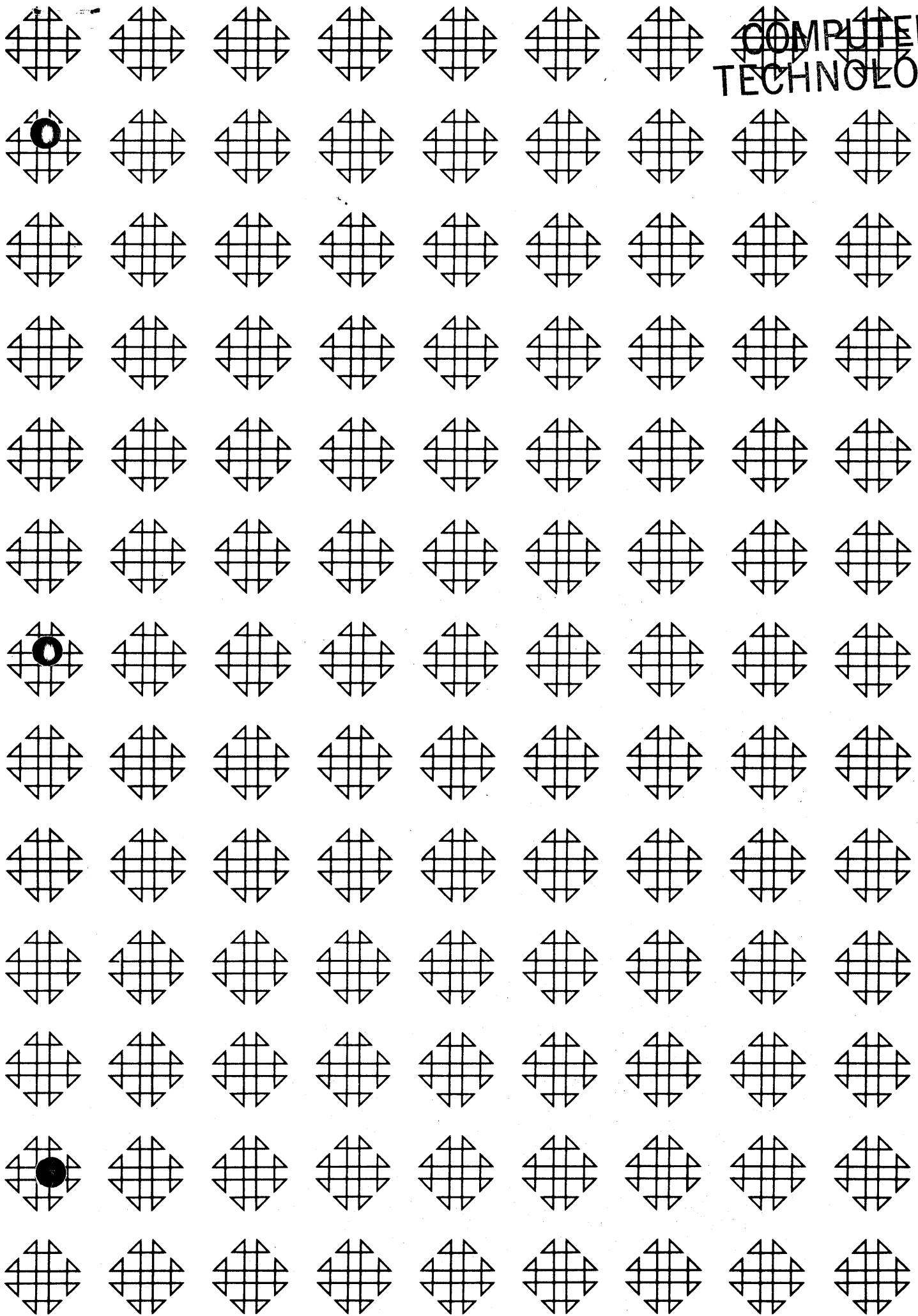


COMPUTER  
TECHNOLOGY

1620 GENERAL PROGRAM LIBRARY

Plot Subroutine

13.0.001



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1620 USERS GROUP PROGRAM REVIEW AND EVALUATION

(fill out in typewriter or pencil, do not use ink)

Program No. \_\_\_\_\_

Date \_\_\_\_\_

Program Name: \_\_\_\_\_

1. Does the abstract adequately describe what the program is and what it does? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
2. Does the program do what the abstract says? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
3. Is the Description clear, understandable, and adequate? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
4. Are the Operating Instructions understandable and in sufficient detail? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_  
Are the Sense Switch options adequately described (if applicable)? Yes \_\_\_ No \_\_\_  
Are the mnemonic labels identified or sufficiently understandable? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
5. Does the source program compile satisfactorily (if applicable)? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
6. Does the object program run satisfactorily? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
7. Number of test cases run \_\_\_\_\_. Are any restrictions as to data, size, range, etc. covered adequately in description? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
8. Does the Program Meet the minimal standards of the 1620 Users Group? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
9. Were all necessary parts of the program received? Yes \_\_\_ No \_\_\_  
Comment \_\_\_\_\_
10. Please list on the back any suggestions to improve the usefulness of the program. These will be passed onto the author for his consideration.

Please return to:

Mr. Richard L. Pratt  
Data Corporation  
7500 Old Xenia Pike  
Dayton, Ohio 45432

Your Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

User Group Code \_\_\_\_\_

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11/09/64



PLOT  
SUBROUTINE  
FOR THE IBM 1620 FORMAT FORTRAN  
PROCESSOR

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Jesse H. Poore, Jr.  
Computing Center  
University of Kentucky  
Lexington, Kentucky  
March, 1962  
Library Code 3143

Modifications or revisions to this program, as they occur, will be announced in the appropriate Catalog of Programs for IBM Data Processing Systems. When such an announcement occurs, users should order a complete new program from the Program Information Department.

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///

PLOT  
PLOT SUBROUTINE FOR FORMAT FORTRAN

Purpose: This subroutine plots up to 9 curves simultaneously.

Form of Statement:

V = PLOT (FLT)

where: V is a dummy variable name, which will be given the value FLT  
PLOT is the call name of the functional subroutine  
FLT is a floating point number which is the argument of the  
subroutine  
FLT must be scaled such that  
1.  $1. < FLT < 80.$

Description of Subroutine:

Only the integral part of FLT will be considered by this subroutine. The first time PLOT is entered, the digit "1" will be stored for punching in column FLT of the card (integral part of FLT). The second time PLOT is entered the digit "2" will be stored in column FLT of the card. If the argument of PLOT should happen to be the same for two different curves, the digit representing the latter curve will be plotted.

This procedure is repeated until:

- 1) FLT is zero, in which case the card will be punched as arranged by the previous entrances. A zero argument will clear the punch area to blanks and ready the subroutine for the next set of points. A zero argument may be the tenth entry, and is the only exception to the following paragraph.
- 2) A tenth entry, which is forbidden except for zero argument is attempted. In this event the message "PLOT" is typed to signal the operator that an attempt at plotting 10 curves has been fruitlessly attempted. The subroutine initializes and as a consequence of violating the restrictions, the first nine curves are lost.

If the argument (FLT) is out of range, i. e. if  $FLT < 1.$  or if  $FLT > 80.,$  the argument is typed, the typewriter spaces once, and the entrance attempt number is typed, which identifies the curve. The sequence of plots is not disrupted by such an occurrence.

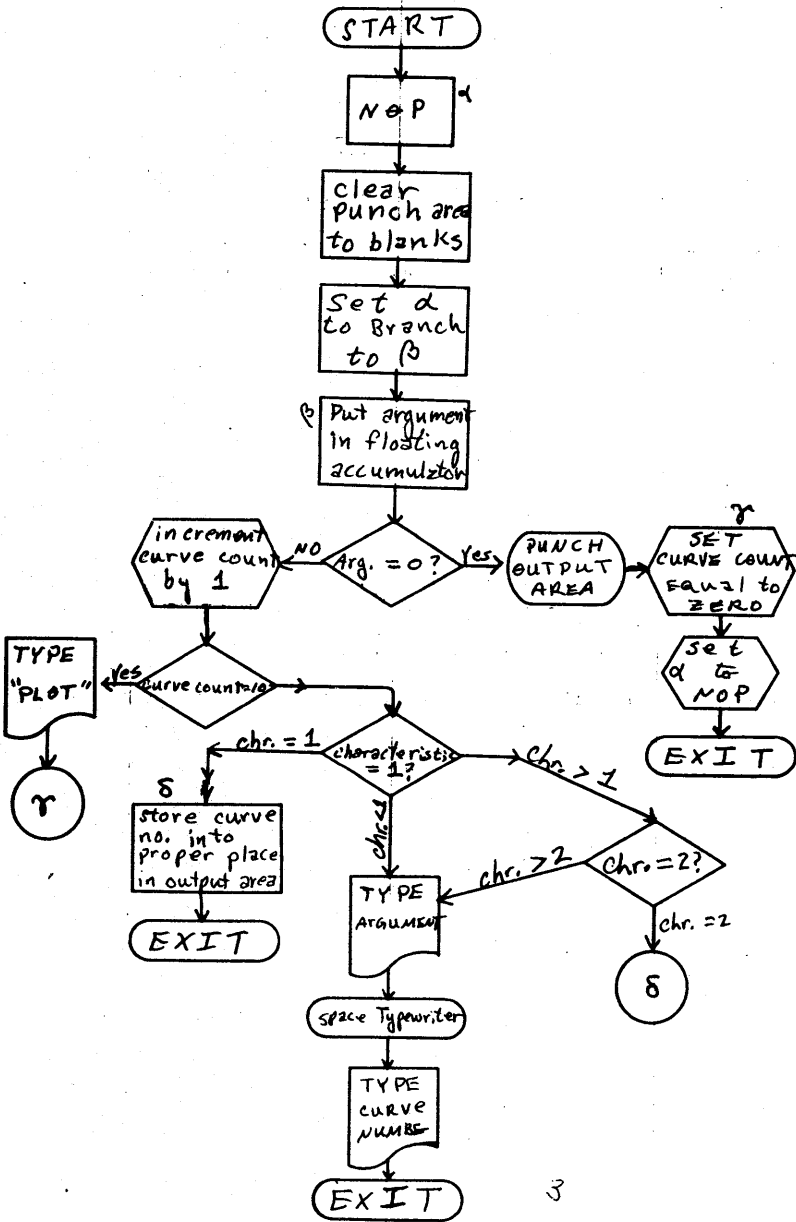
The output of the sample problems included herein was listed on an IBM 407 with an 80-80 control panel.

In the listing of the source program, the statement labeled L1 and the three following statements must be adjusted to agree with the subroutine number for various compiler decks.

Storage Requirement: 550 digits

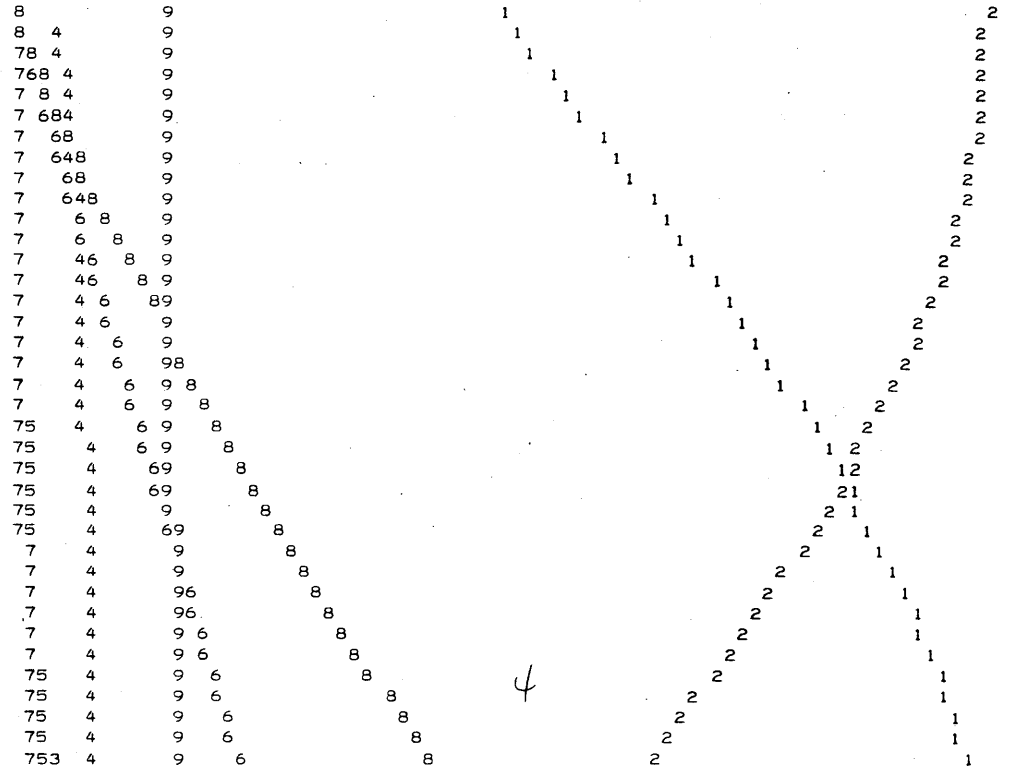
Reminder: A functional subroutine must be preceded by some arithmetic statement before it is called.

# FLOW CHART



```

Z=1.
W=.05
X=0.
1 Y=PLOT (SIN(X)*39.+40.)
  Y=PLOT (COS(X)*39.+40.)
  Y=PLOT (SIN(X)/COS(X)+1.)
  Y=PLOT (LOG(W)+4.)
  Y=PLOT (EXP(X))
  Y=PLOT (Z)
  Y=PLOT ((EXP(X)-EXP(-X))/2.+1.)
  Y=PLOT (Z**(6./5.))
  Y=PLOT (13.+301*X+.99876*X*X+.0076899*X*X*X)
  Y=PLOT (0.,0)
  X=X+.03491
  Z=Z+.5
  W=W+1.
  GO TO 1
STOP
END
    
```

















\*\* FORTRAN PLOT SUBROUTINE

	DORG	05000	05000		
START	NOP	L1,,0	05000	41	05096 00000
	TFM	L3+6,OUTPUT+1,017	05012	16	05042 05458
L2	TFM	*+9,80,010	05024	16	05033 00080
L3	TDM	OUTPUT+1,,02	05036	15	05458 00000
	JNB	1,*	05047	00001	@
	AM	L3+6,1,010	05048	11	05042 00001
	SM	L2+9,1,010	05060	12	05033 00001
	BNE	L3,,0	05072	47	05036 01200
	TDM	START+1,9,0	05084	15	05001 00009
L1	TF	60,19809,11	05096	26	00060 19809
	SM	19809,2,10	05108	12	19809 00002
	TF	58,19809,11	05120	26	00058 19809
	AM	19809,2,10	05132	11	19809 00002
	BD	DIGIT,51,0	05144	43	05194 00051
	WNCD	OUTPUT+1,,0	05156	38	05458 00400
L5	TFM	PLOT,,010	05168	16	05202 00000
	TDM	START+1,1,0	05180	15	05001 00001
	BB		05192	42	00000 00000
	DORG	*-9	05194		
DIGIT	AM	PLOT,1,010	05194	11	05202 00001
	CM	PLOT,10,010	05206	14	05202 00010
	BE	PLT,,0	05218	46	05434 01200
L6	TFM	L4+6,OUTPUT,017	05230	16	05376 05457
	CM	60,1,10	05242	14	00060 00001
	BE	ONEDIG,,0	05254	46	05346 01200
	BE	RANGE,,0	05266	47	05384 01300
	CM	60,2,10	05278	14	00060 00002
	BH	RANGE,,0	05290	46	05384 01100
	CM	52,80,10	05302	14	00052 00080
	BH	RANGE,,0	05314	46	05384 01100
	A	L4+6,52,0	05326	21	05376 00052
	B	L4,,0	05338	49	05370 00000
	DORG	*-3	05346		
ONEDIG	TD	*+23,51,0	05346	25	05369 00051
	SM	L4+6,,010	05358	12	05376 00000
L4	TD	,PLOT,1	05370	25	00000 05202
	BB		05382	42	00000 00000
	DORG	*-9	05384		
RANGE	TD	61,401	05384	25	00061 00401
	WNTY	51	05396	38	00051 00100
	SPTY		05408	34	00000 00101
	WNTY	PLOT,,0	05420	38	05202 00100
	BB		05432	42	00000 00000
	DORG	*-9	05434		
PLT	WATY	PLTX,,0	05434	39	05539 00100
	B	L5,,0	05446	49	05168 00000
PUTOUT	DS	80	05537		00080
OUTPUT	DS	1,PUTOUT-80	05457		00001
PLOT	DS	2,DIGIT+8	05202		00002
	DC	1,@,DIGIT+9	05203		00001 #
PLTX	DAC	5,PLOT	05539		00005X2 PLOT
	DEND		00000		

END OF PASS I