

UNITED STATES DEPARTMENT OF THE INTERIOR

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A bibliography of stockwork molybdenite deposits and related topics  
(with emphasis on the North American literature)

by

Celia H. Steigerwald,<sup>1/</sup> Felix E. Mutschler,<sup>2/</sup> and Steve Ludington<sup>3/</sup>

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1/ Eastern Washington University, Cheney, WA 99004

2/ Eastern Washington University and U.S.G.S., Denver, CO 80225

3/ U.S. Geological Survey, Reston, VA 22092

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ABSTRACT

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This bibliography of 1117 citations brings together references on stockwork molybdenite deposits and related topics in a format that can be sorted by topic and(or) geographic area. Each reference is preceded by a key, or keys, which may be read and sorted visually or by computer. The bibliography is available in two formats: (1) paper- or microfiche-hardcopy, and (2) fixed format computer readable magnetic tape. A FORTRAN program is provided for sorting the magnetic tape version.

## INTRODUCTION

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Most of the western world's molybdenite is produced from "stockwork" (Clark, 1972) deposits in which molybdenite is either the major product (as at Climax and Henderson, Colorado, and Questa, New Mexico), or is a co- or by-product of copper production (as at many Cordilleran "porphyry copper" deposits). Excellent descriptions emphasizing local igneous sequences, ore body geometry, alteration patterns, and genetic models for individual deposits have been published during the last several decades.

In 1981 four papers (Bookstrom, 1981; Mutschler and others, 1981; Westra and Keith, 1981; and White and others, 1981) appeared in which the authors offered classification schemes for stockwork molybdenite deposits and generalized models for the tectonic and igneous-hydrothermal environments in which these deposits form. These papers clearly show that information pertinent to understanding stockwork molybdenite deposits is widely dispersed in the geologic literature.

The bibliography brings together 1117 references on stockwork molybdenite deposits and related topics in a format which can be sorted by topic and(or) geographic area. Each reference is preceded by up to 15 keys which indicate the types of information in the reference.

The bibliography emphasizes the North American literature and to some extent reflects our prejudices as to what is germane to a study of stockwork molybdenite deposits. We have placed an emphasis on stockwork deposits in which molybdenite is the major product or potential product. Thus, we have generally not included papers dealing solely with molybdenite in skarns; and we have not attempted to compile all papers on porphyry copper deposits in which molybdenite may occur.

The bibliography is designed so that the user may update it, or rekey it, to suit his own purposes. Updating or modifying is most easily accomplished using the EDITOR facilities of an electronic computer.

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## BIBLIOGRAPHY STRUCTURE

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Each reference consists of a series of sorting keys and a citation. The sorting keys are on a line starting with an asterisk (\*) preceding the citation. Each key consists of three capitalized alphabetic characters, and each key is separated from the next key by a blank space. These keys are listed on Table 1. The order of items in the citation follows the standard U. S. Geological Survey format.

## AVAILABILITY

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The bibliography is available in two formats: (1) hardcopy, either as paper- or microfiche-copy of computer printout; and (2) computer-readable magnetic tape.

The computer tape is 9 track, 1600 BPI, ASCII character set. The tape is unlabeled, and contains two files: BIB.TEXT;1 and BIB.BIB;1. Record length is 80 characters and block length is 960 characters (12 records).

File BIB.TEXT;1 includes this text and the computer program for sorting references. File BIB.BIB;1 is the bibliography.

Table 1. -- Keys for computer sorting.

ZGR -- GENERAL REFERENCES

DEPOSITS AND PROSPECTS

XUS -- UNITED STATES - GENERAL

XAK -- ALASKA

XAZ -- ARIZONA

XCA -- CALIFORNIA

XCO -- COLORADO

XGA -- GEORGIA

XID -- IDAHO

XME -- MAINE

XMO -- MISSOURI

XMT -- MONTANA

XNV -- NEVADA

XNM -- NEW MEXICO

XNC -- NORTH CAROLINA

XOK -- OKLAHOMA

XOR -- OREGON

XSC -- SOUTH CAROLINA

XTX -- TEXAS

XUT -- UTAH

XVT -- VERMONT

XVA -- VIRGINIA

XWA -- WASHINGTON

XWI -- WISCONSIN

XWY -- WYOMING

XCD -- CANADA

XXM -- MEXICO

XAF -- AFRICA

XAS -- ASIA

XAU -- AUSTRALIA

XEU -- EUROPE (INCLUDING U. S. S. R.)

XSA -- SOUTH AMERICA

ZTE -- TECTONIC SETTING

ZAG -- AGE DATES

Table 1. (continued)

CHEMICAL ANALYSES

ZMM -- MAJOR ELEMENT ANALYSES

ZMT -- TRACE ELEMENT ANALYSES

ZMI -- MINERAL ANALYSES

ZMO -- ISOTOPIC ANALYSES

ZGT -- GRANITES -- REAL, EXPERIMENTAL, AND THEORETICAL

ZMN -- MINERALOGY

ZHY -- HYDROTHERMAL ALTERATION - MINERALIZATION

ZCU -- PORPHYRY COPPER SYSTEMS -- SELECTED REFERENCES

ZSN -- TIN SYSTEMS -- SELECTED REFERENCES

ZDB -- COMPUTER DATA BASES AND PROGRAMS

ZMS -- MISCELLANEOUS

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## APPENDIX

### Computer Program BIBLIO for sorting references

PROGRAM BIBLIO  
by

Siesfried Heintze

February, 1983

Program BIBLIO is used for select records from a file containing bibliographic references. Each reference must begin with a asterisk ('\*') in column one. The first line of the reference, (the line containing the asterisk) consists of a series of three character keys delimited by spaces. The following lines contain the reference itself. These lines may contain asterisk characters, as long as they are not in column one. The purpose of BIBLIO is to select only those references which contain a key specified by the user. These selected references are copied to the output file specified by the user.

#### USING PROGRAM BIBLIO

The following is the procedure for using the Program BIBLIO:

(1) Type

\$RUN BIBLIO

(2) BIBLIO will respond by asking for an input file name. Enter the file name that contains the bibliographic references. Hit carriage return. If an error was made in entering the file name BIBLIO will continue to prompt for an input file name until a correct file name is entered.

(3) When the input file is accepted, BIBLIO will ask for an output file name. Enter an output file name and hit carriage return. If an invalid name is entered, BIBLIO will prompt a second time for a name.

(4) BIBLIO will prompt for a series of three character keys. Enter a key and hit carriage return. BIBLIO requires at least one key but no more than twenty. When all the desired keys have been entered, type 'ZEND' and carriage return.

(5) Processing will begin. 'FORTRAN STOP' will be printed when processing is complete.

PROGRAM biblio  
File names  
CHARACTER\*40 infil, outfil  
CHARACTER\*80 line  
CHARACTER\*3 keys(20)

input and output logical units  
INTEGER in, out

```

C      > number of keys      , nkeys
C
C      > integer function to return the length of a string
C      > size
C
C      LOGICAL      done
C
C      DATA      in,out / 10, 11/
C      >      , done /.FALSE./
10090  continue
      WRITE ( *, 10100 )
10100      FORMAT ( ' Enter input file name:')
      READ ( *, 10110 ) infil
10110      FORMAT ( A40 )
C
C      NOTE: The read only OPTION in the open statement is optional
C      and nonstandard. It permits users to run this program
C      who do not have write access to their DATA.
C
C      OPEN      ( UNIT = in
C      >      , STATUS = 'OLD'
C      >      , FILE = infil
C      >      , READ ONLY
C      >      , ERR = 10090
C      >      )
C
10115  continue
      WRITE ( *, 10120 )
10120      FORMAT ( ' Enter output file name:')
      READ ( *, 10110 ) outfil
C
C      NOTE: The 'carriage control = 'LIST'' option is nonstandard
C      and optional. It suppresses the interpretation
C      of column 1 carriage control. This is to permit
C      the output file to have the same format as the input
C      file.
C
C      OPEN      ( UNIT = out
C      >      , STATUS = 'NEW'
C      >      , FILE = outfil
C      >      , carriage control = 'LIST'
C      >      , ERR = 10115
C      >      )
C
      WRITE ( *, 10500 )
10500      FORMAT ( ' Enter up to 20 3 character keys, one per',
C      >      ' line. Terminate list',/, ' by type "ZEND".',
C      >      ' All keys must start in column one.')
      done = .FALSE.
      nkeys = 0
10520  continue
      WRITE ( *, 10530 )
10530      FORMAT ( X, 'Enter key:')
      READ ( *, 10540, END = 20000 ) line (1:4)
10540      FORMAT ( A4 )
      done = i .EQ. 19
      IF ( .NOT. ( line (1:4) .EQ. 'ZEND' .OR. line(1:4) .EQ.
C      >      'Zend' .OR. line(1:4) .EQ. ' ' ) ) THEN
          nkeys = nkeys + 1
          keys ( nkeys ) = line( 1:3 )
      ELSE
          done = .TRUE.
      END IF
      IF ( .NOT. done ) goto 10520

```

```

20000  continue
      WRITE ( *, '(X,i10, '' keys found.'')' ) nkeys
      IF ( nkeys .EQ. 0 ) GOTO 40100

C      Loop to look for first '*'
20100  continue
      read ( in, 20200, END = 40100) line
20200      FORMAT ( A80 )
      IF ( line(1:1) .EQ. '*' ) GOTO 30100
      CALL write ( out, line(1:size(line)) )
      goto 20100

C      main process loop. Loop terminates only by detecting EOF on
C      read statement.
30100  continue
C      Search through all the keys
      DO 30110 i = 1, nkeys
      IF ( index ( line,keys(i) ) .NE. 0 ) GOTO 30400
30110  continue

C      Searched through all the keys, didn't find a match -
C      therefore we search for the next '*'
30200  continue
      read ( in, 20200, END = 40100 ) line
      IF ( line(1:1) .EQ. '*' ) GOTO 30100
      goto 30200

C      ----- We have a match, write -----
30400  continue
      CALL write ( out, line(1:size(line)) )
      read ( in, 20200, END = 40100 ) line
      IF ( line(1:1) .NE. '*' ) GOTO 30400
      GOTO 30100

40100  continue
      CLOSE ( UNIT = in )
      CLOSE ( UNIT = out )
      STOP
      END

C      SUBROUTINE write - write a variable alphanumeric string to a given unit.
C      Arguments:      unit - (input) integer logical unit number
C                      to which string is to be written
C                      str - (input) string of type character to
C                      be written.
C      Values returned:      NONE.
C      Description:      In VAX-11 FORTRAN this subroutine
C                      can be replaced by the single statement
C                      write ( unit, '(a)' ) str(1:size(str))
C                      where size is an integer function that returns
C                      the length of the string stripped of trailing
C                      blanks. However, standard FORTRAN requires
C                      that the length of the string be specified in the
C                      format statement. This routine creates a format
C                      that has the length. Then this format is used
C                      to perform the write.

C      SUBROUTINE write ( unit, str )
C      write a character string, left justified, to logical unit UNIT
      INTEGER      unit
      CHARACTER*(*) str
      CHARACTER*40  format
      ENCODE ( len(format), '((( A'',I3,''))',format)len(str)
      WRITE ( unit, format ) str
      RETURN
      END

```

```

C      INTEGER FUNCTION size
C      Find the length of a string by counting backwards
C      until a non-blank, non-zero byte is found.
C      Smallest string length returned is 1.
C
C      Argument:          character descriptor
C      Values returned:   the maximum of 1 and the
C                          length of the string not including
C                          trailing zeros or trailing blanks.
C
      INTEGER FUNCTION size ( line )
      CHARACTER*(*) line
      size = LEN ( line )
10      continue
      IF (.NOT. ( (line ( size:size ) .EQ. ' ' ) .OR.
>          ( line ( size:size ) .EQ. CHAR ( 0 ) ) ) .AND.
>          ( size .GT. 1 ) ) ) GOTO 20
          size = size - 1
      GOTO 10
20      RETURN
      END

```