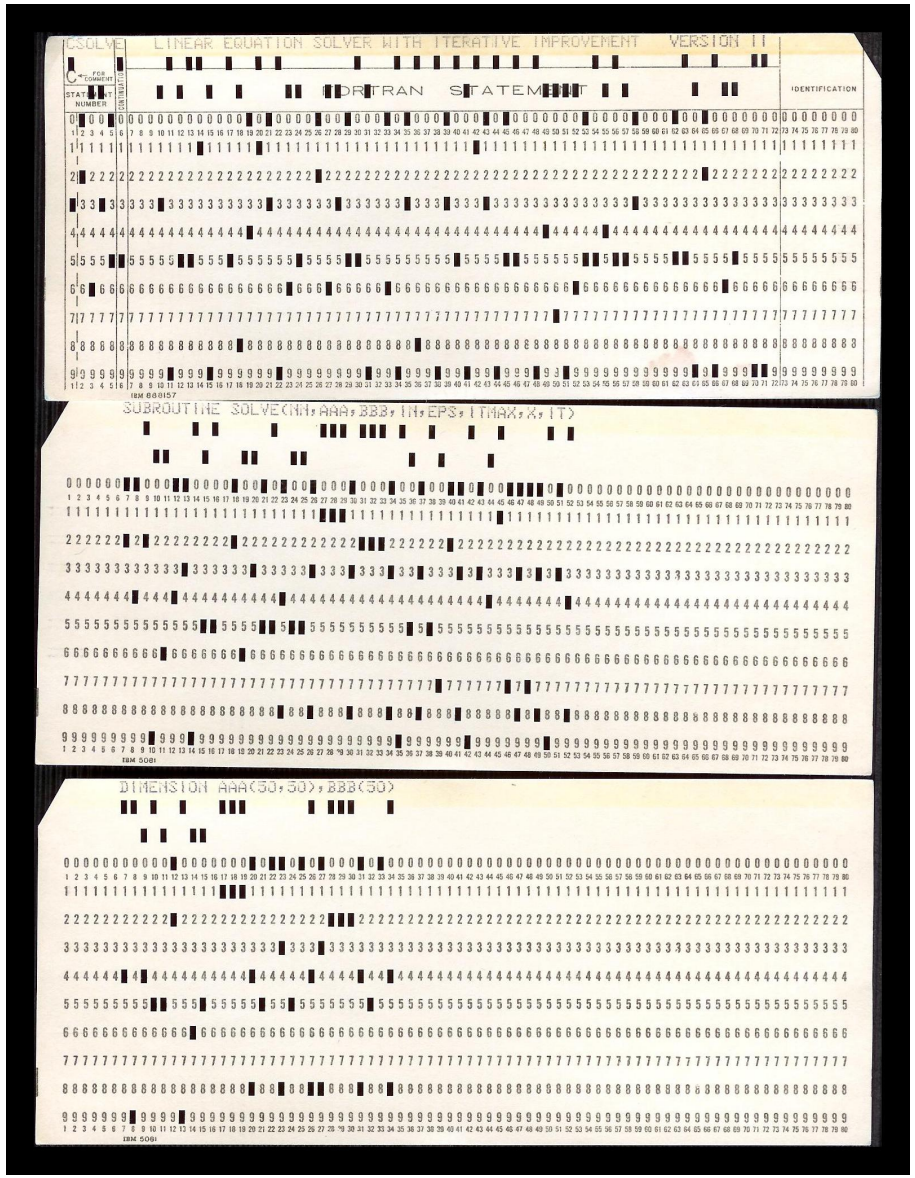
Manchester (virtually), July 7, 2021

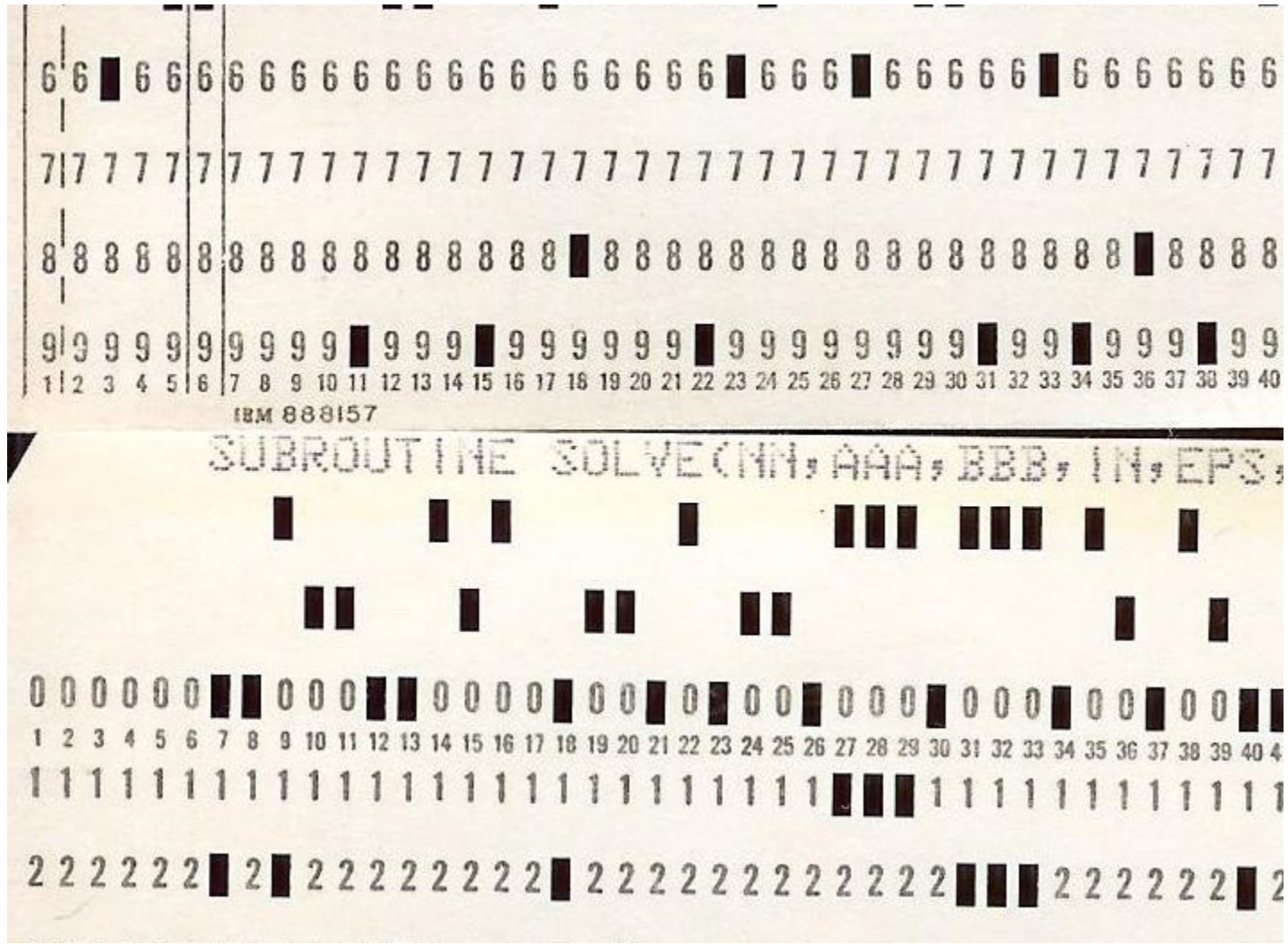
Year	Place	Computer	Software
1959 & 1960	Caltech, U. Utah	Burroughs 205	machine language
1960, 1961	JPL	IBM 709	Fortran
1961-1965	Stanford	Burroughs 220, IBM 7094, DEC PDP-1	Algol-68, Algol-W, Fortran
1965	ETH Zurich	CDC 1604	Algol, Fortran
1967	U. Michigan	IBM 360/67	MTS
1970s	Argonne	IBM 360/75, IBM 370/195, Tektronix 4081	Fortran, Historic MATLAB
1978	LANL	Cray-1	UNICOS
1981	U. New Mexico	DEC VAX-11/780	Unix, Historic MATLAB
1985	Intel PSC	Hypercube	Home brew messaging
1988	Ardent	Titan	MATLAB 3.5, Doré
1982-89	Everywhere	Sun-1, Sun-2, Sun-3	Unix, Historic MATLAB

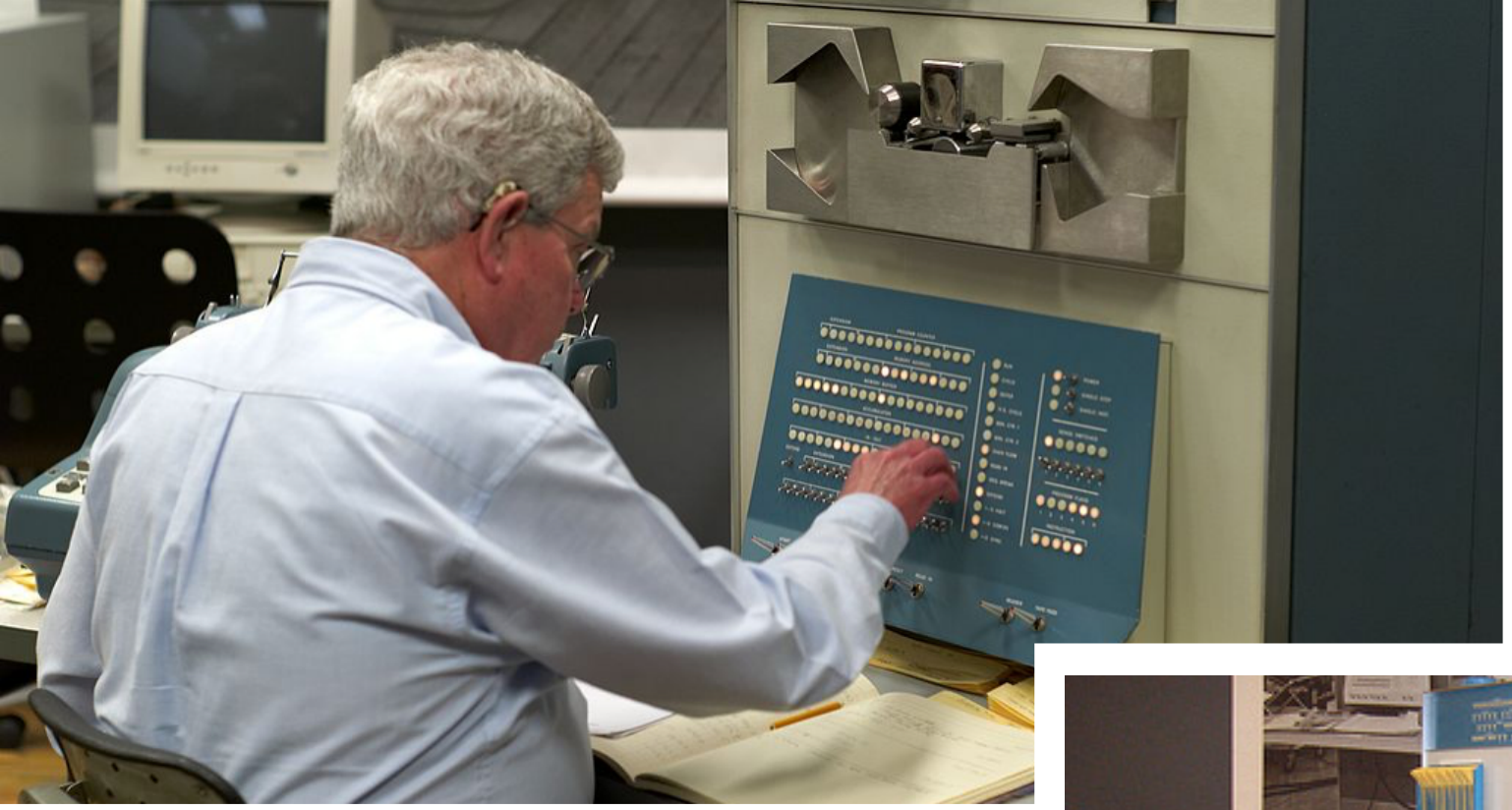




Location Main	Location Loop	S	Control Digits	Operation No	Operation Alpha	Operand Address	Remarks
0	698 0				CAD	5000	GIVEN ACCOUNT NUMBER A=0. 0000 0XX YYY
1	698 1				SR	0003	A=0.0000 00 00XX
2	698 2				AD	7001	A=0.0000 64 00XX (CAD 00XX)
3	698 3				STC	6984	
4	698 4				[CAD	00XX]	COMMAND MADE UP BY PRECEDING THREE COMMANDS
5	698 5				STC	6986	(6986)=0.0000BT4 (0100-1599)
6	698 6				[BT4	----]	
7	698 7				SB	7000	SET (B) to 19
8	698 8				CAD	4000	A=0dddd XXXX
9	698 9				CR	0000	—o—
0	699 0				SL	0005	A=0.XXXX0 00000 A=0 00000dddd
1	699 1				CIAA	0005	A=0 0000C XXXXX TABLE LOOK UP
2	699 2				SU	5000	
3	699 3				CNZ	6999	
4	699 4				SL	0010	A=0.0000 00 dddd
5	699 5				AD	7001	A=0.0000 64 dddd
6	699 6				ST	7004	
7	699 7				CU	7002	
8	699 10	0	0000	62		0000	CONSTANT
9	699 9				DB	6988	TALLY
0	700 0				STOP	0019	VALUE NOT IN TABLE ACCOUNT NUMBER INCORRECT
1	700 1	0	0000	64		0000	CONSTANT 64 = CAD
2	700 2				SU	6998	A=0.0000 02----;02=STC
3	700 3				STC	7006	
4	700 4				[CAD	----]	MADE UP BY COMMAND IN 6996
5	700 5				AD	5001	POST AMOUNT
6	700 6				[STC	----]	MADE UP BY COMMAND IN 7003
7	700 7				STOP	0000	
8	8						


CSOLVE LINEAR EQUATION SOLVER WITH ITERATIVE IMPROVEMENT VERSION II
FOR COMMENT
STATEMENT NUMBER
CONTINUATION
FORTRAN STATEMENT
IDENTIFICATION
IBM 888157
SUBROUTINE SOLVE(NN,AAA,BBB,IN,EPS,ITMAX,X,IT)
IBM 5081
DIMENSION AAA(30,30),BBB(30)
IBM 5081


IBM 888157
SUBROUTINE SOLVE(NN,AAA,BBB,IN,EPS,



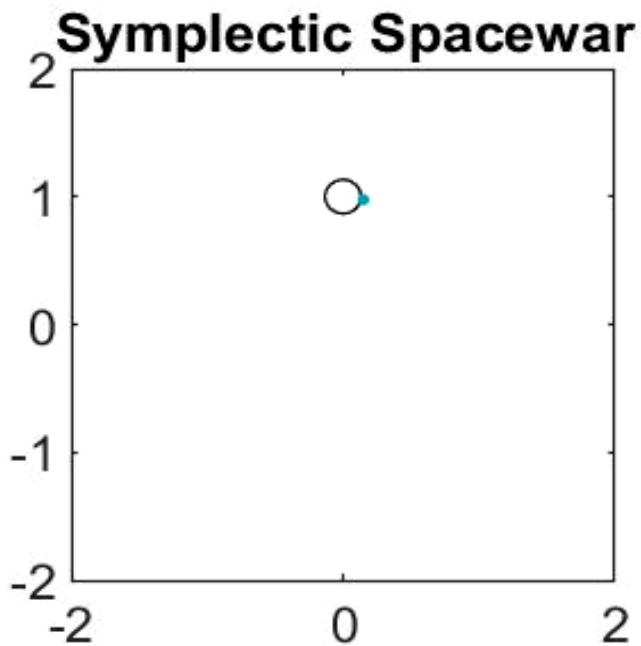
```
    x = 0
    y = 32768
L:  plot x y
    load y
    shift right 3
    add x
    store in x
    change sign
    shift right 3
    add y
    store in y
    go to L
```

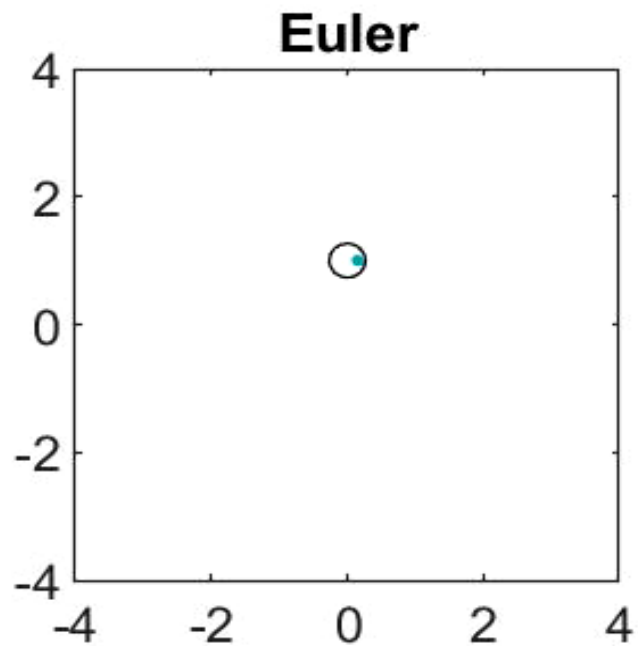
```
% Circle, xdot = [0 1, -1 0]*x
```

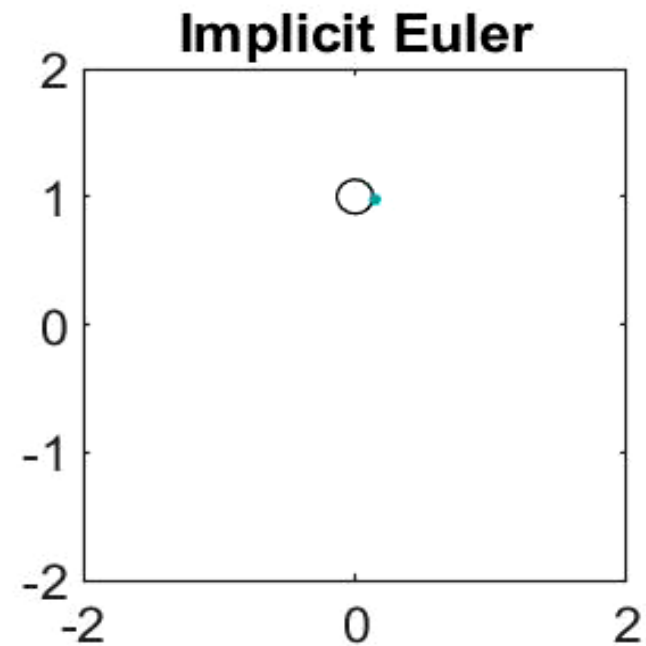
```
% Symplectic Spacewar
...
x = 0;
y = 1;
for t = ...
   x = x + h*y;
   y = y - h*x;
   plot(x,y,'.')
end
```

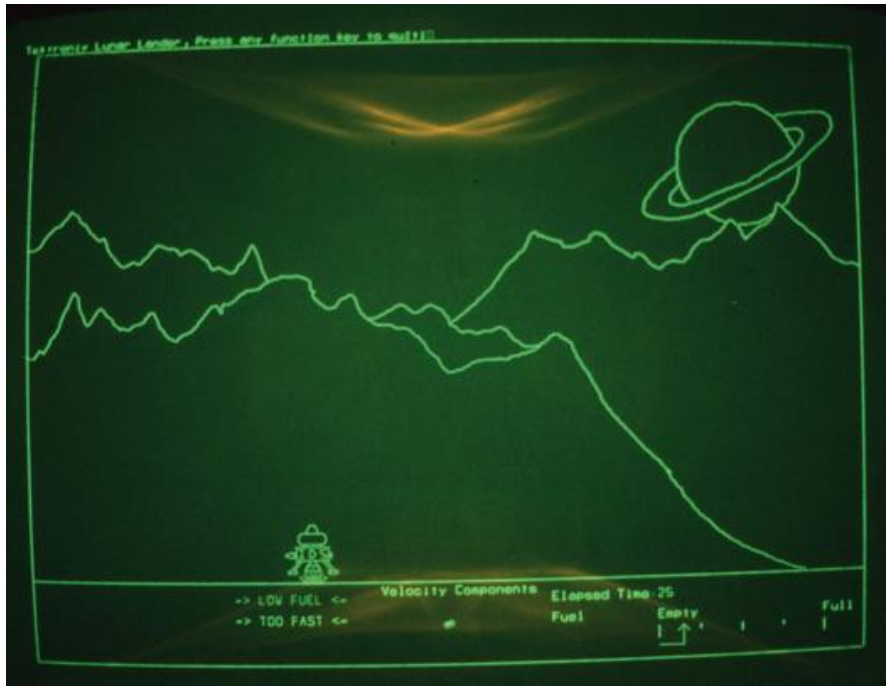
```
% Euler
...
x = [0 1]';
for t = ...
   x = (I + h*A)*x;
   plot(x(1),x(2),'.')
end
```

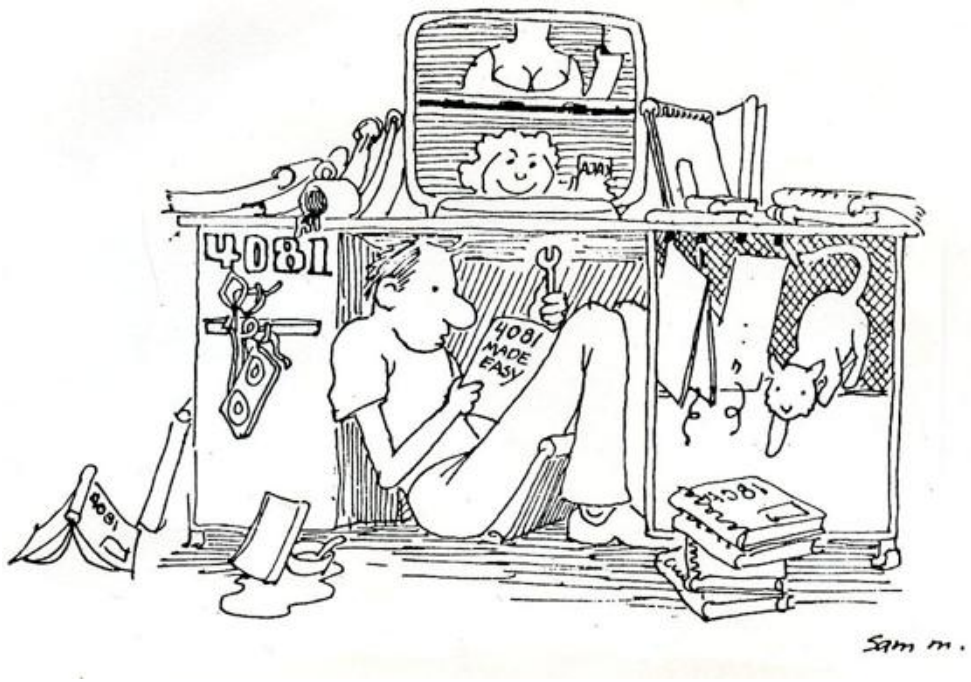
```
% Implicit Euler
...
x = [0 1]';
for t = ...
   x = (I - h*A)\x;
   plot(x(1),x(2),'.')
end
```


Symplectic Spacewar
2
1
0
-1
-2
-2
0
2


Euler
4
2
0
-2
-4
-4
-2
0
2
4


Implicit Euler
2
1
0
-1
-2
-2
0
2


-> LOW FUEL <-
-> TOO FAST <-
Velocity Components
Elapsed Time 25
Fuel
Empty
Full


4081
4081 MADE EASY
Sam M.


PSC


Sun
Sun
ULTRA


LINPACK


CLEVE
CLEVE MOLER
THE MATHWORKS


BRIDGES
RSC
RESTROOMS
PEARC18

SIAM 30th, Stanford, 1982

Computers That I Have Known

https://blogs.mathworks.com/cleve/2021/07/07

Google: cleve blog