

## INSTRUCTIONS TO AUTHORS

Revised January, 1982

### Introduction

*The American Mineralogist*, the journal of the Mineralogical Society of America, publishes the results of original scientific research in the general fields of mineralogy, crystallography, and petrology. Manuscripts are judged on the basis of significance, originality, appropriateness of subject matter, and clarity of presentation. The decision regarding acceptance or rejection of a manuscript is the responsibility of the Editor, it is based in large part on the reviews of associate editors and referees. Membership in the Mineralogical Society is not a prerequisite for publication in *The American Mineralogist*.

Authors are reminded that pressure on space in the journal is great, and publication costs are heavy (approximately \$130 a page in 1981). They are therefore urged to write as concisely as is consistent with clarity, and to avoid unnecessary detail. Overlong manuscripts may require special arrangements prior to consideration for publication. A prospective contributor should study these instructions and examine recent issues of *The American Mineralogist* to familiarize himself with the style and requirements of the journal, and should note the limitations set by the page size and lay-out.

A letter of transmittal, including a statement that the manuscript has not been previously published and is not about to be published, wholly or in part, must accompany each manuscript. Authors are *strongly* advised to have their manuscripts reviewed by colleagues before submission; include in the letter of transmittal the names of those colleagues. Referees are selected by associate editors, but authors may provide the names and addresses of persons in North America outside their institution whom they think are qualified to act as referees for the manuscript.

### Page charges

Part of the publication cost will be billed, at the rate of \$40 per published page, to the institution sponsoring the research. A form will be sent with the galley proof for the author to indicate where page charges are to be billed. Payment of page

charges is not a condition for acceptance or for publication.

Authors who pay page charges will be furnished 100 free reprints without covers, as will authors of Memorials and speeches at Society functions. On the form accompanying the galley proof, the author indicates the total number of reprints desired, consolidating the orders from all coauthors and including the free reprints. This form is sent to the Business Office of the Mineralogical Society at the same time that proof is returned to the Editor. The MSA Business Office will bill later; any purchase order forms required by the author's institution may be sent later to the Business Office of the Mineralogical Society of America, 2000 Florida Avenue, N.W., Washington, D.C. 20009.

### General requirements

Manuscripts, including illustrations, must be submitted to the Editor, Michael J. Holdaway, *The American Mineralogist*, Department of Geological Sciences, Southern Methodist University, Dallas, Texas 75275. Original tables should be retained by the author until the manuscript is accepted for publication. Manuscripts must be typewritten, *double-spaced throughout* (including title page, abstract, references, table and figure captions, and all footnotes except those to tables), with margins at least 1.5 inches on all sides of each page, on white paper about 8.5 × 11 inches in size; one side only of standard-weight paper must be used for the first copy. Clear photocopies (one side only) are acceptable for the second and third copies. Footnotes may be used only if absolutely essential; they are typed at the bottom of the page on which they appear and are numbered in sequence.

New mineral names and redefinitions of existing names must be approved by the Commission on New Minerals and Mineral Names of the International Mineralogical Association (Fleischer, 1970) before publication. For this purpose a copy of the manuscript should be simultaneously (or previously) sent to Dr. Akira Kato, Chairman, Commission on New Minerals and Mineral Names, National Science Museum, 3-23-1 Hyakunin-cho, Shinjuku,

Tokyo 160, Japan. In general, manuscripts proposing new names for imperfectly or incompletely described minerals or new names for mere compositional varieties cannot be accepted. Writers naming new minerals should conform to the rules and principles set forth in Hey *et al.* (1961) and by the Commission on New Minerals and Mineral Names (1982).

Obsolete, discredited, or superfluous mineral names may not be used. A useful guide is *1980 Glossary of Mineral Names* (Fleischer, 1980); if a mineral name does not appear therein, some explanation is usually necessary. This glossary is taken as the standard for the spelling of mineral names.

For crystallographic data, the recommendations of the Commission on Crystallographic Data of the International Union of Crystallography (Kennard *et al.*, 1967) are standard in this journal. X-ray powder diffraction data ( $d$  or  $2\theta$ ) may be tabulated if necessary to characterize the mineral. They may be illustrated only if essential features cannot be tabulated. If the data are similar to some already published or listed in the Powder Diffraction File, then a statement to that effect is usually sufficient without republishing either a table or a cut. Refinements to previously-available powder data can be contributed directed to the PDF without publication.<sup>1</sup> Powder patterns should be indexed, if at all possible, and cell parameters listed; if this is not possible, the reasons should be stated. If the space group is known or determined, a powder pattern whose extinctions are inconsistent with the space groups should not be published without explanation of the inconsistent extinctions.

#### Title and abstract

The increased application of computer systems for information retrieval requires that both title and abstract be as brief and informative as possible, consistent with their respective lengths. Authors should avoid complex symbols in the title. To facilitate identification in indexing and abstracting, it is recommended that authors spell out one of their given names rather than precede surnames with initials only.

The abstract should state concisely, in 250 words or less, what was done and what was concluded; if possible, it should include important numbers (*e.g.* temperature range, main X-ray lines, chemical composition, *etc.*). Literature citation should not appear in the abstract.

#### Style

Use a separate page for the title and authorship; number it 1 on the top right-hand corner. Begin abstract, text, references, table and figure captions on a new sheet. Subsections within the main text do not require a new sheet. Paginate figure captions and tables after the references. Avoid beginning a sentence with numbers or symbols. As far as possible, use decimals rather than fractions. Place a zero before the decimal point in writing numbers with no integer, *i.e.*, 0.25, not .25. Authors are responsible for indicating (by underlining) where italics are required in symbols and equations. Symbols which may be difficult to interpret should be explained in marginal pencil notes. Complex mathematical notations and equations are difficult and expensive to typeset, and should be used sparingly. Ionic charge is indicated by a superscript plus or minus sign following the symbol of the ion; for multiple charges an Arabic superscript numeral *precedes* the plus or minus sign, *e.g.* Na<sup>+</sup>, Cl<sup>-</sup>, Ca<sup>2+</sup> S<sup>2-</sup>.

American spelling and usage according to Webster's Third New International Dictionary are standard in *The American Mineralogist*. For questions of style not covered here, the answers can usually be found by examining a paper in the same field in a recent issue of *The American Mineralogist*. Excellent discussions of the preparation of manuscripts are *Geowriting* (Cochran *et al.*, 1979), *Writing Scientific Papers in English* (O'Connor and Woodford, 1975), and *Suggestions to Authors* (U.S. Geological Survey, 1979). If authors would adhere to the recommendations in these books, the path to publication would be smoothed for all concerned.

The system of metric units known as SI (Système International) should be used, except that the ångström unit may be used instead of nanometer, bar and kilobar may be used instead of the pascal, and degrees Celsius may be used instead of Kelvin. Where 0, O, l, 1, Greek letters, or other typography may be ambiguous in the text, instruct the printer by writing in the margin in pencil "zero", "oh", "el", "one", *etc.* Avoid the use of subscripts and superscripts as far as possible, since they require

<sup>1</sup>Address: Editor, Powder Diffraction File, Mary E. Mrose, U.S. Geological Survey, 959 National Center, Reston, Virginia 22092. Standard forms for reporting data may be obtained from Mr. W. F. McClune, Joint Committee on Powder Diffraction Standards, 1601 Park Lane, Swarthmore, Pennsylvania 19081.

expensive typesetting; parenthetical designations can often be used *e.g.*, *d*(calc.) M(1).

Precision of measurement may be indicated as  $1.78 \pm 0.002$ , if 0.002 represents a subjective estimate of the measurement error. Where sufficient data permit calculation of the estimated standard deviation (*esd*), indicate it as 7.3012 *esd* 0.002. To save space in tables, the shortened form 7.3012(2) or 7.3012(11) respectively indicates *esd*'s of 0.0002 or 0.0011.

For acceptable symbols and abbreviations, see Table 1.

### Use of headings

**Heads.** When set in type, an article is more attractive and easier to read if it is divided into major sections which are distinguished by first-order headings. These first-order heads should show the basic organization of the paper, and might be, for example: **Introduction; Previous Work; Methods; Results; Discussion; Conclusions and implications; Acknowledgments; References.** For a mineral-centered article they might be: **Introduction; Occurrence and associations; X-ray crystallography; Chemical composition; Physical and optical proper-**

**ties; Thermal study; Discussion; Conclusions; Acknowledgments; References.** These heads should be centered on the line; only the first letter of the first word need be capitalized.

**Subheads, or second-order heads.** A major section of a paper may itself be divided by a subhead. For example, if some of the previously-cited major sections in the paper on a mineral seem too brief, they may be grouped together as second-order heads under a single first-order head. Thus, under the first-order head **Results**, there might be grouped the subheads: *X-ray crystallography; Chemical composition; Physical and optical properties.* The previous heading, "Use of headings", represents style of a second-order head. These heads should be typed flush left on the line and underlined to indicate italics.

**Third-order heads.** The three paragraphs of this subsection on heads begin with "third-order heads", which may be used when a further subdivision is needed. If, in the previous example, two or more minerals are being studied, under the second-order head, *e.g.*, *Physical and optical properties*, the specific mineral names might be used as third-order heads. These heads should be indented at the beginning of the paragraph and underlined.

Table 1. Abbreviations and symbols commonly used in The American Mineralogist\*

Original typed version = 120 elite spaces = 10.0 in.			
Physical Quantities			
<u>P</u> ressure bar kbar = kilobars atm = atmosphere	<u>V</u> olume ml = milliliters $\text{\AA}^3$ = cubic angstrom	<u>I</u> ntensity $I/I_0$ = relative intensity  <u>d</u> = interplanar spacing	refr. ind. = refractive indices, or $n$ , $\epsilon$ , $\omega$ , $\alpha$ , $\beta$ , $\gamma$
<u>T</u> emperature K = Kelvin $^{\circ}\text{C}$ = degrees Celsius	<u>t</u> ime sec = seconds min = minutes hr = hours m.y. = million years	hkl = diffraction symbol (hkl) = face symbol {hkl} = form symbol [uvw] = edge or zone symbol	principal vibrations: <u>E</u> , <u>Q</u> , <u>X</u> , <u>Y</u> , <u>Z</u>
<u>L</u> ength in. = inches m = meter; cm = $10^{-2}\text{m}$ mm = $10^{-3}\text{m}$ ; $\mu\text{m}$ = $10^{-6}\text{m}$ nm = $10^{-9}\text{m}$ $\text{\AA}$ = angstrom	<u>f</u> = frequency (or $\nu$ ) <u>J</u> = joules g = gram; kg = kilogram $\mu\text{g}$ = microgram <u>D</u> = density = $\text{g}/\text{cm}^3$ ppm = parts per million pH <u>D</u> = specific gravity	<u>MoK<math>\alpha_1</math></u> = radiation type  unit cell <u>a</u> , <u>b</u> , <u>c</u> = edge lengths <u>a</u> , <u>b</u> , <u>c</u> = vectors** $\alpha$ , $\beta$ , $\gamma$ = angles	optic axial angle: $2V$ , $2V_X$ , $2V_Z$  <u>r</u> , <u>v</u> = dispersion  extinction angle: <u>Z</u> : <u>c</u>  perpendicular to = <u> </u>  parallel to = <u>  </u>
Other Abbreviations			
p. = page or pages ca. = circa calc. = calculated	et al. = et alii = and others etc. = and other things	i.e. = that is e.g. = for example cf. = compare	meas. = measured obs. = observed vs. = versus

\*The table title should be typed and should be the only material above the table itself. Other explanatory information can be placed as a footnote at the conclusion of the table, as done here. Instead of using letters or Arabic numerals, indicate footnotes by symbols such as \*, \*\*, †, ††. In this table the underlined portions of words indicate their standard abbreviations, and this underlining also instructs the printer to set the underlined materials in italics. All the abbreviations underlined above should be underlined in your manuscript, as they are customarily set in italics in print.

\*\*The wavy underlining calls for use of bold face type and is customarily used for vector quantities.

### Tables

Tables should be submitted as camera-ready copy, which can be photographed and included in the article without being set in type. The author should retain the original tables until the manuscript is accepted for publication by the Editor; three exact photocopies must be submitted with the original manuscript. To avoid undue delays or the necessity or retyping, use an electric typewriter with a carbon ribbon, and type each table on a separate sheet of white paper. We recommend Gothic or Artisan typefaces. Footnotes to the table are single-spaced. White correction fluid as well as light-blue guide lines, which will not photograph, are permissible.

Tables must be typed to one of the following widths:

4.5–6.0 in. for 1-column table

9.5–11.5 in. for 2-column table

12.0–14.5 in. for broadside table

This allows us to photoreduce a table to approximately 65 percent of its original size, keeping within the format of the journal. For 1- and 2-column tables, maximum length (unreduced) is 13.5 inches. Broadside tables must run approximately 8.5 inches for a 12-inch-wide table and 10 inches for a 14.5 inch-wide table.

Number the tables consecutively with Arabic numerals. About 3 mm above the column heads, use a smoothly-writing black pen to rule a double horizontal line,<sup>2</sup> the spacing between these two lines being about 2 mm. Immediately below the double line, type the individual column headings, capitalizing only the first letter of their first word. Draw a single horizontal line to separate the column heads from the data to follow below them. The material in the body of the table should be single-spaced, or, if the presence of subscripts or superscripts prevent this, it may be double-spaced (or 1½-spaced if your typewriter has a ½-space ratchet). After every four of five lines of data within the single-spaced body of the table—or as the material demands to block together like with like—skip a line, to aid the eye to follow horizontally along a given line. Below the final data in the table draw a single horizontal line to signify termination of the table. If

the table continues onto a following page or column, reserve this line so as to draw it only below the last line of data. Below this line of the table, type (single-spaced) all footnotes and general references; do not include such material in the table's title. Draw a single line after the footnotes to the table, to separate it from the text.

Tables may also be set by the printer, if the author so requests. There is a mandatory charge of \$120 for a full page, \$60 for a half page, and \$30 for a quarter page to be paid by the author after the tables have been set. The author is required to check all parts of the table, particularly numerical data and complex formulas, against the original; the editorial office cannot be responsible for errors in tables.

See *The American Mineralogist*, Volumes 64 through 66, for examples of tables to guide authors. Note the judicious use of single and double spacing to block the data and guide the eye.

All titles for tables are to be listed on a separate sheet, double-spaced (as are figure captions), to facilitate typesetting.

Data likely to interest only a few readers (*e.g.*, individual hydrothermal runs, observed and calculated structure amplitudes, multiple chemical analyses, or supporting raw data) will be printed at the discretion of the Editor. Usually he will ask that these be deposited in the permanent file in the Business Office, Mineralogical Society of America. An original typescript or the original computer printout is required in order to make a readable microfiche. Microfiche of the tables will be sent to any reader, upon request, for a nominal fee. Such tables should be referred to in the manuscript by a footnote such as:

“To receive a copy of Table X, order Document AM-82-000 from the Business Office, Mineralogical Society of America, 2000 Florida Avenue, N.W., Washington, D.C. 20009. Please remit \$1.00 in advance for the microfiche.

### Illustrations

The principal criterion for accepting illustrations is the amount of important information they convey. The following types of illustrations can often be replaced by a short sentence in the text: photographs of a massive mineral or a simply bedded outcrop, graph of a linear calibration, routine X-ray diffraction or differential thermal analyses results, previously-published illustrations. On the other hand, a single line drawing can often be substituted for an extensive table.

<sup>2</sup>To facilitate the drawing of inked lines parallel to the line of the typing, the typist should type an underscore OUTSIDE the table's left and right boundaries at the level where these horizontal lines are to be drawn. A straight-edge joining of these beyond-camera marks will then locate the lines correctly.

The originals and all copies of all illustrations must not exceed 8.5 × 11 inches; high contrast glossy black-and-white prints are preferred for ease of handling. The author must prepare all illustrations so that they will be legible when printed. Drawings and photographs will generally be reproduced at (A) 3.2 inches wide, (B) 6.5 inches wide, or (C) 8.5 inches wide. For type (C), which is broad-side or side-turn figures, the reproduced length should be between 5.5 and 6.5 inches. Figures of types (A) and (B) may be up to 8.5 inches long reproduced length, including their captions. The originals of these drawings and photographs may be retained by the author until he is notified by the Editor that his manuscript has been accepted. Three sets of photocopies of the figures should be included with each manuscript submitted. *The American Mineralogist* does not accept color prints.

Lines less than 0.5 mm wide when reduced to published size, or lines that are not black enough, may be lost in reproduction. Shading reproduces badly; use stippling or cross-hatching. Graph paper does not reproduce well; draft graphs with either no grid or a very open grid. Figures combining line cuts and half-tone reproductions of photographs are expensive to reproduce; they should be avoided if possible. On photographs use a bar scale *on* the photography, *not* outside of it, instead of a magnification factor in the legend. Numbers and letters on figures should be drafted at a large enough size that reasonable reduction leaves them at least 2 mm in height.

Do not insert illustrations in the text. All illustrations are figures. Individual parts may be grouped as one figure having a single legend, providing they do not extend beyond one page. Each part of the figure should be identified by a neat letter in one corner of the figure itself (not in the margin); these letters will be reproduced with the figure when it is published. All captions for figures, including general legends for any group figures, should be typed double-spaced in paragraph form on a separate sheet, numbered consecutively with Arabic numerals.

### References

The list of references *must be double-spaced*.

References are cited in the text by the name of the author(s) and the year of publication; if the citation has more than two authors, the first should be used followed by "*et al.*", as, for example,

Cochran *et al.* (1979). Only references mentioned in the text (or tables or figures) are listed. Accurate and complete references are an indication of the reliability of an author. *The author must check all parts of a reference listing against the original*. If the original was not seen, add "not seen; extracted from . . .", as in Gvakhariya (1953) in the Appendix. References to books should include the relevant page numbers after the date in the text, rather than in the References (*e.g.*, Cochran *et al.*, 1979, p. 14).

References are arranged alphabetically by the last name of the senior author and placed at the end of the paper, as in the reference list below. For several publications of an author and coauthor(s), the following order should be used: publications of the single author, in sequence of publication dates; publications of the same author with one coauthor, in alphabetical order (*not* chronological order); publications of the author with two coauthors, in alphabetical order, *etc.* All authors should be listed last name, comma, initials; do not use a dash if an author's name is repeated. In order to avoid confusion with other authors' names, first name should be spelled out wherever possible for any author who has a single initial. *Journal titles must be spelled out in full*. Accuracy of journal titles must be checked by authors.

References to unpublished material (manuscripts, reports, computer programs, personal communication, and the like) are made in the text or acknowledgments sections, not in the list of references. Specify the source person sufficiently (for instance by his institution) that he can be identified.

A report may be cited, and may be included in the list of references, if it is generally available. Reports from U.S. Government or government-sponsored research are most generally available through the U.S. Department of Commerce National Technical Information Service, and such a report should be referred to by the NTIS document number ("AD", "PB", *etc.*) as in Busing *et al.* (1962) in the Appendix.

Manuscripts *accepted* for publication, but which have not yet appeared in print, may be included in the list of references; see Mazzi and Rossi (1980) in the Appendix. Those which have been submitted but not yet accepted, and those which are under review or in the process of revision, should *not* be listed, but may be cited in the text.

Reference to a presentation at a meeting should be to the published abstract, and should be identi-

fied as such just after the title of the paper, see Chernosky and Knapp (1977) in the Appendix.

Translations, whether individual or from a cover-to-cover translation journal, should be listed by the original source, followed by the translated source in brackets; see Urosov (1967) in the Appendix.

### Errata

Corrections to a paper that has already been published are to be sent in duplicate to the Editor; they will be published in an Errata section in the November–December issue. Check a previous issue to see the proper format for publication; like all material submitted for publication, they must be double-spaced.

### References

- Cochran, W., Fenner, P., and Hill, M. (Eds.) (1979) *Geowriting: A Guide to Writing, Editing, and Printing in Earth Science*, third ed. American Geological Institute, Falls Church, Virginia.
- Commission on New Minerals and Mineral Names of the International Mineralogical Association (1982) Suggested outline for new mineral descriptions. *American Mineralogist*, 67, 190–191.
- Fleischer, Michael (1970) Procedure of the International Mineralogical Association Commission on New Minerals and Mineral Names. *American Mineralogist*, 55, 1016–1017.
- Fleischer, Michael (1980) 1980 Glossary of Mineral Species. Mineralogical Record, P.O. Box 35565, Tucson, Arizona 85740.
- Hey, M. H., Guillemin, C., Permingeat, F., and de Roever, J. P. (1961) sur la nomenclature mineralogique. *Bulletin de la Société Française de Minéralogie et de Cristallographie*, 84, 96–104.
- Kennard, O., Speakman, J. C., and Donnay, J. D. H. (1967) Primary crystallographic data. *Acta Crystallographica*, 22, 445–449.
- O'Connor, Maeve and Woodford, F. P. (1975) *Writing Scientific Papers in English*. Elsevier, New York.
- U.S. Geological Survey (1979) *Suggestions to Authors*, sixth ed. U.S. Government Printing Office, Washington, D.C.

### Appendix: sample entries for list of references

#### Journal articles:

- Akella, J. and Kennedy, G. C. (1971) Studies on anorthite + diopside<sub>50</sub>-hedenbergite<sub>50</sub> at high pressures and temperatures. *American Journal of Science*, 270, 155–165.
- Gvakhariya, G. V. (1953) A barite-witherite association. *Soobshcheniya Akademii Nauk Gruzinskoi, SSSR*, 14, 5, 267–272 (not seen; extracted from *Chemical Abstracts*, 49, 2956).
- Hayes, J. F. (1967) Lime-alumina-silica. *Carnegie Institution of Washington Year Book*, 65, 234–249.
- Mazzi, Fiorenzo and Rossi, Giuseppe (1980) The crystal structure of taramellite. *American Mineralogist*, 66, 123–128.
- Vornokov, A. A. and Pyatenko, Y. A. (1961) Crystal structure of vlasovite. (in Russian) *Kristallografiya*, 6, 937–943.
- Wyllie, P. J. (1977) Crustal anatexis: an experimental review. *Tectonophysics*, 43, 41–71.

Wyllie, P. J. and Huang, W. L. (1975) Peridotite, kimberlite, and carbonatite explained in the system CaO–MgO–SiO<sub>2</sub>–CO<sub>2</sub>. *Geology*, 3, 621–624.

Wyllie, P. J. and Tuttle, O. F. (1959) Effect of carbon dioxide on the melting of granite and feldspars. *American Journal of Science*, 257, 648–655.

#### Translated articles:

Urosov, V. S. (1967) Chemical bonding in silica and silicates. *Geokhimiya*, 399–412 (transl. *Geochemistry International*, 4, 350–362, 1967).

#### Abstracts:

Chernosky, J. V., Jr. and Knapp, L. A. (1977) The stability of anthophyllite plus quartz. (abstr.) *Geological Society of America Abstracts with Programs*, 9, 927.

#### Reports:

Busing, W. R. Martin, K. O., and Levy, H. A. (1962) ORFLS, a Fortran crystallographic least-squares refinement program. U.S. National Technical Information Service, ORNL-TM-305.

#### Books:

- Bancroft, G. M. (1974) *Mössbauer Spectroscopy*. McGraw-Hill, New York.
- Deer, W. A., Howie, R. A., and Zussman, J. (1962) *Rock-Forming Minerals, Vol. 1, Ortho- and Ring Silicates*. Wiley, New York.

#### Articles in books:

- Holloway, J. R. (1977) Fugacity and activity of molecular species in supercritical fluids. In D. G. Fraser, Ed., *Thermodynamics in Geology*, p. 161–181. Reidel, Dordrecht, The Netherlands.
- Perchuk, L. L. (1977) Thermodynamic control of metamorphic processes. In S. K. Saxena and S. Bhattacharji, Eds., *Energetics of Geological Processes*, p. 285–352. Springer-Verlag, New York.
- Whaley, T. P. and Ferrara, L. W. (1973) Gravimetric analyses of phosphorus compounds. In E. J. Griffith *et al.*, Eds., *Environmental Phosphorus Handbook*, p. 313–326. Wiley-Interscience, New York.

#### Dissertations and theses:

Dick, H. J. B. (1976) The Origin and Emplacement of the Hoesephine Peridotite of Southwestern Oregon. Ph.D. Thesis, Yale University, New Haven.

#### More than one entry for author:

- Radtke, A. S. (1973) Preliminary geologic map of the Carlin gold mine, Eureka County, Nevada. U.S. Geological Survey Miscellaneous Field Studies Map MF-537.
- Radtke, A. S. and F. W. Dickson, F. W. (1975) Carlinite. Ti<sub>2</sub>S, a new mineral from Nevada. *American Mineralogist*, 60, 559–565.
- Radtke, A. S., Taylor, C. M., and Heropoulos, C. (1973) Antimony-bearing orpiment, Carlin gold deposit, Nevada. *Journal of Research of the U.S. Geological Survey*, 1, 85–87.
- Radtke, A. S., Taylor, C. M., Erd, R. C., and Dickson, F. W. (1974) Occurrence of lorandite, TIAsS<sub>2</sub>, at the Carlin gold deposit, Nevada. *Economic Geology*, 69, 121–124.