TO: MSPM Distribution
FROM: R. M. Graham
SUBJ: Use of QED and ROFF
DATE: January 19, 1967

Attached is a description of how to use ROFF, an ASCII
version of RUNOFF. The QED editor uses Multics ASCII
canonical form and may be used to produce and edit text
files for use with ROFF.

It is recommended that QED not be used for producing or
editing 12-bit (MEMO) files for use with RUNOFF. QED
does not use the same canonical form as TYPSET, further,
it does not use the standard 12-bit character codes used
by CTSS. Hence, (MEMO) files produced by QED are incompatable
with (MEMO) files produced by TYPSET. This violates the
CTSS (and MULTICS) standard that files with reserved second
names (or suffixes) have a known internal structure.
Failure to observe this standard will result in much confusion.

ROFF - An ASCII Version of RUNOFF

To: Multics Programming Staff
From: Art Evans, Project MAC, extension 6038
Date: 17 January 1967

ROFF is a program which does for ascii files with second name
ASCII what RUNOFF does for 12-bit files with second name (MEMO).
The command

        R ROFF NAME -BALL ID- -NOWAIT- -STOP- -PRINT-

causes the file NAME ASCII to be run off. The control word
conventions and options are those of RUNOFF, as described in
Section AH.9.01 of the CTSS Programmer's Guide, with a few
additions: the control words need and insert file, and the
command parameter PRINT.

The control line

                        .need n

where n is an integer, forces a page break if there are not at
least n lines still remaining on the present page. This control
word works correctly if it follows any control which forces a
break, but its operation may be erratic otherwise. It may be
abbreviated .ne.

The control line

                   .insert file zilch

causes the file ZILCH ASCII to be inserted, with nesting to a
depth of nine permitted. The abbreviation is .if. inserts and
appends may be intermixed arbitrarily, with the obvious result.

The optional parameter PRINT given in invoking ROFF causes ROFF's
output to be written into a file instead of being typed on the
user's console. That is, the command

                   R ROFF ZILCH PRINT

causes the creation of ZILCH RUNOFF, an ASCII file which is the
image of the printed pages. RQASCI may be used to print this
file off line. (This option is actually in RUNOFF at the moment,
but it is not documented.)

The file ROFF SAVED is in T234 CMFL02.

standard beginning for MSPM sections--Saltzer

```
.line length 65
.header MULTICS SYSTEM-PROGRAMMERS' MANUAL     Section BZ.ZZ.Z
.paging mode top facing prefix ''
.page 1
.in 43
DRAFT:  For Approval
.br
PUBLISHED:  1/1/66
.br
.in 0
Identification.
```

(There are five spaces between MANUAL and Section.)