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COMPUTER RETRIEVAL OF BIBLIOGRAPHIES  
USING AN EDITING PROGRAM

By

G. E. Brethauer and V. L. Brokaw

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### ABSTRACT

A simple program permits use of the text editor "qedx," part of many computer systems, to input bibliographic entries and to retrieve specific entries which contain keywords of interest. Multiple keywords may be used sequentially to find specific entries.

### INTRODUCTION

In this report we address a problem common to many small-sized (approximately 50-100 persons) working groups doing research-oriented tasks. In the U.S. Geological Survey we have been doing geologic investigations on and around the NTS (Nevada Test Site) since the late 1950's. During this time many reports dealing with the results of these investigations have been published.

Requests for these reports come in many forms: by number, title, author (infrequently), area (or location) of concern, or general topic of interest. As the number of these reports and the requests have increased we have thought about "computerizing" these reports; i.e., we have thought about inputting the pertinent information on each report so that an appropriate retrieval system could produce a listing of desired reports.

The problem is that the amount of work necessary to develop a retrieval program--or even find and implement an existing one--is more than the increased efficiency would justify. Our solution to this problem was to use the capabilities of the same computer/editing program, "qedx", that is used to input data. Thus, those personnel trained to input the data will be able to retrieve the data. The major disadvantage to this retrieval system is that information must be input in two different files for each report.

### RETRIEVAL USING "qedx"

In this section we briefly describe the "qedx" editor and the commands used to retrieve data. Those readers interested in further details are referred to the Computer Center Division of the U.S. Geological Survey for information manuals. In the following, we assume that the reader is familiar with the "qedx" editor or at least familiar with a comparable editing program, such as TECO (used on the DEC10 computer<sup>1</sup>).

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<sup>1</sup>Use of brand names in this report is for descriptive purposes only and does not constitute endorsement by the U.S. Geological Survey.

The "qedx" text editor is normally used to create and edit data and information in files on the Honeywell 6061 Multics Computer. The basic format of the commands used in the retrieval process described here is:

`ZX/regexp/`

where

`/regexp/--`the slashes enclose the string of characters that will be searched for;

`X--`is the operator symbol and will either be p, d, or =; where p means print, d means delete, and = means print the line number of the entry; and

`Z--`is the type of search symbol and will either be a g or v; where g means include all entries which contain the given character string, and v means exclude all entries which do not contain the given character string.

For example, `gp/fault/` would result in all entries containing the character string "fault" being printed out. The command `vd/fault/` would result in all entries not containing the character string "fault" being deleted during this search.

#### FILE ORGANIZATION

Two files are used in this system: (1) the text file, and (2) the key file. These files can be cross-referenced by using entry numbers.

The text file, which we call "textn," contains the entries in bibliographic form (see example 1). The three integers preceding each line of text denote the entry number, the line number for that entry, and the total number of lines of text for that entry. Each line of text contains a maximum of 65 characters. A Fortran computer program called "text" (see example 2) uses the textn file to print out the bibliographic references for known entry numbers.

The key file (see example 3) is the file from which entry numbers are obtained. Each entry number in the key file is followed by a string of keyword identifiers. This string has a maximum of 240 characters. As can be seen in example 3, no capitalization or punctuation is used in these identifiers strings.

#### EXAMPLE SEARCHES

In this section we illustrate the use of the system by examples. In example 4, we type "qx" which brings in the "qedx" editor, we then type "r key" which reads in the key file, and then we type in the global "qedx" command "gp/ferald" which results in all the entries containing fernald in the key file to be printed out. Two more of these searches, based on the keywords "brethauer" and "bouguer," are shown in example 4. As can be seen, a great deal of information can be decoded from these keyword identifier lists. In example 5, we repeat the search of the key file for entries containing the keyword "bouguer." In addition we call program "text" and input the entry numbers to print out the bibliographic references. In example 6(a), we use the global-exclude command letter v to sort the key file for entries that contain more than one keyword. The command "vd/yucca/" instructs "qedx" to search through the entire key file and delete all entries that do not contain the keyword yucca. The next command "gp/geology/" then instructs "qedx" to search through all entries which were not deleted and print those that contain the keyword geology. (Example 6(b) is the same procedure except that the file containing only entries with the keyword yucca are printed out.) This process can be repeated for as many keywords as required.

Example 1.--Printout of a portion of the "textn" file

```

gx
r textn
1,10P
1 1 3Snyder, R. P., 1977, Geology of the Gold Meadows stock, Nevada
1 2 3Test Site: U.S. Geological Survey report USGS-474-179
1 3 3(Area 12-26), 10 p.
2 1 5Navarro, R., Wuollet, G. M., and Bradley, B. R., 1977, Catalog of
2 2 5seismograph stations operated in support of the ERDA Nevada
2 3 5Operations Office, January 1964 thru June 1976: U.S. Geological
2 4 5Survey report USGS-474-182 (formerly Open-File report 77-404),
2 5 573 p.
3 1 4Navarro, R., Sembrera, E. D., Jungblut, W. L., 1977, Catalog of
3 2 4seismic records obtained in support of the ERDA Nevada Operations
g
r 1035 0.325 5.332 157

```

Example 2.--Listing of the program "text"

```

c      program text
         character*5 textn
         character*68 buff
         dimension v(100)
         . write(6,100)
100      format(5x,'type in the number of entries',/,
         . 15x,'you wish to list')
         . read(5,110) num
110      format(v)
         . write(6,120)
120      format(5x,'type in the entry numbers separated by a comma')
         . read(5,110) (v(j),j=1,num)
         . open(9,file="textn",mode="in",form="formatted")
         . do 1000 i=1,5000
         . read(9,200,end=1200) in,buff
200      format(i5,10x,a68)
         . do 1000 k=1,num
         . if(in.ne.v(k)) go to 1000
         . write(6,300) buff
300      format(10x,a68)
1000      continue
1200      close(9)
         . stop
         . end

```

Example 3.--Printout of a portion of the key file

1,10P  
 entry1snyder1977seologygoldmeadowstockusgs-474-179granitechemicalanalysisrainie  
 \crmesau12s-50u12s-400u12s-915u12s-1014  
 entry2navarrowoollettbradley1977catalosseismographstationserdenevadaoperationsoff  
 \cicejan64-jun76usgs-474-182  
 entry3navarrosemberajungblut1977catalosseismicrecordserdenevadaoperationsofficeo  
 \cct63-jun76usgs-474-183  
 entry4roserswoollettsovinston1977seismicitypahutemesantsoct75-jun76usgs-474-184  
 entry5brethauermaasner1977analysisorientationburiedhemisphericalexcavationinsitus  
 \ctressdistributionusgs-474-237finiteelementmethodsdnrairnermesau12etunnelco  
 \cmplex  
 entry6orkildjenkins1978explorationproresspahutemesaooct69-dec76usgs-474-239litho  
 \clogicrossdrillholemiocenents  
 entry7maldonado1977faultmonitoringspahutemesantsjul73-dec76usgs-474-242nucleartes  
 \ctinducedarea19area20  
 entry8maldonado1977compositepostshotfracturemappahutemesantsjun73-mar76usgs-474-  
 \c243nucleartestinduced  
 entry9steelerfairerocarrollcunningham1978diningscaru12e.18tunnelrainiermesantsusgs-  
 \c474-246dnaetunnelcomplexarea12drift  
 entry10oh11977bibliographyusgsntsJul76-jun77usgs-474-254authorsubject

Example 4.--Illustration of a search for, and printout of, entries containing a specific keyword

```

ex
r key
sp/fernalid/
entry77fernaldbversohl1975lithologiclossstratigraphidexploremlacearealarea6nts
\cusss-474-206drillmineuccaf1at

sp/brethauer/
entry5brethauermaesner1977analysisorientationburiedhemisphericalexcavationinsitus
\ctressdistributionusss-474-237finiteelementmethodsdnarniermesaul2etunnelco
\cmplex
entry11mullerbrethauer1978confidencelimitvaluesseismicvelocitiescalculatedvibros
\ceismethodusss-474-255derivedequationnomographnts
entry45mckeownyoungwilliamsbrethauer1977geologyeffectslongshotamchitkaalaskausss
\c-474-245mapphotographhydrologydisplacement
entry82brethauerhealey1975statisticallevelgravitydatausss-474-224yuccaf1atntsnye
entry100gonzalezwol1itzbrethauer1974bathymetrycannikinlakeamchitkaalaskaevaluati
\concomputermaepttechniquesusss-474-203subsurfacecuclearexplosionwetpcphydrologyb
\ciology

sp/bousguer/
entry16healeywahlcurrey1978bousguersgravitymapnevadasoldfieldmariposausss-474-260n
\ctsuuccaf1at
entry17healeywahlcurreystephens1978bousguersgravitymapnevadaadeathvalleyusss-474-26
\c3ntsamaragosadesert
entry56healeykibler1976bousguerfreeairgravityanomalymapdelarofislandstanasaisland
\calaskausssgeophysicsicalinvmapsp-908
entry84healeykibler1976bousguerfreeairgravitymapretatislandalaskaussssp-909
entry111ekrenrogersdixon1973(74)geologybousguersgravitymapreveillequadranyenevadausss
\csmiscseolinvmap1-806
r 1013 0.527 7.630 215

```

Example 5.--Illustration of a search for entries containing keyword bouguer and use of text program to print out entries in bibliographic format

```

qx
r key
sp/bousuer/
entry16healeywahlcurrey1978bousuergravitymapnevadasoldfieldmariposauss-474-260n
\ctsyuccaflat
entry17healeywahlcurreystephens1978bousuergravitymapnevadaathvalleyuss-474-26
\c3ntsamargosadesert
entry56healesykibler1976bousuerfreeairgravityanomalymapdelarofislandstanaisland
\calaskausssgeophysicallinvmapgp-908
entry84healesykibler1976bousuerfreeairgravitymaprattislandalaskausssgp-909
entry11lekrengrogersdixon1973(74)seolosybousuersravitymapreveillequadnyenevadauss
\csmiscgeolinvmap-i-806
a
r 1521 0.423 3.014 120

```

text

type in the number of entries  
you wish to list

5

type in the entry numbers separated by a comma

16,17,56,84,111

Healey, D. L., Wahl, R. R., and Currey, F. E., 1978, Complete  
Bousuer gravity map of the Nevada part of the Goldfield and  
Mariposa 2 degree sheets: U.S. Geological Survey report USGS-474-  
260, 6 p.  
Healey, D. L., Wahl, R. R., Currey, F. E., and Stephens, W. E.,  
1978, Complete Bousuer gravity map of the Nevada part of the  
Death Valley 1 degree by 2 degree sheet: U.S. Geological Survey  
report USGS-474-263, 7 p.  
Healey, D. L., and Kibler, J. D., 1976, Complete Bousuer and  
free-air gravity anomaly maps of the Delarof Islands and Tanaga  
Island, Alaska: U.S. Geological Survey Geophysical Investigations  
map GP-908.  
Healey, D. L., and Kibler, J. D., 1976, Complete Bousuer and  
free-air gravity anomaly maps of the Rat Islands west of Amchitka  
Island, Alaska: U.S. Geological Survey Geophysical Investigations  
Map GP-909.  
Ekren, E. B., Rogers, C. L., and Dixon, G. L., 1973 (1974),  
Geologic and Bousuer gravity map of the Reveille quadrangle, Nye  
County, Nevada: U.S. Geological Survey Miscellaneous Geologic  
Investigations map I-806.

STOP

fortran.io.: Close files? yes  
r 1522 1.189 9.392 199

Example 6(a) and 6(b).--Illustration of the sequential keyword search using the

global-exclude command

```
6(a)qx
r key
vd/yucca/
sp/geology/
entry55mckeownhealeymler1976geologymapuyuccalakequadnyenevadaussgq1327inferred
\csurfacestructure
entry88carrmillerdodge1975geologyphysicalpropertiesurfaceeffectsdiscusthroweryu
\cccaflatntsussopenfile75-410
a
r 1507 0.835 5.536 191
```

```
6(b)qx
r key
vd/yucca/1,$p
entry16healeywahlcurrey1978bousuergravitymapnevedasoldfieldmariposauss-474-260n
\ctsyuccaflat
entry40quinlivanoahlblackmon1977lithologicexploratoryemplacemntarea2area8ntsuss
\c-474-227yuccaflatguaternaryalluviumtertiaryvolcano
entry41maldonado1977explosioninducedfracturenuclearleartestyuccaflatntsjan-dec75uss
\c-474-243surfacemaparea2area3area4area7sinkridges
entry55mckeownhealeymler1976geologymapuyuccalakequadnyenevadaussgq1327inferred
\csurfacestructure
entry77fernaldbyersohl1975lithologiclogssstratisraphyidexaloremplacemntarea2area6nts
\cuss-474-206drillminesuccflat
entry79snyder1976explosioninducedfracturesnuclearleartestyuccaflatntsjan-dec74uss-4
\c74-209area2area3area4area7
entry82brethauerhealey1975statisticalavalgravitydatauss-474-224yuccaflatntsnye
entry88carrmillerdodge1975geologyphysicalpropertiesurfaceeffectsdiscusthroweryu
\cccaflatntsussopenfile75-410
entry104snyder1975explosioninducedfractureundersgroundnuclearleartestyuccaflatnts
\cuss-474-204surfaceeffectssarea2area3area7u2bsu2bvuu3jsu7ad
```

```
sp/geology/
entry55mckeownhealeymler1976geologymapuyuccalakequadnyenevadaussgq1327inferred
\csurfacestructure
entry88carrmillerdodge1975geologyphysicalpropertiesurfaceeffectsdiscusthroweryu
\cccaflatntsussopenfile75-410
a
r 1509 0.649 4.684 184
```

## DISCUSSION

The preceding examples show that the mechanics of this system of retrieval are simple and easily learned. The two-file system required is a disadvantage, but we feel that these files may be merged if a more complex computer retrieval system is developed.

Some interest has been shown for using this type of retrieval to generate a computer notebook which would list status information and would be accessible to several investigators working on the same project, but located at different duty stations.