

COMPUTERIZED CONFERENCING & COMMUNICATIONS CENTER

at

NEW JERSEY INSTITUTE OF TECHNOLOGY

**INITIAL SPECIFICATIONS
ELECTRONIC INFORMATION EXCHANGE
SYSTEM
(EIE)**

RESEARCH REPORT NUMBER 1

BY

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August 10, 1975

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INTRODUCTION

This document is intended as a SPECIFICATIONS MANUAL to guide the development of the EIE System. It does not represent a User Manual although it contains the specification of the user abilities on the system. It is written in a highly segmented style which reflects the potential use of the material in the on-line EXPLANATION file which will be available as part of the EIE System and which will allow users to retrieve just enough information to satisfy a specific question on system use and options.

This comprehensive specification document is much harder to utilize for learning the system than the actual process of learning by doing. We urge any potential user who comes across this document to not try and learn the details of the system from this document. The ordering of the contents is largely from general concepts to specific details and the individual not specifically interested in detailed specifications of interactive computer systems should read the material up to and including the USER'S GUIDE and begin skimming thereafter.

As an initial specification, this document is subject to modification as it receives further review. At this stage we have not included a number of powerful features that have been considered but will probably wait until the second year in the development effort. We believe a decision on which of these are most beneficial should wait until some actual use is made of the system. However, the experienced Information System Designer will note that extensions to multi-leveled user defined procedures and in-line or indirect text-editing of a document preparation nature can logically be made within the context of these specifications.

This system is being implemented on an INTERDATA 7/32 mini-computer with 256,000 bytes of core coupled to a DIVA dual disk system (DD-32) offering 232 million unformatted bytes of disk storage. The software is being implemented by members and staff of the Computer and Information Science Department of NJIT and of Language Systems Development Corporation of Silver Springs, Maryland.

This work is supported by a grant from the Office of Science Information Services of the National Science Foundation (SIS 75-06783).

OBJECT/COMPONENT CONCEPTS

ELECTRONIC INFORMATION EXCHANGE (EIE)

This system is intended to provide its MEMBERS or users with the ability to deal with the communication of text information. The design approach represents an attempt to merge computer and communications technology with the human requirements and communication structure associated with the manipulation of textual information by a GROUP of individuals. The system provides such functions as the COMPOSING, EDITING, SENDING, SEARCHING, REVIEWING, APPROVING, EVALUATING and ORGANIZING of various concepts of text information. The use of the computer and digital communications further provides ready access for individuals into what essentially represents a common information space or environment at times of their choosing and from any location. This, coupled to the instantaneous processing of the system functions, should eliminate or minimize for any user GROUP constraints on their communication due to geographical location, lack of coincident time or inability for sufficient travel.

MESSAGE SYSTEM

A MESSAGE represents a private exchange of text among a subset of MEMBERS for which there is no need of keeping the information available after the exchange is completed. This system component provides the ability for any MEMBER of the system to send a MESSAGE to any other MEMBER or subset of MEMBERS at any time. There are various options available for conditional type MESSAGES to reflect various requirements of the human process of MESSAGE sending. MESSAGES once they have completed their delivery process are REMOVED (eliminated) from the system and the SENDER is always provided a CONFIRMATION of the DELIVERY actions triggered by his or her MESSAGES.

NOTEBOOK

The NOTEBOOK represents a personal and private writing space for a MEMBER in which he may COMPOSE and EDIT text for later use elsewhere in the EIE System or into which he may COPY or file information generated elsewhere in the system. The MEMBER also has the privilege of allowing specific MEMBERS to utilize sections of his NOTEBOOK as CO-AUTHORS or READERS. The standard text item in a NOTEBOOK is a PAGE.

CONFERENCE

The CONFERENCE represents a common writing space for a subset of MEMBERS or a GROUP of MEMBERS to carry on a continuous exchange or discussion. The computer keeps track of what any CONFEREES has or has not seen and automatically brings him up-to-date whenever he wishes. This is done by the use of a MARKER. The conferee can reset the MARKER at will and it serves in effect as a "bookmarker." The CONFERENCE allows for regular text items called COMMENTS and for ASSERTIONS which allow voting by the CONFEREES or some subset of them. It is also possible to allow some MEMBERS to be only OBSERVERS in a given CONFERENCE. CONFERENCES can be formed and removed at the will of the MEMBERS and they can be PUBLIC or PRIVATE in nature. There exist a CONFERENCE MODERATOR who does have EDITORIAL powers for weeding out obsolete COMMENTS or ORGANIZING the discussion for the facilitation of review or searching.

BULLETIN

The BULLETIN represents a mini-journal or mechanism to put collections of text items through an approval or REFEREE process. Items that have successfully passed the approval process are then available to be read by all MEMBERS of the system. The BULLETIN is usually associated with a specific GROUP of MEMBERS who represent the individuals who prepare and SUBMIT items to the BULLETIN. Each BULLETIN has a specific individual, the EDITOR, who facilitates the approval process. The BULLETIN incorporates three types of text items: REPORTS, NEWS and ASSESSMENTS.

REPORTS

A REPORT is a specific collection or SEQUENCE of PAGES COMPOSED in some AUTHOR'S NOTEBOOK. A REPORT also has an explicit TITLE, ABSTRACT and defined SECTIONS. When a REPORT is initially SUBMITTED, the EDITOR establishes a TEMPORARY CONFERENCE involving the AUTHOR, CO-AUTHORS and selected REFEREES. As a result of that discussion, the EDITOR decides whether to make the REPORT available in the BULLETIN and whether to ASSOCIATE and make PUBLIC any of the COMMENTS from the REFEREE CONFERENCE.

NEWS

A NEWS ITEM represents some information a MEMBER feels the readers of the BULLETIN should be aware of. When

the ITEM is SUBMITTED, the EDITOR has the authority to accept it. MEMBERS of the GROUP associated with the BULLETIN may also submit COMMENTS on an accepted NEWS item.

ASSESSMENTS

This allows for the SUBMISSION of ASSERTIONS which the individuals in the GROUP associated with the BULLETIN may vote on. The AUTHOR of an ASSERTION may indicate which voting scales he or she wishes to see used by the group when they express their vote (e.g., Desirability, Feasibility, Scales, etc.). The EDITOR decides whether to accept the ASSERTION. In addition, COMMENTS on the item may be submitted by others. The resulting VOTE distributions may be viewed after a sufficient number of VOTES have been registered.

TEXT ITEMS

Whether or not an ITEM of TEXT represents a PAGE in a NOTEBOOK or a COMMENT in a CONFERENCE, there are certain unique features available to facilitate the ability of the users to utilize the text item for its intended purpose. These are:

ITEM NUMBER

A unique identifier usually associated with the position of the item in relation to other items at the time it occurred.

DATE-TIME of ORIGINATION

The date and time the item was originally entered in the system.

AUTHOR'S NAME and NUMBER

The identification of the MEMBER who originated the item.

DATE-TIME of last MODIFICATION

The date and time the item was last MODIFIED or EDITED.

MODIFIER'S NAME and NUMBER

The identification of the MEMBER who last MODIFIED the item, if different from the original AUTHOR.

INDEX KEYS

A set of words or phrases which can be used to signify the contents of the item. This set of KEYS may be useful for setting up a classification or topic set of references.

ASSOCIATION NUMBER

The NUMBER of a different TEXT item to which this particular item is ASSOCIATED. This allows the development of footnotes or references to other text items and the formation of an outline or subtopic structure for text items (e.g., COMMENTS on ASSERTIONS).

SEQUENCE NUMBERS

The NUMBERS of the text items preceding this ITEM and following it. This allows the user to establish a SEQUENCE of text items in a

different order than provided by the original ITEM NUMBERS (e.g., a REPORT, discussion thread of COMMENTS, etc.).

TITLE

All the above concepts comprise the information provided in the TITLE of an item of text.

In addition to the above there are the following concepts and properties associated with various text items.

In a CONFERENCE or the NEWS, ASSESSMENTS, REPORTS sections of a BULLETIN the ITEM NUMBER (or equivalent SUBMISSION NUMBER in the BULLETIN) is cyclic and unique to each item. When the NUMBER reaches ten thousand it will be reset to one by the system. When a user goes to actually GET or print out an item it is possible that the item is no longer there and the user will then receive one of the following indications of what happened to it:

REMOVED

The AUTHOR part of the TITLE will be printed together with the MODIFIER part of the title which now indicates who REMOVED or deleted the item if different from the AUTHOR.

ARCHIVED

An indication the item was put on tape storage in order to meet the maximum size requirements of the CONFERENCE or BULLETIN section. This is done on the basis of age as determined by the date and time of the last MODIFICATION. The date and time of the oldest item in this component of the system is also printed out to alert the user to how far back the current contents go.

In the MESSAGE system, if the MESSAGE is no longer there the user receives the indication that it is:

GONE

This may have occurred because the DELIVERY of it had been completed, the AUTHOR had REMOVED it, or because the CUTOFF time of a MESSAGE waiting to be DELIVERED had been exceeded. In any case the AUTHOR of the MESSAGE is always aware or notified of which of these has occurred. MESSAGE NUMBERS are also unique and CYCLIC from one to ten thousand.

For a NOTEBOOK the PAGE NUMBERS are not CYCLIC but fixed from one to the maximum specified when the NOTEBOOK was ESTABLISHED. If the user of a NOTEBOOK asks for a specific PAGE and there is no text then one of the following may occur

UNUSED

Indicating the PAGE had never had any text assigned to it.

REMOVED

The original AUTHOR part of the TITLE and the MODIFIER part indicating when and who REMOVED or deleted the item is DISPLAYED. If, however, an AUTHOR or COAUTHOR choses to COMPOSE a new PAGE using this PAGE NUMBER this information will disappear from the system.

For all text items the line length is what the user enters and is governed largely by the terminal he or she is using. System components are set up with a maximum number of text items and an average PAGE size. Therefore, there is no maximum PAGE size unless explicitly desired for a particular component of the system by the individual acting as NOTEBOOK AUTHOR, CONFERENCE MODERATOR or BULLETIN EDITOR (see next section).

STATE SUMMARY TABLE

for TEXT ITEMS

ITEM FILES	CONFERENCE BULLETIN (NEWS, ASSESSMENTS REPORTS)	MESSAGES	NOTEBOOK
ITEM NUMBERS	Cyclic Unique (restart at 10,000)	Cyclic Unique (restart at 10,000)	Fixed 1 To N
ALTERNATIVE* ITEM STATES	ORIGINAL MODIFIED REMOVED ARCHIVED	ORIGINAL GONE	ORIGINAL MODIFIED UNUSED REMOVED

*For BULLETIN items there is a higher level process involving the states of SUBMISSION and either ACCEPTANCE or REJECTION. of an item. Only if the item has been ACCEPTED do the states in the table apply.

ROLE CONCEPTS

SYSTEM MONITOR

The SYSTEM MONITOR may always be identified by MEMBER NUMBER 100. The SYSTEM MONITOR is there to help the users of the system and to perform a number of housekeeping chores. The SYSTEM MONITOR does have access to almost anything in the system. In case of some emergency situation, the MONITOR can act for any MEMBER, if requested to do so.

Some specific duties of the SYSTEM MONITOR are:

- 1) To ESTABLISH (or REMOVE) MEMBERS by assigning their MEMBER NUMBER between 101 and 999, and entering their NAME and access CODE.
- 2) To designate a GROUP by assigning a two digit GROUP NUMBER and designating a specific MEMBER as GROUP COORDINATOR.
- 3) To ESTABLISH NOTEBOOKS for MEMBERS.
- 4) To ESTABLISH or REMOVE OBSERVERS of the system.
- 5) To ESTABLISH BULLETINS for GROUPS.
- 6) To SET certain parameters of the system such as the CUTOFF time on undelivered MESSAGES.

MEMBERS

A MEMBER of the system has the following privileges:

- 1) May SEND a MESSAGE to any other MEMBERS.
- 2) May have one NOTEBOOK.
- 3) May belong to one or more GROUPS.
- 4) May ESTABLISH one temporary CONFERENCE at a time with any set of other MEMBERS.
- 5) May participate in as many CONFERENCES as he or she has access to, or which are declared PUBLIC.
- 6) May peruse any BULLETIN in the system.
- 7) May peruse public information about other MEMBERS.

The MEMBER may also enter and modify the information stored about him or her for the benefit of the other members. This includes:

NICKNAME	(Up to 12 characters)
TELEPHONE	(Up to 24 characters)
ZIPCODE	(6 numbers)
ADDRESS	(Up to 5 lines)
DESCRIPTION	(Up to 5 lines)

The DESCRIPTION is a set of words and phrases describing the interests and specialties of the MEMBER.

The MEMBER may also enter and modify the following non-public information:

ACCESS CODE	(Up to 12 characters)
PEN NAME	(Up to 24 characters)

The PEN NAME provides the MEMBER the option of signing text items with other than his or her real NAME. MESSAGES may be sent to a PEN NAME as well as signed by them.

A MEMBER may be identified by the MEMBER'S NUMBER, NICKNAME, or last NAME. However, only the NUMBER, NICKNAME, and PEN NAME are assured of being unique identifiers. The system will check whenever a MEMBER attempts to enter a new NICKNAME or PEN NAME and will inform the user if it cannot be used, (i.e. someone else already has used it).

GROUP

A GROUP is a set of specific MEMBERS who are either full MEMBERS or OBSERVERS. The GROUP usually has associated with it a GROUP CONFERENCE and a GROUP BULLETIN.

GROUP COORDINATOR

This individual does the housekeeping for a GROUP by designating and keeping current who the MEMBERS of the GROUP are, who the GROUP CONFERENCE MODERATOR is, who is the EDITOR of the BULLETIN, and by providing a DESCRIPTION of the GROUP. The GROUP COORDINATOR is also expected to be well trained in the use of the system so that he or she can help the MEMBERS of the GROUP with most of the problems that might arise. The GROUP is identified by a two digit GROUP NUMBER or a GROUP NAME. The GROUP COORDINATOR plays a role analogous to a club secretary.

OBSERVER

A person designated as an OBSERVER of the system by the SYSTEM MONITOR cannot write any text into the system with the exception of MESSAGES to the SYSTEM MONITOR. Otherwise, the OBSERVER can read whatever a MEMBER would be able to read. A person designated as an OBSERVER in a specific CONFERENCE by the CONFERENCE MODERATOR can only read the COMMENTS, but not enter any.

A MEMBER who is declared an OBSERVER in a GROUP is also an OBSERVER in the GROUP CONFERENCE and cannot SUBMIT material to the BULLETIN.

CONFERENCE MODERATOR

This individual is the one who ESTABLISHES the CONFERENCE and who the CONFEREES or participants are. The MODERATOR may enter a total number of CONFEREES and who some or all of them are. If the CONFERENCE is declared PUBLIC, any MEMBER may join who knows the NAME or NUMBER of the CONFERENCE. The MODERATOR is responsible for REMOVING old or out-of-date material to keep the size of the discussion within bounds established by the SYSTEM MONITOR. A temporary CONFERENCE has a smaller size limit than a GROUP CONFERENCE and must meet a certain weekly activity level to remain available on the system. The MODERATOR also has the power to EDIT any text item in the CONFERENCE or to ORGANIZE the COMMENTS along discussion threads.

AUTHOR

An AUTHOR is the owner of a NOTEBOOK which represents a PRIVATE workspace available to each MEMBER of the system. An AUTHOR may allow others to write in portions of his or her NOTEBOOK -- such individuals are designated CO-AUTHORS. Also the AUTHOR may designate READERS who can only read a portion of the NOTEBOOK.

EDITOR

The EDITOR of a BULLETIN has the authority to decide if items SUBMITTED to the BULLETIN should be made available for reading by other MEMBERS. This individual may also set up as many temporary CONFERENCES as needed for REFEREE purposes and may delete or REMOVE outdated material from the BULLETIN.

REFEREE

A REFEREE is a MEMBER utilizing a fake name and invited by an EDITOR to participate in a temporary CONFERENCE with the AUTHOR of a REPORT. Based upon the discussion among the REFEREES and AUTHOR or AUTHORS, the EDITOR determines if the REPORT SUBMITTED to the BULLETIN is accepted and thereby made PUBLIC.

VOTER

A VOTER is an individual in a CONFERENCE entitled to VOTE on ASSERTIONS. Normally, a CONFEREE in a CONFERENCE and a MEMBER of the GROUP associated with the BULLETIN would have voting privileges. In some situations it may be useful to have CONFERENCES where the VOTERS are a subset of the CONFEREES.

PROPOSER

An individual in a CONFERENCE allowed to enter ASSERTIONS. Normally, a CONFEREE would have the privilege of entering ASSERTIONS. In some situations it may be useful to have CONFERENCES where the PROPOSERS are a subset of the CONFEREES.

CONCEPTS

SUMMARY TABLE

OBJECTS/COMPONENTS	TEXT ITEMS	ROLES
ELECTRONIC INFORMATION EXCHANGE (EIE)	DESCRIPTIONS ADDRESSES EXPLANATIONS	MEMBERS GROUPS COORDINATORS OBSERVERS MONITOR
MESSAGE SYSTEM	MESSAGES	SENDER ADDRESSES
NOTEBOOK	PAGE	AUTHOR CO-AUTHORS READERS
CONFERENCES TEMPORARY GROUP PRIVATE PUBLIC	COMMENTS ASSERTIONS	CONFEREES PROPOSERS VOTERS OBSERVERS MODERATOR
BULLETIN REPORTS	TITLE ABSTRACT SECTIONS PAGES COMMENTS	GROUP EDITOR AUTHORS REFEREES
BULLETIN NEWS	ITEMS COMMENTS	
BULLETIN ASSESSMENTS	ASSERTIONS COMMENTS	

ACTION CONCEPTS

GET

The act of obtaining a whole item such as a specific BULLETIN, CONFERENCE, NOTEBOOK, PAGE of text, COMMENT, etc.

DISPLAY

The act of obtaining abbreviated forms of a text ITEM such as the TITLE of a PAGE or COMMENT.

REVIEW

The providing of a summary to discover the status of such things as CONFERENCES and BULLETINS with respect to the amount of material in them and how much of it is new to the particular MEMBER.

SEARCH/FIND

The process of hunting for specific items or groups of items based upon various options such as the author of the item, when it was written, and/or words used.

COMPOSE

The act of writing an item of TEXT.

ESTABLISH

The act of setting-up or creating a component of the system such as a specific CONFERENCE.

SUBMIT

The act of seeking approval for PUBLIC dissemination of items of TEXT.

SEND

The process of SENDING a MESSAGE.

MODIFY/REMOVE

The act of changing or destroying an item of text or system component.

SET

The process of changing or setting the value of certain parameters, or setting-up for use certain special features of the system.

TRANSFER/MOVE

Moving an item of text from one location to another.

COPY

Creating a COPY of an item of text in a different location.

ORGANIZE

The process of establishing or modifying the structure of a collection of text items in terms of their NUMBERS, ASSOCIATIONS, SEQUENCES and/or INDEXES.

VOTING

The text items in a CONFERENCE or BULLETIN which are VOTED on are referred to as ASSERTIONS. The ASSERTION may have one or two of the eight possible voting scales attached to it. Each individual MEMBER who VOTES on an ASSERTION may at anytime change his VOTE. The system maintains on each VOTING SCALE used in an ASSERTION the following information which may be viewed when a sufficient number of individuals have voted.

NUMBER of VOTES

In each of the six possible answers associated with each scale and the TOTAL NUMBER who have voted.

NUMBER of VOTE CHANGES

How many times a VOTE has been changed except for changes from NO JUDGEMENT

AVERAGE and STANDARD DEVIATION

Based upon first five VOTE CATEGORIES (i.e., not including NO JUDGEMENT).

The VOTING SCALES available are:

<u>DESIRABILITY</u>	<u>AGREEMENT</u>	<u>CODE</u>
Very Desirable	Strongly Agree	(1)
Desirable	Agree	(2)
Neutral	Neutral	(3)
Undesirable	Disagree	(4)
Very Undesirable	Strongly Disagree	(5)
No Judgement	No Judgement	(6)
<u>IMPORTANCE</u>	<u>PERTINENCE</u>	
Very Important	Essential	(1)
Important	Pertinent	(2)
Undetermined	Undetermined	(3)
Unimportant	Not Pertinent	(4)
Forget It	Forget It	(5)
No Judgement	No Judgement	(6)
<u>CONFIDENCE</u>	<u>FEASIBILITY</u>	
Certain	Definitely Feasible	(1)
Reliable	Possible Feasible	(2)
Undetermined	Undetermined	(3)
Risky	Possibly Unfeasible	(4)
Unreliable	Definitely Unfeasible	(5)
No Judgement	No Judgement	(6)

The VOTING SCALES available (continued)

<u>PROBABILITY</u>	<u>IMPACT</u>	<u>CODE</u>
Very Probable	Large Positive	(1)
Probable	Moderate Positive	(2)
Either Way	None	(3)
Improbable	Moderate Negative	(4)
Very Improbable	Large Negative	(5)
No Judgement	No Judgement	(6)

Another type of voting scale will be an ESTIMATE scale where the voters can supply a number such as a cost ESTIMATE or an actual probability ESTIMATE. The AUTHOR of an ASSERTION in this case will be asked to supply limits for the range of the ESTIMATE. The system will, in this case, also display the lowest and highest estimates and the upper and lower bounds within which 50% of the ESTIMATES fell. In this case a NO JUDGEMENT vote is expressed by a carriage return without supplying any numeric value.

START PROCEDURE

When a user comes on the system, he or she is asked

NAME/#?
CODE?

These two items were originally provided by the SYSTEM MONITOR. The MEMBER'S identity NUMBER will be between 101 and 999. The NUMBER "100" is reserved for the SYSTEM MONITOR. The MEMBER then sees the following printed out:

name (of MEMBER)
LAST ACTIVE: mm/dd/yy hh:mm

PRIVATE, # GROUP MESSAGES
ACCEPT PRIVATE (Y/N/#)?
ACCEPT GROUP (Y/N/#)?

The users name and number are printed out as well as the date and time that the user was last active. This information protects the user against someone else using the MEMBERS access privileges undetected. The user is then informed of how many PRIVATE and GROUP MESSAGES are waiting to be delivered. A PRIVATE MESSAGE is one where the MEMBER is explicitly named as an ADDRESSEE. A GROUP MESSAGE is one sent to a GROUP to which the MEMBER belongs.

The MEMBER is now asked if he or she wishes to accept delivery of either/or both MESSAGE types. The possible answers are:

- | | |
|-----|--|
| Yes | Causes all the MESSAGES to be delivered and will cause any MESSAGES written while the user is on the system to also be automatically delivered. |
| No | Will not deliver any MESSAGES. |
| # | Whatever the number of MESSAGES indicated by the user will then be delivered and the question is repeated until a Y or N is indicated, or the MESSAGES are exhausted, in which case an N is assumed. |

After this procedure, the user would receive

TO GET	
MESSAGE SYSTEM	(1)
CONFERENCE	(2)
NOTEBOOK	(3)
BULLETIN	(4)
MEMBERS/GROUPS	(5)
EXPLANATIONS	(6)
TO	
REVIEW	(7)
COMPOSE/SEND	(8)
MONITOR/AUDIT	(9)
INITIAL CHOICE?	

Whereupon the user may select one of the nine major options by answering with the proper number. This MODE of interaction is called the LONG MENU and may be used when the USER GUIDE is unavailable. Normally, the user would be in the SHORT MENU mode and all that would be printed out is

INITIAL CHOICE?

Some users may prefer the COMMAND MODE where all that is asked is the word

COMMAND?

and the user may supply any of the valid system COMMANDS. The option for setting the MODE is available in the SET CHOICE. In the sections that follow, the options for each CHOICE are explained in detail.

When at the COMMAND or INITIAL CHOICE questions, the use of a plus sign (+) as an answer would cause the ACCEPT questions on MESSAGES to be repeated.

The USER GUIDE is a one page flow diagram indicating which question is asked next of the user as a result of the choice selected in the previous question. Each line on the diagram (see Figure) is labeled with the number of the choice made in the previous box which sends the user down that particular path.

COMMANDS

The user at anytime he or she wishes may utilize a COMMAND to interact by use of a plus sign followed by the COMMAND. The user may also choose to interact entirely in a COMMAND MODE. Ultimately, there will exist some powerful options that are only available as COMMANDS for the more sophisticated user. Also, everything possible as a menu selection will be available in a COMMAND MODE. A COMMAND is comprised of three parts:

VERB	an action word
OBJECT	what component type of the system is being acted upon
DATA	the information necessary to pinpoint the specific item

An example would be

GET MESSAGE 1130

which would actually be entered as

GM 1130.

This would, of course, indicate to GET the MESSAGE that is numbered 1130.

The following table indicates the VERB and OBJECT words and their abbreviations. Any meaningful combination of a VERB and OBJECT combination may be used to exercise a COMMAND. The system will always inform the user if he or she has entered an invalid COMMAND and allow him or her to continue as if nothing has happened.

COMMAND ABBREVIATION TABLE

<u>VERBS</u>		<u>OBJECTS</u>	
GET	G	MEMBERS/GROUPS	MG
DISPLAY	D	MESSAGES	M
REVIEW	R	CONFERENCE	C
COMPOSE/SEND/SUBMIT	C	CONFERENCE COMMENTS	CC
FIND/SEARCH	F	CONFERENCE ASSERTIONS	CA
MODIFY/REMOVE	M	CONFERENCE MEMBERS	CM
SET	S	NOTEBOOK	N
ORGANIZE	O	NOTEBOOK PAGES	NP
EXPLAIN	E	BULLETIN	B
TRANSFER	TR	REPORT	R
COPY	CY	REPORT TITLE	RT
		REPORT ABSTRACT	RA
		REPORT PAGES	RP
		ASSESSMENT ASSERTIONS	AA
		ASSESSMENT COMMENTS	AC
		NEWS ITEMS	NI
		NEWS COMMENTS	NC
		PARAMETERS	P
		ASSOCIATION	A
		SEQUENCE	S
		LINE PAUSE	LP
		LINK	LK

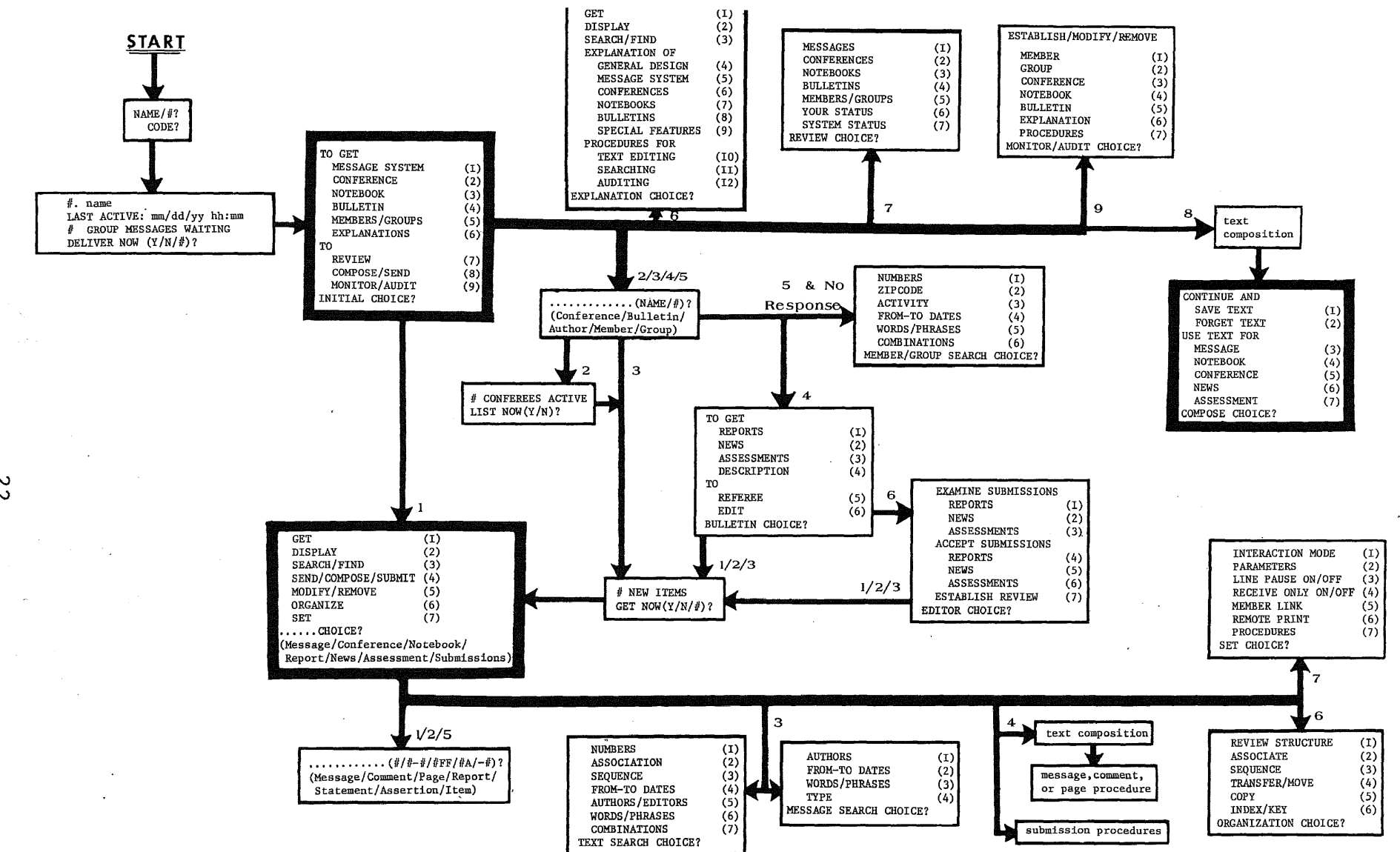
Using the COMMAND TABLE, the formation of a COMMAND is a "chinese version" of menu selection - pick a verb from Column A and an object from Column B. Examples would be:

```
+GC      name/number
          get a specific conference

+DCC      numbers
          display conference comments
          according to numbers specified

+CM       names/numbers
          compose a message and send it to
          indicated members.
```

The explicit definition of the overall COMMAND structure will be specified at a later date. The remainder of this document develops the SPECIFICATIONS from the point of view of the MENU SELECTION MODE of interaction.

AIDS OR SHORTCUTS
symbol represents a numberInteraction Control Features

+ backup previous CHOICE/jump/
complete procedure and use answers
+command allows use of any valid command at
anytime
++ GROUP MESSAGE, INITIAL CHOICE
++# go to INITIAL CHOICE: #
- terminate/break procedure and ignore
answers/terminate conference/etc.
bk, cp terminate procedure/print out
terminate system use
list CHOICES
?? get HELP/EXPLANATION
???... send one line to computer operator

Answer Aids

, separate answers(anticipate questions)
; end multiple answer to one question
request answer
range of numbers
##FF and following in sequence
##A all associated items
-# delete/REMOVE item
@ do PROCEDURE
cp Yes/no change
equivalent cp
delete last character typed
ctrl + x delete this line, re-enter

TEXT COMPOSE/EDIT COMMANDS

Usable with line #'s

= replacement edit
= image edit
= print lines
= insert lines
= copy lines
= delete lines
= blank lines
!text! fill line with text
define/use form
/old/new/ replace text

Other Commands

:: print all
** delete all
:! list blank lines
<! insert blank lines
*! delete blank lines
+ insert edit procedure
+ text complete

USER'S GUIDE for EIE

Electronic Information Exchange
New Jersey Institute of Technology

Designer:

Murray Turoff
Department of Computer
and Information Science

USER'S GUIDE* and AIDS

The one page USER'S GUIDE is intended as a representation of the options in the system which is all that is needed for the typical user to accomplish what is desired. Somewhere between one or two hours of explanation and terminal practice should be sufficient to allow the user to understand the features summarized on the GUIDE. From that point on the use of the EXPLANATION file should allow the user to fill in any gaps in knowledge as the need arises. Individuals who function in special ROLES, such as the EDITOR of a BULLETIN, would probably require more instruction.

The GUIDE presents a series of MENU choices and indicate what options are available next. The flow of choices is presented from the START in the north-west corner where the user is identified. The major or highest level CHOICE or menu is the INITIAL CHOICE where the user identifies the major activity he or she wishes to engage in. As a result, an intermediate question (e.g., which CONFERENCE does the user wish) and other menus are presented. After the user has run out of CHOICES, he or she will be either in a PROCEDURE (i.e. a set of specific questions related to accomplishing some task), COMPOSING TEXT, or receiving information.

In order to move around the MENUS or return to earlier CHOICES, a number of special user AIDS or SHORTCUTS are provided which can be used instead of the expected answer to a CHOICE or question. These are:

+ This will always step the user back up to the CHOICE or question that brought the user to the CHOICE he or she is at.

 If the user is in a long PROCEDURE, this causes the PROCEDURE to be completed with all YES answers. Effectively, to jump over the remaining questions.

++ This brings the user back to the INITIAL
++# CHOICE from anywhere in the system that he or she was at. The user may also make an INITIAL CHOICE by adding the number (#) of a particular INITIAL CHOICE after the ++ and end up at that option.

* In this document, the USER GUIDE DIAGRAM has minor discrepancies with the text which is more up-to-date.

- +command Allows the user to specify and execute a valid command at any point in the interaction.

- The minus sign is used to move in reverse (just like a +), but it also terminates an action. If the user has made some incorrect answers in a PROCEDURE or has decided not to complete it, the minus terminates it and ignores the answers supplied. Also, if the user wants to leave a CONFERENCE, NOTEBOOK, etc. from any point, the minus may be used (e.g., a minus, while in a specific CONFERENCE, would be equivalent to a ++2, which accomplishes the same thing). Use of the minus sign, while COMPOSING text, will delete the text and return to the previous CHOICE.

- The double minus indicates the user's desire to get off the terminal.

- ? If the user has a copy of the GUIDE, he or she is probably operating in the SHORT MENU mode where none of the CHOICE OPTIONS are listed. Responding to a CHOICE with the question mark, causes the options of that CHOICE to be listed.

- ?? This causes the user to be transferred to the EXPLANATION CHOICE and the TITLES of those items pertaining to the CHOICE that the user came from are printed out so the user may see what information is available to EXPLAIN the CHOICE the user was at.

- ???... This causes whatever the one line message is following the three question marks to be sent to the operator's terminal at the computer center.

- , The user may answer ahead, questions or CHOICES, and separate them by commas. The system will take the answers as needed without asking the user for information.

; If a single question allows a series of answers, such as PAGE NUMBERS, the semi-colon is used to indicate the end of that series and force going to the next question. When anticipating questions, it is equivalent to a carriage return. If only one answer is allowed, the semicolon and comma are equal.

. Use of the period as an answer when anticipating questions will cause the question to be asked of the user and then continue on with the other answers originally supplied to questions following.

Carriage
return
key Used to signify a line is finished. The use of this key without any other information supplied means a YES whenever a YES/NO question is asked. When MODIFYING information, it leaves the previous or existing information unchanged. In anticipating answers, two commas or semicolons, in sequence, are equivalent to a carriage return without information.

← This deletes the last character typed and may be used as many times as needed to backspace.

Control
key held
down,
plus X
key press-
ed This causes the current line being inputted to be deleted and the carriage to return to the beginning of the line to put in the information in proper form.

Break key Interrupts whatever is being done when the user is not being asked for anything. Typically used to terminate a long printout before finished. Equivalent to a minus sign in terms of what it accomplishes.

When the user is asked for the numbers of information items wanted and he or she wishes to supply a set of numbers, there are a number of options for expressing the numbers.

A set of specific numbers can be listed separately by commas. A numerical sequence from a starting number to an ending number can be expressed as

#-#

As a result, a line of input may be any combination, e.g.,

#, #-#, #, #, #-#, #

of these forms where no numerical order is implied.

For numbers indicating text items or PAGES, three other forms are allowed.

- | | |
|-------|---|
| #FF | The FF (and following) means beginning at that page number - from there to the end of the SEQUENCE. |
| #-#FF | Refers to the segment of a SEQUENCE established by a MEMBER beginning and ending with the specified item NUMBERS. |
| #A | Refers to all items which have been ASSOCIATED with the indicated item. |

In addition, any of the above forms for numbers may be preceded with a minus sign when a REMOVAL of the item or items is to be done.

INITIAL CHOICE

The main starting CHOICE to which the user may return from anywhere in the system by typing a '++'.

MESSAGE SYSTEM (1)

Provides the choices necessary to perform various options on MESSAGES waiting to be delivered to the MEMBER or for those the MEMBER has written.

CONFERENCE (2)
NOTEBOOK (3)
BULLETIN (4)

Any of these choices causes the following question to be asked:

. . . . (NAME/#)?

The user may then supply the NAME or NUMBER of a particular CONFERENCE, NOTEBOOK, or BULLETIN. The user will then be able to perform various options on the component obtained. Note that the NAME or NUMBER of a NOTEBOOK is the NAME or NUMBER of the MEMBER who is the AUTHOR of the NOTEBOOK. Also, the NUMBER of a BULLETIN is the same as a GROUP'S NUMBER to whom the BULLETIN belongs.

For the case of CONFERENCES, the user is also asked

CONFEREES ON
CONFEREE STATUS (Y/N/A/O)?

where a Y provides a list of all CONFEREES and where they are in the discussion. The N continues to the next option while the A provides the STATUS of those ACTIVE in the CONFERENCE at the moment, and the O indicates those currently on-line to the EIE system.

MEMBERS/GROUPS (5)

This choice results in the question:

MEMBER/GROUP (NAME/#)?

If the user supplies the NAME or NUMBER of a specific MEMBER then all the public information stored about that individual will be printed out.

If the user supplies the NAME or NUMBER of a specific GROUP, the DESCRIPTION of the GROUP and a list of all its MEMBERS will be printed out.

If the user does not supply a response the system will provide a set of options for SEARCHING for MEMBERS/GROUPS based upon various alternatives: MEMBER/GROUP SEARCH CHOICE.

EXPLANATIONS (6)

Provides the user with a set of options for learning more details about features in the system.

TO REVIEW (7)

Provides the option of being informed of how much new information is available for the user in various sections of the system and also summaries of activity on the part of MEMBER or for the system as a whole.

TO COMPOSE/SEND (8)

Places the user into a TEXT COMPOSITION MODE where he may write and edit a PAGE of TEXT for use later on. The TEXT will remain in what is, in effect, a one PAGE SCRATCHPAD until it is REMOVED.

The user may, at any time, EDIT this SCRATCHPAD and use it as a MESSAGE, COMMENT in a CONFERENCE, or as a PAGE in a NOTEBOOK. It also means that if the MEMBER is interrupted while COMPOSING, he or she may sign-off the system and come back later to finish the text without any loss of material already written in the SCRATCHPAD space.

TO MONITOR/AUDIT (9)

Allows MEMBERS, MODERATORS, AUTHORS and the MONITOR the privileges of ESTABLISHING, MODIFYING and REMOVING various items of information and system components.

EXPLANATION CHOICE

GET (1)
DISPLAY (2)
SEARCH/FIND (3)

These options operate exactly as for a NOTEBOOK or similar activity. See CHOICE.

For the remaining choices, the user receives the TITLES (including INDEX words) of a set of PAGES making up a SEQUENCE and is then asked

PAGES (#/#FF)?

The user then indicates the pages to be printed out. These SEQUENCES of PAGES are designed to provide the user with a basic explanation and an indication of other material (PAGES) he or she may wish for more details. The topics covered are:

GENERAL DESIGN (4)

An overview of the system and its philosophy.

MESSAGE SYSTEM (5)
CONFERENCES (6)
NOTEBOOKS (7)
BULLETINS (8)

A description of each of the above components and how they are structured for use by the MEMBERS and GROUPS.

SPECIAL FEATURES (9)

Describes such things as AIDS, SHORTCUTS, INTERACTION MODES and other SET options.

TEXT EDITING (10)

Provides examples of how each text editing command operates.

SEARCHING (11)

Explains the options on the MEMBER/GROUP, TEXT and MESSAGE SEARCH CHOICES.

AUDITING (12)

Explains how to ESTABLISH, MODIFY, or REMOVE various activities.

REVIEW CHOICE?

MESSAGES (1)

This provides the user with a listing of the MESSAGES that he or she has written and which have not yet completed their delivery process. Two lines are printed for each MESSAGE. The first line is the TITLE of the MESSAGE and the second is a list of to whom the MESSAGE is sent. After the list is printed, the user is asked

MESSAGES (#)?

At which point specification of MESSAGE NUMBERS will cause the contents of those MESSAGES to be printed. The user may also use negative MESSAGE NUMBERS to cause REMOVAL of obsolete MESSAGES.

CONFERENCE (2)

This will cause one line to be printed for each CONFERENCE the user is a MEMBER of. The user will be informed of the date and TIME he or she was last active in the particular CONFERENCE, the user's MARKER or location in the COMMENTS and the NUMBER of COMMENTS the user has not seen. After this list the user is asked

CONFERENCE (NAME/#)?

For whatever CONFERENCES are indicated, all the COMMENTS the user has not seen are printed out.

NOTEBOOKS (3)

This will cause a list to be printed out of any NOTEBOOKS of other MEMBERS that the user has been entitled to read and/or write in. The listing will indicate the NUMBER and AUTHOR, the DATE the user was entered, and the range of PAGES the user can read as well as the range the user can write in. It will indicate the NUMBER of PAGES the user has not seen. After this the user is asked

NOTEBOOK (NAME/#)?

For the NOTEBOOKS indicated, any PAGES the user has not seen and is entitled to read are printed out.

BULLETINS (4)

This will cause three lines to be printed out for each BULLETIN the user belongs to in terms of being a GROUP MEMBER. One line each for REPORTS, NEWS, ASSESSMENTS, indicating how many items the user has not seen. After this the user is asked:

BULLETIN (NAME/#)?

For the BULLETINS chosen, a list of TITLES is printed out for all new items.

MEMBERS/GROUPS (5)

The user is asked:

MEMBER/GROUP (NAME/#/ON)?

For each MEMBER indicated, one line is printed out indicating the DATE and TIME that individual was last active in the system and it will also indicate if the individual is currently on-line or if the individual has a special status such as CONFERENCE MODERATOR, GROUP COORDINATOR, EDITOR, OBSERVER, etc. If the user specifies "ON", then the list will be of those individuals using (on) the system at that moment in time. As an added convenience, one may put in the GROUP NUMBER, followed by the letter C,M,E and will then retrieve, respectfully, the person who is the GROUP COORDINATOR, MODERATOR of the GROUP CONFERENCE, or EDITOR of the GROUP BULLETIN. This option is available any time a MEMBER/GROUP NUMBER may be specified.

MEMBER/GROUP STATUS (6)

The MEMBER is then asked:

GROUP (NAME/#/CR)?

The MEMBER may then indicate any GROUP to which he or she belongs and receive a summary of the GROUP'S usage of the system for the current month and an accumulated total, since the MEMBERS of the GROUP joined the system. Use of the carriage return provides the same information for the MEMBER alone.

The information provided is as follows:

- number of times on
- hours and minutes of use
- number of text items received
- number of text items composed
- number of messages received
- number of messages sent
- number of lines of text received
- number of lines of text composed

SYSTEM STATUS (7)

Provides the user the same review as (6) but totaled for all MEMBERS as well as:

- number of members
- number of notebooks and pages
- number of groups
- number of conferences and comments
- number of bulletins and items
- total active pages of text in the system

The above computations for GROUPS or the total membership is accumulated once a day and does not reflect the current days activity. For an individual MEMBER the data is accumulated when he signs off so it does not reflect his current session at the terminal. However, when the MEMBER signs off he is automatically given a summary of the activity during that particular interaction session which will be added to the quantities defined in choice (6).

COMPOSE CHOICE?

SAVE TEXT (1)

Will see that text is stored for later use in the SCRATCH-PAD. The user is told how many lines of text has been used. Anytime the user starts to COMPOSE or WRITE another item, he or she will start off with the text in the SCRATCHPAD and be given the first available unused line as the starting point. The user is returned to INITIAL CHOICE.

FORGET TEXT (2)

Essentially REMOVES the text and resets the SCRATCHPAD to being empty. User is returned to INITIAL CHOICE. The same operation could have been accomplished when COMPOSING the text by entering '**,+'. (See Text Editing Section)

MESSAGE (3)

Starts the MESSAGE SENDING PROCEDURE utilizing the text in the SCRATCHPAD as the MESSAGE and returns to COMPOSING TEXT when done. The text in the SCRATCHPAD will not be changed so the user could now file it in his or her NOTEBOOK if desired.

NOTEBOOK (4)

Assumes text is to be added to user's personal NOTEBOOK and triggers the ADD PAGE PROCEDURE. User will find him/herself at the NOTEBOOK CHOICE when the PROCEDURE is done. The text in the SCRATCHPAD is deleted. This is, in fact, the only action which automatically REMOVES text from the SCRATCHPAD, i.e. filing it in the NOTEBOOK.

CONFERENCE (5)

Will ask the user

CONFERENCE (NAME/#)?

and then trigger the ADD COMMENT PROCEDURE, utilizing the SCRATCHPAD text. After this, the user will find himself at the CONFERENCE CHOICE for the particular CONFERENCE chosen. The text in the SCRATCHPAD will remain unchanged.

NEWS (6)

ASSESSMENT (7)

Will result in the user being asked:

BULLETIN (NAME/#)?

and then trigger the SUBMIT NEWS or ASSESSMENT ITEM PROCEDURE. The user will be returned COMPOSING TEXT when done and the SCRATCHPAD text will be unchanged. Because all material on a REPORT should be stored in a NOTEBOOK there is no facility for SUBMITTING text from the SCRATCHPAD as a REPORT.

.. . . . CHOICE
MESSAGE CHOICE?
CONFERENCE CHOICE?
NOTEBOOK CHOICE?
REPORT CHOICE?
NEWS CHOICE?
ASSESSMENT CHOICE?
SUBMISSION CHOICE?

Each of the above offer the user the same set of options. However, just before this choice is offered, if the specific collection of text contains information the user has not seen, the following will occur for all the above cases, except the MESSAGE CHOICE.

NEW TEXT ITEMS
ACCEPT NEW ITEMS (Y/N/#)?

The user may respond with YES, NO, or a NUMBER indicating how many he wants to see now if not all of them. The use of the YES will cause any items written while the user is on to be presented. For the MESSAGE CHOICE, new MESSAGES are printed out automatically*:

GET (1)

This causes the question

.... (#/#-#/#FF/#A)?
(pages/comments/abstracts/items/statements)

One may enter a series of numbers such as:

101, 97, 105-109, 83

This will cause all the items having the numbers specified to be printed out. For MESSAGES, only the AUTHOR or one of the ADDRESSEE'S may retrieve a given MESSAGE. MESSAGES which have completed their routing are automatically REMOVED from the system the day following completion and can no longer be retrieved. For CONFERENCE, NOTEBOOK, NEWS and ASSESSMENTS, one may specify an FF after a COMMENT or PAGE number to retrieve an established SEQUENCE of items, beginning at the indicated page number and going to the end of the SEQUENCE. One may also specify an A after a number to get any COMMENTS or PAGES that have been ASSOCIATED with the specified item. For REPORTS, the GET operation produces a TITLE and ABSTRACT of the REPORT. The FF option may be used to produce the whole REPORT or any part of it. The A option will produce any public COMMENTS by REFEREES or the EDITOR.

* In addition, if the user had indicated a YES to acceptance of MESSAGES in the start procedure then new MESSAGES are always printed out before any CHOICE questions.

DISPLAY (2)

This works like the GET operation except that only TITLES of the items are printed out.

SEARCH/FIND (3)

This produces a set of choices providing different options or conditions for finding a particular set of text items.

SEND/COMPOSE/SUBMIT (4)

This is equivalent to the COMPOSE CHOICE and utilizes the same SCRATCHPAD, except that the system assumes the item written will be committed to the particular CONFERENCE, NOTEBOOK, etc., that the MEMBER is working with. Therefore, the appropriate procedure (set of specific questions) will be triggered upon completion of the text. These particular procedures are

MESSAGE
NOTEBOOK PAGE
CONFERENCE COMMENT
NEWS ITEM
NEWS COMMENT
ASSESSMENT ASSERTION
ASSESSMENT COMMENT

and are described under the PROCEDURES section of these EXPLANATIONS. In the case of a REPORT, no opportunity to COMPOSE text is provided.

MODIFY/REMOVE (5)

If one wishes to MODIFY or EDIT a text item, the NUMBER of the item should be provided in response to

MODIFY ITEMS (#/#-#/-#)?

If one wishes to REMOVE or delete the item, then the item then the NUMBER of the item should be preceded by a minue sign '-' (e.g. -8, -11, -1-5)
In this case the TITLES of the item will be printed out and the user will be asked

OKAY TO REMOVE (Y/N)?

This question will apply to all the item titles displayed and a YES will cause their removal. An AUTHOR of a text item can REMOVE an item at any time unless it has been placed in the BULLETIN. Anyone retrieving such an item will be informed that it was REMOVED.

ORGANIZE (6)

This CHOICE allows the user various options for ORGANIZING or arranging the TEXT he is concerned with. It provides TRANSFERRING, MOVING or copying text items as well as modifying SEQUENCES, ASSOCIATIONS, and INDEXES.

SET (7)

This allows the user to change various parameters, interaction modes, or utilize certain special options provided by the system.

TEXT SEARCH CHOICE

When one chooses one of the options below, a SEARCH is conducted which results in the following NESTING PROCEDURES for any of the choices.

- 1) The first twenty item NUMBERS found and the total number of items found are printed out.
- 2) The question is asked

CONTINUE SEARCH (Y/N)?

If a YES is chosen one returns to the TEXT SEARCH CHOICE and is able to specify another or the same option. The SEARCH will now be conducted on only those items found previously. This NESTING procedure may be repeated as many times as desirable.

- 3) If a NO is specified in (2) the following question is asked

GET/DISPLAY (Y/N/T)?

A YES will print out the contents, a NO nothing and T for TITLES will print a list of the TITLES. After this the user returns to the SEARCH CHOICE.

NUMBERS (1)

Allows the user to specify a set or range of ITEM numbers and essentially discover which items have anything in them.

ITEMS (#/#-#)?

ASSOCIATION (2)

Results in

ASSOCIATION (#)?

Will limit SEARCH to finding items associated with the items specified. The original AUTHOR of an item declares what other item it is ASSOCIATED with.

SEQUENCE (3)

Results in

SEQUENCE (#,#-#)?

Will find all items which belong in a sequence which has the specified page in it or beginning at one item number and ending at another (#-#) in the sequence. SEQUENCES are specified independent of the actual numerical order of text items and allow any series of text items to be declared.

FROM-TO DATES (4)

Results in

FROM (MM/DD HH.MM)?
TO (MM/DD HH:MM)?

Will find all items written or edited within specified range of date and time. One may specify year and seconds if appropriate. Leaving out TO assumes present date and time. Also leaving out the date assumes today's date and leaving out the time assumes anytime on that day.

AUTHORS/EDITORS (5)

Results in

AUTHORS/EDITORS (NAME/#)?

where SEARCH will be for any item AUTHORED or MODIFIED by the indicated individuals.

WORDS/PHRASES (6)

One specifies a word or set of words (or condition in response to

WORDS/PHRASES (/TEXT/)?

Entering more than one word or phrase separated by slashes is considered an OR condition.
The question is then asked

LINES(I/#/#-#)?

where the user may now restrict the SEARCH to the INDEX only 'I' or to a single line or set of lines in the items. A carriage return alone will result in a FULL TEXT SEARCH for each item.

One must specify the word or phrase within slashes (/) e.g./nuclear/.

COMBINATION (7)

This will result in the question

```
        ITEMS (#,#-#)?  
        OR ASSOCIATION (#)?  
        OR SEQUENCE (#,#-#)?  
AND  
        FROM (MM/DD HH:MM)?  
        TO (MM/DD HH:MM)?  
        OR MEMBER (NAME/#)?  
AND  
        WORD/PHRASE (/TEXT/)?  
        LINES (I/#/#-#)?
```

where the user may fill-in only those conditions desired for a COMBINATION SEARCH.

MESSAGE SEARCH CHOICE

There is no NESTING PROCEDURE and no COMBINATION SEARCH.
At the end of the SEARCH the user is told how many items
were found and asked

GET/DISPLAY (Y/N/T)?

If he chooses TITLES then when that is complete the
user is asked

MESSAGES (#/#-#)?

And given a chance to retrieve individual MESSAGES.
All searches are limited to the MESSAGES for which the
user is an AUTHOR or ADDRESSEE and which have not
delivered and REMOVED from the system.

AUTHORS (1)

Results in

AUTHORS (NAME/#)?

And allows user to specify that only MESSAGES written
by a particular individual will be sought.

FROM-TO DATES (2)

Allows user to specify retrieval of only MESSAGES
written in a certain time frame.

WORD/PHRASE (3)

Allows user to SEARCH text of all MESSAGES to find ones
with specified WORD or PHRASE.

TYPE (4)

Allows user to request certain special types of MESSAGES

TYPE (A/O/D/R)?

where

A implies APPROVAL REQUIRED
O implies ORDERED delivery
D implies it was a DELAYED MESSAGE
R implies regular unconditional message.
A carriage return will pick up all
conditional messages and ignore
regular messages.

See MESSAGE SENDING PROCEDURE for more details.

MEMBER/GROUP SEARCH CHOICE

This search provides the same NESTING PROCEDURE as the TEXT SEARCH.

NUMBERS (1)

User may specify ranges of MEMBER or GROUP NUMBERS

MEMBER/GROUPS (#/#-#)?

ZIPCODE (2)

Allows the user to specify one to six digits of a ZIPCODE and search will match from the left of the stored ZIPCODES on just the number of digits specified.

ZIPCODE?

ACTIVITY (3)

Results in question

MEMBER/GROUPS (#,#-#)?
ACTIVE FROM (MM/DD HH:MM)?

which allows user to ask for MEMBERS who have been active from the specified date/time until the present and to restrict it to specific groups and members.

FROM-TO DATES (4)

Allows the user to find out what MEMBERS or GROUPS were ESTABLISHED in the specified time frame.

FROM (MM/DD HH:MM)?
TO (MM/DD HH:MM)?

WORDS/PHRASES (5)

Allows the user to specify a word or phrases that will be used to search the DESCRIPTIONS for all MEMBERS and GROUPS.

WORD/PHRASE (/TEXT/)?

COMBINATION (6)

This will result in the questions

MEMBER/GROUPS (#/#-#)?
OR ZIPCODE?
AND
ACTIVE FROM (MM/DD HH:MM)?
OR FROM (MM/DD HH:MM)?
TO (MM/DD HH:MM)?
AND WORD/PHRASE (/TEXT/)?

where the user may fill in the conditions desired for
a COMBINATION SEARCH.

BULLETIN CHOICE

Each section of the BULLETIN (REPORTS, NEWS, ASSESSMENTS) is in effect composed of two parts: one, those items that have been ACCEPTED by the EDITOR and may be read by anyone; two, those times under review which may only be read by the EDITOR and the REFEREES assigned by the EDITOR. For REPORTS only the ABSTRACT is actually stored in the REPORT SECTION along with a link that allows the actual text to be retrieved from the AUTHOR'S NOTEBOOK. While each PAGE of an item has two DATES associated with it (when written and when last modified) an item in the BULLETIN has two additional DATES: when SUBMITTED and when ACCEPTED. The AUTHOR of an item is free to make MODIFICATIONS at any time; however this will show-up in the MODIFICATION DATE associated with the particular PAGE and the one associated with the ABSTRACT which always shows the latest MODIFICATION date existing in the REPORT.

GET REPORTS (1)
GET NEWS (2)
GET ASSESSMENTS (3)

Allows reader of the BULLETIN to examine the items in these sections.

GET DESCRIPTION (4)

Provides a short statement on the goals and objectives of the BULLETIN and the identification and DESCRIPTION of the GROUP associated with the BULLETIN. Also indicates who is the EDITOR, GROUP CONFERENCE MODERATOR and GROUP COORDINATOR.

TO REFEREE (5)

This choice will REVIEW the status of REFEREE CONFERENCES the MEMBER is entitled to participate in as an AUTHOR or REFEREE and then ask

CONFERENCE (NAME/#)?

at which point the individual can initiate or continue his participation in one of the CONFERENCES.

TO EDIT (6)

This choice is available only to the EDITOR and provides him the options for carrying out his tasks.

EDITOR CHOICE

EXAMINE SUBMISSIONS

REPORTS (1)
NEWS (2)
ASSESSMENTS (3)

These are obtained for the EDITOR the same set of CHOICES as available to the AUTHOR of a NOTEBOOK. Any items SUBMITTED are automatically COPIED to these special NOTEBOOKS for the EDITOR including certain preformatted information asked of the MEMBER who executed the SUBMISSION PROCEDURE. However the EDITOR cannot REMOVE a SUBMITTED ITEM. Also items receive a unique SUBMISSION number which the AUTHOR is provided when SUBMISSION occurred.

ACCEPT SUBMISSIONS

REPORTS (4)
NEWS (5)
ASSESSMENTS (6)

This triggers the question

SUBMISSION NUMBERS (#)?

which results in the TITLE of each item printed-out and the question

EDITOR DECISION (A/R)?

where an A means ACCEPT and R means REJECT and anything else skips the question. An ACCEPTANCE or REJECTION causes a one line NOTICE to be sent to the AUTHOR indicating what has occurred. It would be the responsibility of the EDITOR to separately MESSAGE any explanations of his action. The ACCEPTANCE causes the item and any ASSOCIATED COMMENTS attached by the EDITOR to be TRANSFERRED to the appropriate PUBLIC part of the BULLETIN.

ESTABLISH REVIEW (7)

This causes the questions

REPORT SUBMISSION NUMBER (#)?
REFEREE MEMBER NUMBERS (#)?

This causes a list of all AUTHORS and REFEREES to be printed and asks for a fake name for each REFEREE and the EDITOR. The EDITOR is then asked

OKAY TO ESTABLISH CONFERENCE (Y/N)?

If YES the CONFERENCE is set up and a one line NOTE goes to each party identifying the conference. Also the basic information on the REPORT and its ABSTRACT is made available as the first items in the conference.

ORGANIZE CHOICE

This choice applies to a particular FILE of TEXT material. Those options which make changes to the TEXT items can only be performed by those individuals who have the privileges to MODIFY the items or the FILE. For example:

AUTHOR of a NOTEBOOK
CO-AUTHOR of a part of a NOTEBOOK
AUTHOR of a COMMENT in a CONFERENCE
MODERATOR of a CONFERENCE
EDITOR of a BULLETIN

REVIEW STRUCTURE (1)

This will cause the following questions

SEQUENCE ITEM (#)?
ASSOCIATION ITEM (#)?

If an item number is specified for the first question then a list of the sequence in which that item appears will be printed such as

TOTAL PAGES = 10
5,7,35,20-25,41

If an item number is specified for the second question then an outline MAP of associations is provided in the form

22<21<17<3
 <4<7
 <16
 <32<17

where 21 was the specified item and in essence an outline of the associations are presented.

If no item is specified for either choice then a quick summary is produced giving the

- 1) First item number in a SEQUENCE for each separate SEQUENCE.
- 2) Item numbers not associated with any other item but which have at least one item associated with it (i.e. the first item in an ASSOCIATION outline).

ASSOCIATE (2)

Asks the user for

ASSOCIATIONS (#<#,#)?

Where

21<5,3,6, 7<8,35

would indicate that items 5,3 and 6 should be associated with 21 and items 8 and 35 should be associated with 7. The use of a zero '0' destroys an ASSOCIATION without creating another e.g. '0<5' disassociates 5 from whatever it was associated with. If the answers causes a change in an existing ASSOCIATION the user is notified of the change. Only an individual entitled to MODIFY an item of text can change or create an ASSOCIATION for the item.

SEQUENCE (3)

Asks the user for

SEQUENCE (##,##-#)?

Where, for example,

21,5-8,23,10

would create a SEQUENCE of 7 items. If 21 was the end of an existing SEQUENCE or 10 the beginning of an existing SEQUENCE one would be extending either SEQUENCE. The specification causes a replacement of any existing links. If one wishes to destroy a link in the chain a zero '0' is used. For example

5,7,21,35,54,13

may be broken into

5,7,21 and 35,54,13

by specifying

21,0 or 0,35

The user is notified of changes and only an individual who is entitled to MODIFY one of the two text items being linked can specify a SEQUENCE link. If the action breaks an existing SEQUENCE or inserts into it then the individual must be privileged to MODIFY one of the items in the existing LINK.

TRANSFER/MOVE (4)

This allows the user to MOVE a set of items to a new location in the file. The first question asked is

FROM (##-##/FF/#A/CR)?

where he may specify a set of items (PAGES, COMMENTS, etc.) that are to be MOVED. This is followed by

TO (##-##)?

which specifies into what item numbers the items are to be moved. If an item already has something in it the TITLE will be printed-out and the question asked

SKIP OVER (Y/N)?

A 'NO' will terminate the MOVE at that point and return to the FROM? for specifying alternative numbers. A 'YES' will go to the next available item NUMBER. If not enough item numbers are specified to accept the item being moved then the system will keep incrementing the last item number by one. Therefore the user only has to specify the first number if the items are to be numerical order. A user may bring items into the file from other places provided he is entitled to REMOVE or delete them from where they now exist. This is equivalent to REMOVING them from the other location in the system.

If the user returns the carriage on the FROM question without specifying anything, then the user is asked to indicate from what other file of text items he or she wishes to get text items.

SOURCE TYPE (M/C/N/CR)?

where the letters indicate

M	Messages
C	Conference
N	Notebook

The user is then asked one of the following alternatives as a result of the answer to the above question

- 1) MESSAGE NUMBERS (#)?
- 2) CONFERENCE (NAME/#)?
COMMENTS (#)?
- 3) NOTEBOOK (NAME/#)?
PAGES (#)?

If the Carriage is returned on the SOURCE question and no information was supplied on the FROM question then the system will assume the whole file the user is in beginning at the TO point specified will be renumbered to eliminate unused or deleted text items.

COPY (5)

The COPY works just like the TRANSFER/MOVE except the item is not REMOVED from its original position. Also the SOURCE question now has the options

SOURCE TYPE (M/C/N/R/I/A)?

where the new letters indicate

R	Reports
I	News Items
A	Assessments

and these trigger the following question

BULLETIN (NAME/#)?
SUBMISSION NUMBERS (#/#FF/#A)?

see the REPORT RETRIEVAL PROCEDURE for information on how specific pages of a REPORT or COMMENTS on ASSERTIONS maybe retrieved with this question. Anything the individual can READ except for MESSAGES that are PROTECTED can be copied.

The purpose of both the TRANSFER and COPY functions is to allow users the opportunity to communicate text items between different components of the system. E.G. using a PAGE of TEXT in a NOTEBOOK as a COMMENT in a NOTEBOOK to develop further, recording a MESSAGE in a NOTEBOOK, etc.

INDEX/KEY (6)

This choice allows the user to specify that a certain word or phrase may be used as an INDEX to a particular ITEM. The question asked is

INDEX (/WORD/#,#)?

Entering for example

/NUCLEAR/5,8-10

would cause the word NUCLEAR to be an INDEX for items 5,8,9,10. Entering only the item numbers cause the current INDEXES for the items to be printed out. A minus NUMBER is used to REMOVE and INDEX, e.g.

-/NUCLEAR/5,8-10

would eliminate the word NUCLEAR as an INDEX for items 5,8,9 and 10. If the user is attempting to enter a word already used or for which the beginning of the word is there, he or she is notified. Also trying to REMOVE a word not there will cause a notification.

SET CHOICE

INTERACTION MODE (1)

This causes the following three questions

SHORT MENU (Y/N)?

A YES skips the next question

COMMAND (Y/N)?

A NO assumes LONG MENU mode.

AUTOMATIC (Y/N)?

As a result the user may be in the LONG MENU, SHORT MENU or COMMAND MODE:

SHORT MENU

no list of CHOICE options printed
before CHOICE?

COMMAND

no CHOICE asked only the question
'COMAND?'

The MODE may be set differently for any specific CONFERENCE, the MEMBERS NOTEBOOK or any BULLETIN where the MEMBER belongs to the GROUP associated with the BULLETIN. This is done by setting the MODE while participating in the particular activity. If the MODE is set at any other time then that MODE applies to all other activities such as MESSAGES and while reading BULLETINS the MEMBER is not associated with.

The AUTOMATIC MODE causes all NEW items to be printed out (only ABSTRACTS in the case of REPORTS) whenever the activity is triggered. In the case of a CONFERENCE this MODE also returns user to COMPOSE activity whenever printout of NEW items is completed. Utilizing a + or - with no text causes the CONFERENCE CHOICE to appear even while in the AUTOMATIC MODE.

PARAMETERS (2)

This option allows the user to set certain PARAMETERS associated with the particular activity. For example, in a CONFERENCE the user can change the MARKER that indicates what the user has or has not seen. Such a MARKER also exists for the AUTHOR of a NOTEBOOK and the MEMBER of a group associated with a particular BULLETIN. The BULLETIN MEMBER has a MARKER actually for each of the three sections: REPORTS, NEWS, ASSESSMENTS. One specifies the MARKER by an item number of the last item seen.

MARKER (#)?

LINE PAUSE ON/OFF (3)

This allows the user to indicate that the system should stop after a specified number of uninterrupted lines are printed out and ask the question

CONTINUE (Y/N)?

where a YES continues the printout and a NO returns to a CHOICE or COMMAND question.

This LINE PAUSE option causes the question

LINE PAUSE ON (Y/N)?

if YES then the following is asked

PAUSE EVERY # LINES
SET NUMBER OF LINES (#)?

RECEIVE ONLY ON/OFF (4)

If ON the terminal will not ask the user for any input and will continue to print out anything new occurring in terms of MESSAGES and any particular CONFERENCE the user may be active at that moment. When the user wishes to enter something then one presses the BREAK key. This places the user in a CHOICE or COMMAND MODE until a PROCEDURE is completed whereupon the user is returned to RECEIVE ONLY. The questions asked for this option is

RECEIVE ONLY (Y/N)?
if YES
CUTOFF DELAY (MINUTES)?

causes the RECEIVE ONLY to terminate after the specified delay

ACTIVITY (MEMBER#'s)?

causes the RECEIVE ONLY to terminate if the indicated MEMBERS writes a MESSAGE or COMMENT that is printed out.

MEMBER LINK (5)

This allows the user to request LINKING his terminal to another MEMBER who is on at the time. This is provided to allow individuals to coach one another in use of the system by being able to see what is being entered at each terminal. The user is asked

MEMBER NUMBER (#)?

and will be told if the member agrees to the LINK.

REMOTE PRINT (6)

Allows the user to PRINT a large number of pages on the high speed printer which would later be mailed.

PROCEDURES (7)

This option will be expanded later to allow the user to set up multiple PROCEDURES. Initially this option will only allow the user to specify one line of answers to a series of questions which may be utilized (supplied as answers) by entering the @ symbol in response to a particular question. This option is best understood by illustrating with an example of where such a feature is convenient.

The user is on and wishes to hold an intense discussion with four others who are also on the system at that time. The user triggers the SET PROCEDURE and responds as indicated

```
SPECIFY PROCEDURE ON NEXT LINE
? ALAN, TOM, IRENE, MARTY; Y,Y,4
```

after this let us assume the user returns to or gets to MESSAGE CHOICE

```
MESSAGE CHOICE? 4
```

the user now writes a message and then indicates a + as an indication the text is complete. Now the user is asked

```
TO? @
```

by using the @ sign he or she causes all the following questions to be supplied with the answers previously stored by the SET PROCEDURE.

```
TO: ALAN, TOM, IRENE, MARTY;
```

Sends MESSAGE to all (the semicolon(;)) is used to signify end of the multiple answers to one question.

```
CARBON COPIES INDICATED (Y/N): Y,
OKAY TO SEND (Y/N): Y,
```

at this point any MESSAGES waiting are automatically delivered

```
MESSAGE CHOICE: 4
```

the user is now once again back to writing a message and may repeat the use of the @ to continue the discussion with the other four MEMBERS.

In essence the @ is a SUPER COMMAND the user can define to be anything desired. Later the system will be extended to allow a number of multi-line PROCEDURES to be defined. If the user has not been sure of all his answers, the use of a period (.) instead of an answer causes the question at that point in the PROCEDURE to be asked of the user at the terminal and then to continue with the answers already supplied.

MONITOR/AUDIT CHOICE

This choice allows for ESTABLISHING, MODIFYING or REMOVING the various components of the EIE System. Only certain individuals having certain assigned responsibilities may actually utilize a particular CHOICE. This is clarified in the following table. The SYSTEM MONITOR (SM) may, when needed, exercise any option. However, where the MONITOR is indicated in the table implies that the function is exclusively that of the SYSTEM MONITOR.

When one of the CHOICES is made the user is asked for the item or identification number:

IDENTIFICATION (#)?

The possible responses are

- # item number already defined for the CHOICE implies MODIFICATION
- # item number not now used implies ESTABLISH using the indicated NUMBER
- cr ESTABLISH using any available item number or only allowed one.
- # REMOVE (dis-establish) the item

A determination is then made if the MEMBER is privileged to perform the indicated function. See the ESTABLISH, MODIFY or REMOVE PROCEDURES for further details.

TABLE OF PRIVILEGES

SYSTEM COMPONENTS

	IDENTIFICATION NUMBER	ESTABLISH	MODIFY	REMOVE
MEMBER	3 digits	SM	Member	SM
TEMPORARY CONFERENCE	Moderator's Member Number	Member	Conference Moderator	Conference Moderator/ Automatic
CONFERENCE	2 digits	SM	Conference Moderator	Conference Moderator
GROUP CONFERENCE	Group Number	Group Coordinator	Conference Moderator	SM
NOTEBOOK	Author's Member	Group Coordinator	Author	Author/ Group Coordinator
BULLETIN	Group Number	Group Coordinator	Editor	SM
EXPLANATION	X	X	SM	X
PROCEDURE	Notebook Page Number	Member	Member	Member

As can be seen from the table a MEMBER may have a NOTEBOOK, and may set up a TEMPORARY CONFERENCE but only one of each at any time. However a particular MEMBER may also be designated as MODERATOR in other conferences set up by the System Monitor. The numbering system implies ultimate limits of 900 members and 90 GROUPS which appear to be reasonable on a mini computer configuration. Given the user has selected a CHOICE and indicated which MEMBER, CONFERENCE, etc. is being dealt with, then an appropriate PROCEDURE is triggered.

PROCEDURES

A PROCEDURE is a sequence of questions providing certain options for the MEMBER. Certain conventions are observed:

- 1) A 'Y' for YES or a CARRIAGE RETURN provides the frequent, simplest, or regular choice for the particular question.
- 2) A '+' sign stops the PROCEDURE and assumes all other needed YES/NO questions were YES so that all answers are in effect supplied. Questions are usually sequenced in the order of most frequent expected use of the options.
- 3) A '-' also stops the PROCEDURE but assumes none of the answers were valid so user is returned to the CHOICE which initiated the PROCEDURE.
- 4) An OK question indicates a chance to terminate or conclude the sequence with a YES. Usually a summary of answers is provided just before the OK. A NO may trigger additional options in terms of questions or restarts the PROCEDURE. When reanswering questions a carriage return leaves the previous answer unchanged if other than a YES/NO question.

MESSAGE SENDING PROCEDURE

This PROCEDURE triggers the following ordered set of questions usually triggered by a + in the TEXT COMPOSITION mode or COMPOSE CHOICE: 3

TO (#'S/NAMES)?

Entered is a series of one or more NAMES or NUMBERS of MEMBERS or GROUPS. The writer must belong to the GROUP in order to be able to indicate the MESSAGE is to be sent to the whole GROUP.

Only the SYSTEM MONITOR may send a MESSAGE to EVERYONE.

WHO RECEIVED NOTED (Y/N)?

Only asked if SENT to more than one MEMBER or GROUP. A YES will let every addressee know who else got it.

OKAY TO SEND (Y/N)?

A YES will send the MESSAGE and inform the writer of the MESSAGE NUMBER, DATE and TIME attached to the MESSAGE. The MESSAGE NUMBER may be used later by the originator to retrieve or REMOVE it.

A NO will cause additional questions allowing other conditions to be placed upon the MESSAGE. The other questions triggered by the 'N' are as follows:

SIGNATURE (Y/N/PEN)?

YES will use the MEMBER'S real NAME and a NO will send the MESSAGE anonymously. The word PEN causes the MEMBER'S PEN NAME to be used as the signature of the MESSAGE.

REGULAR CONFIRMATION (Y/N/S)?

The Y or YES for REGULAR CONFIRMATION implies the writer gets a one line CONFIRMATION every-time someone receives the MESSAGE. A NO means no CONFIRMATION is to be returned and an S for SUMMARY provides a CONFIRMATION when approximately 1/4, 1/2, 3/4 and all the addressees have received the MESSAGE.

MESSAGE SENDING PROCEDURE (continued)

IMMEDIATE DELIVERY (Y/MM/DD/YY HH:MM)?

Supplying a DATE and/or TIME means the MESSAGE will not be sent to anyone until the indicated DATE and TIME. This is then a DELAYED MESSAGE. Conversely, if one leaves out the DATE then current day is assumed. One may also leave off the year (mm/dd) and current year is assumed. TIME does not have to be supplied. If the MESSAGE is anonymous or signed with the PEN option, the delayed DATE and TIME will be used as the originate DATE and TIME for the MESSAGE.

REGULAR CUTOFF (Y/DAYS)?

The SYSTEM MONITOR sets a limit on how many days old a MESSAGE can be before it is automatically REMOVED even if not DELIVERED. The user may SET a CUTOFF DELAY less than the one for the SYSTEM. When a MESSAGE is REMOVED in this manner the originator of the MESSAGES receives a one line notice of the action.

ANY DELIVERY ORDER (Y/N)?

A NO causes the MESSAGE to be delivered in the order the originator supplied the addresses in the 'TO' question.
A YES delivers to an addressee whenever possible regardless of order. This and the next question is only asked if there is more than one addressee.

APPROVALS NOT REQUIRED (Y/#)?

Specifying a number means that the first # of the addressees must OKAY the MESSAGE before it can be delivered to the rest of the ADDRESSEES. One cannot use a GROUP NUMBER for those who must APPROVE the MESSAGE.

MESSAGE SENDING PROCEDURE (continued)

UNPROTECTED (Y/N)?

A NO means a receiver cannot COPY the MESSAGE into his NOTEBOOK or other system text files. Also, the MESSAGE is immediately REMOVED from the system after DELIVERY*

After these questions, a SUMMARY of any non-YES answers is provided and then OKAY TO SEND (Y/N)? is repeated. The user is then provided the MESSAGE NUMBER and the DATE and TIME of origination attached to the MESSAGE. The user is then returned to the composing of text and a '-' may be used to return the user to the previous choice.

*At present it is planned that the text of MESSAGES without information on ADDRESSEES and SENDER would be archived for later use by those EVALUATING use of this system. The PROTECT option would prevent the Archiving of the MESSAGE. This and related PRIVACY issues will be examined as part of the EVALUATION part of this project.

ADD PAGE PROCEDURE
ADD COMMENT PROCEDURE

This PROCEDURE is triggered by a '+' when COMPSOING TEXT while in a CONFERENCE or NOTEBOOK or by COMPOSE CHOICE: 4 or 5.

ASSOCIATION (#)?

Allows user to specify a COMMENT or PAGE NUMBER with which the item being written is to be associated. Carriage RETURN means no association is specified.

OKAY TO ADD (Y/N)?

A YES will cause the COMMENT or PAGE to be added and the TITLE will be printed out for the writer. A NO will cause the following questions.

INDEX WORDS (/word/phrase/)?

Allows the writer to specify a set of INDEX words or phrases for the COMMENT.

SEQUENCE AFTER (#)?

SEQUENCE BEFORE (#)?

Allows the user to place the COMMENT or PAGE before and/or after another item in a SEQUENCE. This may only be done if the other items are not already LINKED or if the user has also written one of the two items already linked. If this is the case the new COMMENT is inserted in the SEQUENCE rather than breaking it unless both BEFORE and AFTER are specified.

SIGNATURE (Y/N/PEN)

YES signs item with the user's real name.
NO provides an anonymous COMMENT or PAGE.
PEN automatically uses the writer's PEN NAME as the signature.

VOTING NOT REQUIRED (Y/N)?

A NO triggers the VOTING SCALE CHOICE for attaching one or two scales to a VOTABLE COMMENT or ASSERTION in a CONFERENCE. This last option is not asked in a NOTEBOOK.

ADD PAGE PROCEDURE

ADD COMMENT PROCEDURE (continued)

At this point a summary of non-YES answers are printed out and the OKAY TO ADD question is repeated. In the case of a NOTEBOOK the user is then provided the NUMBER of the first free PAGE and asked:

PAGE (#)?

at which point the user indicates which PAGE to next EDIT or COMPOSE.

SUBMIT REPORT PROCEDURE

This is triggered by REPORT CHOICE: 4

TITLE (UP TO 3 LINES)

1?

2?

3?

Allows the AUTHOR to specify a TITLE for the REPORT

COAUTHORS (#,#,.)?

Individual should specify the identification NUMBERS of COAUTHORS of the PAPER. The MEMBER supplying the information is the principal AUTHOR and REPORT is assumed to be in his or her NOTEBOOK.

REAL NAMES (Y/PEN)?

Author may specify PEN NAMES to be used instead of REAL NAMES for AUTHOR in which case the existence of COAUTHORS (number of) is indicated in TITLE but not actual NAMES.

ABSTRACT PAGE NUMBER (#)?

Specifies the PAGE in the NOTEBOOK containing the ABSTRACT. This will be COPIED into the BULLETIN.

REPORT SEQUENCE (#,#-#,#,)

1?

2?

3?

AUTHOR may take up to three lines to express the actual SEQUENCE of PAGES making up the REPORT as they appear in the NOTEBOOK. This may be independent of current SEQUENCES existing in the NOTEBOOK and will not alter them.

SUBTITLES (SUBTITLE, #-#)

1?

2?

3?

4?

5?

SUBMIT REPORT PROCEDURE (continued)

AUTHOR may express up to five SUBTITLES or SECTION HEADINGS for the REPORT and the beginning and ending PAGES in the SUBSEQUENCE represented by the SUBTITLES.

At this point a SUMMARY is printed back and the AUTHOR is asked

OKAY TO SUBMIT REPORT (Y/N)?

The effect of SUBMITTING a REPORT is that all PAGES making up the REPORT are LOCKED. This means no one else except the AUTHOR of the NOTEBOOK can MODIFY these PAGES and even the AUTHOR cannot REMOVE them or TRANSFER them. The REPORT will always exhibit the SUBMISSION DATE, the ACCEPTANCE DATE, and the DATE of the LATEST MODIFICATION. Only the EDITOR can MODIFY the information entered in the BULLETIN after ACCEPTANCE. Therefore, major MODIFICATIONS requiring a change of the SEQUENCE or to ADD or REMOVE pages would have to be done by the EDITOR. The EDITOR when he ACCEPTS the REPORT may choose to ASSOCIATE COMMENTS on it taken from REVIEW CONFERENCE. However, the MEMBERS of the GROUP can SUBMIT ASSESSMENT ITEMS which reference the REPORT.

The BULLETIN, therefore stores the TITLE, SECTION TITLES and their PAGE references, and the ABSTRACT. The actual PAGE numbers when presented to the readers will be converted to absolute ordered PAGE numbers with the first PAGE being number one and going numerically to the last PAGE.

SUBMIT NEWS ITEM PROCEDURE

NOTEBOOK (#), PAGE (#)?

Indicates what NOTEBOOK and what PAGE in the NOTEBOOK contains the ITEM. If no answer is supplied, ITEM is assumed to be in the user's SCRATCH PAD. The result will be a COPY of the ITEM, not a MOVE.

NEWS ITEM (Y/N)?

A NO assumes the ITEM is a COMMENT on an existing NEWS ITEM and this triggers the next question which must have a valid response

ASSOCIATED WITH (#)?

A single ITEM NUMBER establishing which ITEM the COMMENT is to be associated with. It cannot be another COMMENT. The title of the NEWS ITEM is printed.

INDEX WORDS (/WORD/PHRASE/)?

Allows user to specify indexes for the item. If some already exist they will be printed out first.

SIGNATURE (Y/N/PEN)?

Same as previously defined.

At this point a summary is printed and the user is asked

OKAY TO ADD ITEM (Y/N)?

TITLE of resulting ITEM or COMMENT is printed back out and the user returned to NEWS CHOICE or INITIAL CHOICE.

SUBMIT ASSESSMENT ITEM PROCEDURE

May be triggered by ASSESSMENT CHOICE: 4 or COMPOSE CHOICE: 7. If the ITEM is a COMMENT the same PROCEDURE as for SUBMIT NEWS ITEM is followed. However, if the answer to the following question which replaces NEWS ITEM (Y/N) is a YES then a question on the VOTING scales is triggered

ASSERTION STATEMENT (Y/N)?

If YES then the following question is triggered

CHOOSE ONE OR TWO OF
AGREEMENT SCALE (1)
CONFIDENCE SCALE (2)
DESIRABILITY (3)
FEASIBILITY (4)
IMPACT SCALE (5)
IMPORTANCE (6)
PERTINENCE SCALE (7)
PROBABILITY SCALE (8)
ESTIMATE (9)
VOTING SCALE CHOICE (#,#)?

The scales specified will be attached to the item and the GROUP will be asked to VOTE when they GET the item the first time or to CHANGE their vote when they use MODIFY to obtain the item. The DISPLAY or GET option will retrieve the VOTE TOTALS if available. No one is allowed to see the votes until a SET PERCENT of the possible votes are in.

If the user choses to have an ESTIMATE made on the item he or she is asked in addition

UPPER BOUND ?
LOWER BOUND ?

The VOTERS supplying ESTIMATES must then indicate a number which falls within the specified range. If no answer is supplied it is taken as a NO JUDGEMENT vote.

The above represents the only change from the SUBMIT NEWS ITEM PROCEDURE. The VOTING SCALE CHOICE is also used in the ADD COMMENT PROCEDURE when the VOTABLE COMMENT CHOICE is made. Whenever the text of an ASSERTION is MODIFIED all registered VOTES are eliminated. MODIFYING the ASSOCIATION, SEQUENCE, or INDEXES does not cause this to happen.

REPORT RETRIEVAL PROCEDURE

Each REPORT when SUBMITTED receives a unique SUBMISSION NUMBER which always may be used to identify the REPORT. A GET or DISPLAY CHOICE will provide the opportunity to retrieve by use of the SUBMISSION NUMBER or any series of them. Also a MARKER is kept for each MEMBER of the GROUP associated with the BULLETIN so they may be informed of new items automatically. The question asked upon choosing the GET or DISPLAY is:

SUBMISSION NUMBERS (#/#FF/#A)?

For any particular NUMBER supplied the following alternatives may occur:

- 1) UNDER REVIEW, SUBMISSION DATE: mm/dd/yy hh:mm
- 2) ARCHIVED, SUBMISSION DATE: mm/dd/yy hh:mm
ACCEPTED DATE: mm/dd/yy hh:mm
ARCHIVED DATE: mm/dd/yy hh:mm

TITLE and AUTHORS

- 3) REJECTED, SUBMISSION DATE: mm/dd/yy hh:mm
REJECTION DATE: mm/dd/yy hh:mm
- 4) TITLE, AUTHORS, SUBMISSION DATE, ACCEPTANCE DATE
for DISPLAY option
ABSTRACT added for GET option

Therefore a particular REPORT may be UNDER REVIEW, ACCEPTED and available, REJECTED, or ARCHIVED. For REPORTS which are ACCEPTED and available the options to SEARCH text apply only to the TITLE and ABSTRACT and not the contents or PAGES of the REPORT.

Instead of entering the SUBMISSION number alone one has the following options:

- #A This causes retrieval of any COMMENTS made upon the REPORT in the REFEREE CONFERENCE which the EDITOR feels should be available to the readership. The question which results is

COMMENTS AVAILABLE
COMMENTS (#/#-#)?

The user may supply any series of numbers specifying up to the maximum number stored about this REPORT. COMMENTS are numbered from one to the total number available.

#FF This allows retrieval of the actual PAGES or SECTIONS of the REPORT and results in

TOTAL PAGES
PAGES (#/#-#/CR)?

Returning the carriage will cause a TABLE of CONTENTS to be printed out providing up to five SECTION headings and the beginning PAGE NUMBERS. Note that when the AUTHOR originally SUBMITTED the report he or she indicated the actual SEQUENCE in the AUTHORS NOTEBOOK of the PAGES making up the REPORT. The BULLETIN converts this to absolute PAGE numbers always beginning with PAGE one for the convenience of those using the BULLETIN.

ASSESSMENTS and NEWS items also receive a unique SUBMISSION NUMBER and each item could be in one of the four states UNDER REVIEW, ACCEPTED, REJECTED or ARCHIVED. However, all items are limited to one PAGE in length and the EDITOR utilizes the SEQUENCE linkage (#FF) to group together either ASSERTIONS or NEWS items dealing with the same topic. The ASSOCIATION linkage is established by the AUTHOR who submits a COMMENT on a particular ASSERTION or NEWS ITEM. The EDITOR may, of course, modify the ASSOCIATION linkage at will.

ESTABLISH PROCEDURES

ESTABLISH MEMBER (By SYSTEM MONITOR only)

MEMBER NUMBER: #
MEMBER NAME (24C)?
ACCESS CODE (12C)?
REGULAR MEMBER (Y/N)?
 No implies OBSERVER
summary of response printed out
OKAY TO ESTABLISH (Y/N)?
 Confirmation returned
MEMBER NUMBER (#)?
 Cycle MEMBER PROCEDURE

ESTABLISH GROUP (By SYSTEM MONITOR only)

GROUP NUMBER: #
GROUP COORDINATOR (#)?
MAXIMUM MEMBERSHIP (#)?
CONFERENCE COMMENT LIMIT (#)?
NOTEBOOK PAGES ALLOWED (#)?
BULLETIN AVAILABLE (Y/N)?
 BULLETIN PAGE LIMIT (#)?
summary printed out
OKAY TO ESTABLISH (Y/N)?
 Confirmation returned
 and a NOTE is sent to the GROUP COORDINATOR
GROUP NUMBER (#)?
 Cycle GROUP PROCEDURE

ESTABLISH CONFERENCE (by MEMBER)

CONFERENCE NUMBER: #
CONFERENCE NAME (36C)?
MAXIMUM MEMBERSHIP (#<50)?
CONFEREES (#'s)?
OBSERVERS (#'s)?
 not allowed to add COMMENTS
MAXIMUM NUMBER OF COMMENTS (#)?
COMMENTS PROTECTED (Y/N)
 YES only author of COMMENT can COPY it
PRIVATE (Y/N)?
 YES only MEMBERS specified may join

ESTABLISH CONFERENCE (by MEMBER) (continued)

VOTING ALLOWED (Y/N)?

VOTERS (#'s)?

Carriage RETURN assumes all CONFEREES are VOTERS

PROPOSERS (#'s)?

those allowed to enter VOTABLE COMMENTS or

ASSERTIONS, carriage return assumes all CONFEREES

AUTOMATIC COMMENT PURGE (Y/N)?

Wipes out 30% of oldest COMMENTS when
maximum number reached

print summary of input

OKAY TO ESTABLISH (Y/N)?

CONFIRMATION returned

SEND NOTES (Y/N)?

Causes one line NOTES to all MEMBERS involved
letting them know CONFERENCE #, NAME, and
MODERATOR.

return to MONITOR/AUDIT CHOICE

ESTABLISH NOTEBOOK (by GROUP COORDINATOR)

AUTHOR'S NAME: name

MAXIMUM NUMBER OF PAGES (#)?

AVERAGE NUMBER OF LINES/PAGE (#)

System allows limit of 10 CO-AUTHORS and/or READERS

Summary Printed

OKAY TO ESTABLISH (Y/N)?

Confirmation returned

SEND NOTE (Y/N)?

notifies AUTHOR his NOTEBOOK is ready

AUTHOR's NUMBER (#)?

Cycle NOTEBOOK PROCEDURE

ESTABLISH BUTTETIN

to be specified at later date

ESTABLISH EXPLANATION

has no meaning

ESTABLISH PROCEDURES

to be specified at a later date

MODIFY PROCEDURES

In all cases the information currently in the item will be printed first before new information is asked

MODIFY MEMBER (by MEMBER)

MODIFY PUBLIC INFORMATION (Y/N)

NICKNAME (12C)?
TELEPHONE (24C)?
ZIPCODE (6C)?
ADDRESS (5 LINES)
1?
2?
.
DESCRIPTION (5 LINES)
1?
2?

.
PRIVATE INFORMATION (Y/N)?
ACCESS CODE (12C)?
PEN NAME (24C)?
print summary
OKAY TO MODIFY (Y/N)?
confirmation returned
return to MONITOR/AUDIT CHOICE

MODIFY GROUP (by GROUP COORDINATOR)

MODIFY MEMBERS (Y/N)?
MEMBER NUMBERS (#, -#)?

MODIFY OBSERVERS (Y/N)?
OBSERVER NUMBERS (#, -#)

SPECIAL ROLES (Y/N)?
GROUP CONFERENCE MONITOR (#)?
BULLETIN EDITOR (#)?

DESCRIPTIVE MATERIAL (Y/N)?
GROUP NAME (24C)?
TITLE (60C)?
DESCRIPTION (5 LINES)
1?
2?

.
print summary

MODIFY GROUP (by GROUP COORDINATOR) (continued)

OKAY TO MODIFY (Y/N)?
confirmation returned
SEND NOTES (Y/N)?
lets new GROUP members know they are in GROUP
and notifies those having special roles.

MODIFY CONFERENCE (by CONFERENCE MODERATOR)

MODIFY INDIVIDUALS (Y/N)?

CONFEREES (# -#)?
OBSERVERS (# -#)?
VOTERS (# -#)?
PROPOSERS (# -#)?

MODIFY INDIVIDUAL'S PARAMETERS (Y/N)?

MEMBER NUMBER (#)?
MARKER (#)?
NO JUDGEMENT ON UNANSWERED VOTES (Y/N)?
cycle question until '+'

MODIFY CONFERENCE STATUS (Y/N)?
COMMENT PROTECTED (Y/N)?
PRIVATE (Y/N)?
AUTOMATIC COMMENT PRUGE (Y/N)?

print summary of input
OKAY TO MODIFY (Y/N)?
confirmation returned
SEND NOTES (Y/N)?
return to MONITOR/AUDIT CHOICE

MODIFY NOTEBOOK (by AUTHOR)

SET UP CO-AUTHORS (Y/N)?

MEMBER NUMBERS ('S/-#S)
NAME: printed for each one and questions asked
PAGE RANGE (#-# /FF)?
WRITE CODE?

summary printed
OKAY (Y/N)
confirmation returned
SEND NOTES (Y/N)?

MODIFY NOTEBOOK (by AUTHOR) (continued)

SET UP READERS (Y/N)?
MEMBER NUMBERS ('S/-#S)?
NAME: printed back for each one and questions
asked
PAGE RANGE (#-# /#FF)?
READ CODE?
summary printed
OKAY (Y/N)
confirmation returned
SEND NOTES (Y/N)?
return to MONITOR/AUDIT CHOICE

MODIFY BULLETIN (by EDITOR)

to be specified at a later date

MODIFY EXPLANATION (by SYSTEM MONITOR)

This provides

GET (1)
DISPLAY (2)
SEARCH/FIND (3)
COMPOSE (4)
MODIFY/REMOVE (5)
ORGANIZE (6)
SET SPECIAL SEQ. (7)
MONITOR EXPLANATION CHOICE?

with CHOICE: 7 triggering the following CHOICE

GENERAL DESIGN (1)
MESSAGE SYSTEM (2)
CONFERENCES (3)
NOTEBOOKS (4)
BULLETINS (5)
SPECIAL FEATURES (6)
TEXT EDITING (7)
SEARCHING (8)
AUDITING (9)
MODIFY SEQUENCE CHOICE?

For each of these the MONITOR specifies a SEQUENCE of PAGES
in the EXPLANATION FILE whose TITLES are printed out when
a MEMBER selects the proper EXPLANATION CHOICE

MODIFY PROCEDURES (by MEMBER)

to be specified at a later date

REMOVE PROCEDURES

REMOVE MEMBER (by SYSTEM MONITOR)

Causes a summary printout of status of MEMBER, his or her use of the SYSTEM and a list of groups, CONFERENCES, NOTEBOOKS he is involved with. The SYSTEM then asks

OKAY TO REMOVE (Y/N)?

If the MEMBER is removed then the SYSTEM also REMOVES the MEMBER from any GROUP, CONFERENCE, NOTEBOOK and REMOVES any messages for him or her.
A form NOTE is sent to each

GROUP COORDINATOR
CONFERENCE MODERATOR
AUTHOR

involved. The form NOTE is

JOHN DOE REMOVED AS MEMBER mm/dd/yy hh:mm
REMOVED FROM (conference/notebook/etc.)#

MESSAGE WRITERS receive a NOTE that their MESSAGE for the terminated MEMBER will not be delivered.

A MEMBER can not be REMOVED if he is a MODERATOR, COORDINATOR, or EDITOR. The SYSTEM MONITOR must replace the MEMBER in these roles first.

REMOVE GROUP (by SYSTEM MONITOR)

Causes a summary of the status of each MEMBER in the GROUP CONFERENCE and the items contained in the BULLETIN. Also specifies the GROUP COORDINATOR, CONFERENCE MODERATOR, and BULLETIN EDITOR. The question is then asked

REMOTE HISTORY PRINT (Y/N)?

This will produce four copies of all materials each automatically addressed to SYSTEM MODERATOR, GROUP COORDINATOR, CONFERENCE MODERATOR and BULLETIN EDITOR
EXTRA COPIES (#)?
Confirmation of print file setup
OKAY TO REMOVE (Y/N)

REMOVE GROUP (by SYSTEM MONITOR) (continued)

A note to each MEMBER of the GROUP is sent of the form

GROUP # DISSOLVED AS OF mm/dd/yy hh:mm

This action does not REMOVE the BULLETIN but does prevent any further changes to be made to it. It will collect the full text of all REPORTS into one single file and free each AUTHOR's NOTEBOOK from any linkage to the BULLETIN that may have resulted from the SUBMISSION of a REPORT.

REMOVE CONFERENCE (by CONFERENCE MODERATOR)

Causes a summary of the status of the CONFERENCE and all CONFEREES. The question is then asked

REMOTE HISTORY PRINT (Y/N)?
EXTRA COPIES (#)?
Confirmation of print file setup
OKAY TO REMOVE (Y/N)?
A note is sent to each CONFEREE
of the form

CONFERENCE # DISSOLVED AS OF mm/dd/yy hh:mm

REMOVE NOTEBOOK (by AUTHOR)

Same as previous one with a NOTE to any CO-AUTHOR or READER

REMOVE BULLETIN (by SYSTEM MONITOR)

To specified later

REMOVE EXPLANATION

Not allowed

REMOVE PROCEDURES (by MEMBER)

To be supplied later

TEXT COMPOSE/EDIT COMMANDS

When a MEMBER undertakes to COMPOSE text the lines for entry are presented beginning with number one and incrementing by one as each line is entered.

1? user enters a line
2? etc.

If the user is going to enter something in a line which already has something in it, then the line is printed out.

1: whatever was in line
1? whatever is now to be entered

Lines are advanced numerically and a carriage return alone will not change what is already in a line.

GENERAL RULES

- 1) Lines presented in numerical order
- 2) If line contains anything it is printed first
- 3) All EDIT COMMAND SYMBOLS must be first character in line
- 4) EDIT COMMANDS may be followed by one or more line numbers indicating lines it is to operate on.
- 5) The text generated or EDITED is in the SCRATCH-PAD. No changes are made to the original (e.g. a PAGE in a NOTEBOOK) until the new version has been OKAYED by the AUTHOR.

COMMANDS

= replacement edit
Allows user to specify a different order for presenting lines

1?= 5,10-14,3

would present lines for EDITING in order
5,10,11,12,13,14,3. Next line would be 4.

: print
allows user to print the set of lines specified without a chance to make changes on each one. The convention :: may be used to print all the lines which have something in them.

TEXT COMPOSE/EDIT COMMANDS (continued)

- * empty a line
essentially deletes lines specified or current line if no line numbers are indicated. All succeeding lines are renumbered to eliminate the gap in line numbers. The convention ** will delete the whole text.
- ! blank line
Cause the current line to be a blank line or the lines specified if followed by line numbers.
- !text! fill line
Causes the characters or character between ! marks to be used repetitively to fill a line. For example, FLASH! would cause the word FLASH to appear throughout the line separated by a blank space.
- < insert
Causes the line numbers specified to be inserted beginning at the line where the command is executed. The lines moved are essentially deleted (*) at their old position. The insert will move existing lines to higher numbers if necessary to make room for whatever is being inserted. No lines are destroyed as a result of this operation.
- & copy
works like insert (<) but leaves lines used in their original position as well as the new position. Will not allow any lines to be deleted just as for the insert command.
- /old/new/ text replace
Causes text within a line to be replaced as in the following sequence

```
3: THIS IS A DOG.  
3? /DOG/CAT/  
3: THIS IS A CAT.  
3?
```

If line numbers are specified for the COMMAND to operate on, then the operation is carried all the way through without asking for further changes.

TEXT COMPOSE/EDIT COMMANDS (continued)

↑ image edit
Allows the user to space over to make changes

```
3: THIS SI A DOG.  
3? ↑     IS  
3: THIS IS A DOG.
```

One may also delete and insert characters

```
3: THSI IS A RED SHEEP DOG.  
3? ↑ IS     ↑NOT ↑*****  
3: THIS IS NOT A RED DOG  
3?
```

the command may be used with line numbers and will result with

```
3: THIS SI A DOG.  
3↑       IS
```

where a correction can be made to each line specified. The system tests to see if the first few characters following the ↑ symbol is a valid line number in order to distinguish the direct and indirect modes for the EDIT command.

define form
Allows the user to define a form for filling in numeric data, say for the purpose of COMPOSING a table. Details will be specified at a later date.

. store text command
Allows the incorporation of text editing commands within the text for the incorporation of document type text editing to be specified later.

In addition, the following commands are available but do not utilize or allow the specification of line numbers.

:! Print out the line numbers of all lines
 which are blank

<! Insert a blank line

*! Delete all blank lines

TEXT COMPOSE/EDIT COMMANDS (continued)

- . Store an edit command as a line of text to
 be executed when the text is printed out.
- :: Print out all the lines
- ** Delete all the lines
- Delete all the lines and stop composing text
- + Text composition is finished and go on to the
 next action.

The carriage return alone will not modify what already
is in a line therefore the ! and * are available for
blanking or eliminating a line. If the line has
nothing in it the carriage return is equivalent to a !
and creates a blank line

TITLE INFORMATION

The TITLE of an ITEM of TEXT such as a PAGE, MESSAGE, or COMMENT can have a number of parts, depending on how it has been used.

The first line of a TITLE always indicates the original source as to when it was written, who wrote it, and what type of item it was, utilizing the following abbreviations:

NOTEBOOK PAGE	NP
CONFERENCE COMMENT	CC
CONFERENCE ASSERTION	CA
NEWS ITEM	NI
NEWS COMMENT	NC
ASSESSMENT ASSERTION	AA
ASSESSMENT COMMENT	AC
MESSAGE	M

Note, the above are the only options by which an item of text can enter the system. No matter what MODIFICATIONS are made or if the item undergoes a TRANSFER or COPY from say, a CONFERENCE to a NOTEBOOK, or any sequence of such operations, the original TITLE cannot be changed except by the original author. Moving the item around the same NOTEBOOK would of course, change the PAGE NUMBER, but not the rest of the title.

The second line of the TITLE indicates the date and time of the last MODIFICATION and the NAME of the MODIFIER, if different than the AUTHOR. This line is changed with every MODIFICATION. The history of such changes will not be available on-line. The second TITLE line would also be used to indicate the NEW TITLE when the item has been COPIED or TRANSFERRED TO a different TEXT file. For example, from a CONFERENCE to a NOTEBOOK or visa versa. The NAME then used is of the person who did the TRANSFER or COPY. Given this facility a MESSAGE could end up being used as the basis of a PAGE of text used in a REPORT where the original MESSAGE WRITER is not an AUTHOR or COAUTHOR, but still referenced via the first TITLE LINE. The first two TITLE LINES then contain the same following elements as described in the table.

TITLE INFORMATION		FIRST TITLE	SECOND TITLE
ITEM NUMBER		original or last within text file where originated	last within any file transferred or copied into dropping intermediate steps
ITEM TYPE		original type	current type
DATE and TIME		original or last modification in original file before transferred or copied to new file	current modification, transfer or copy date
MEMBER NUMBER		original AUTHOR	only if different than AUTHOR
MEMBER NAME (used in NOTEBOOKS and BULLETINS) MEMBER NICKNAME (used in CONFERENCES and MESSAGES)			
ASSOCIATION MEMBER indicating what item this one ASSOCIATED with SEQUENCE NUMBERS indicating before and after link for this item		original or last modification before a transfer or copy to a different file	current use

If the AUTHOR of an item is the MODIFIER and then he or she later transfers it into another environment, such as from a NOTEBOOK to a CONFERENCE, then the MODIFICATION DATE becomes the ORIGINATE date. This would allow an author to establish in a CONFERENCE, a minimum time back when he or she had composed some thoughts on a particular topic. The specific rules that now result are:

- * Nothing except an original AUTHOR action can change the first TITLE LINE, whether it be text changes, transferring, or copying.
- * If the AUTHOR does a transfer or copy to another system text component, then the original source date at the new location is changed to reflect the last modification date prior to the transfer or copy.
- * A transfer or copy within the same file can change the item number

The third line of a text item TITLE is only used when INDEX KEYS have been defined and they are then listed out, each one separated by a slash symbol (/).

The approach to TITLE information is to make it easy for individuals to give credit or maintain awareness of where they may have picked up concepts they later used. It also provides a mechanism of establishing when a person considered some issue in his NOTEBOOK, if he or she should wait some period to make it PUBLIC. This is quite common practice in terms of a Scientist's Notes or a Manager's Memos for the Record. How far the system features can be extended towards a more complete audit trail capability will be considered at a later date. In the present design the user can maintain his own paper copies of original items if he deems it important. Also, there is no possible way to prohibit the user who wishes to completely retype an existing item as a new item and thereby bypassing the TRANSFER and COPY functions.

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For those interested in the Computerized Conferencing per se the following sources provide numerous papers and extensive references.

The Delphi Method edited by Linstone and Turoff,
Addison Weseley 1975.

Computer Communication edited by Nathaniel Mason
Publisher: International Council for Computer Communications, Washington, D.C. 1975.