CHEMICAL REVIEWS

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ARTICLES FOR CHEMICAL REVIEWS—SUGGESTION TO AUTHORS

(Revised, effective for articles to be published in 1968)

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I. GENERAL STATEMENT

Articles for *Chemical Reviews* should be authoritative, critical, and comprehensive reviews of recent research in the various fields of chemistry. The fundamental purpose of a review article is to promote the advancement of chemistry by a systematic presentation of the facts, theories, ideas, and mechanisms which have developed over a period of years. Reviews conserve the time of future chemists, since they do not have to read several hundred original articles to find out what has been done. The subject should be carefully selected and the scope defined to provide unity of thought and a logical arrangement of ideas. The topic should have a considerable literature background; reviews restricted to the author's work in the field are usually not acceptable. In general, the topic should not have been reviewed in a readily available publication for at least five years; exceptions may be made if developments in a field have been particularly rapid, or if new insight can be achieved through further review of the subject.

Articles must be readable. Preference will be given to creative, critical reviews on timely subjects, and to reviews which are likely to promote research in the subject. *Chemical Reviews* is not a repository for compilations of data.

The readers of *Chemical Reviews* are teachers, students (undergraduate and graduate), practicing chemists, research chemists, and scientists in fields closely related to chemistry. In writing the article, the author should assume that these readers are competently trained in fundamentals but that they have no extended knowledge of the specialized topic. Material which is available in modern undergraduate and graduate text books and comprehensive treatises should *not* be repeated, but reference to such sources should certainly be given. The presentation should be at a high level, not elementary.

II. PRELIMINARY SURVEY AND APPROVAL OF ARTICLES

Articles for *Chemical Reviews* are prepared by invitation from the editor as the result of suggestions by the editorial board or by any chemist who has made a preliminary survey of the literature in a given field. The editor will be pleased to receive suggestions for timely reviews and will discuss with prospective authors the suitability of their manuscripts. An effort is made to plan a publication schedule about a year in advance.

To assist the editor in evaluating a subject suggested for *Chemical Reviews*, authors are requested to send to him *three* copies of the following material.

1. A two- or three-page detailed topical outline. This should be complete with formulas, structures, and equations, so that it may be checked against other outlines in the editor's files to guard against duplication of effort.
2. A list of previous reviews, including books or book chapters dealing with the subject of the intended review. A cumulative index to *Chemical Reviews* for Volumes 1 through 60 was published in the December issue of 1960. Annual indexes appear in the December issue of each volume. The next cumulative index is planned for 1970.
3. An estimate of the number of references (*i.e.*, 50, 100, 200, 300, or more).
4. An estimate of the number of double-spaced typewritten pages (50, 100, 200, 300).
5. A tentative date when the author could submit the manuscript (3, 6, 9, or 12 months).

This material will be examined by the editor with advice from referees and the editorial board. After receiving preliminary approval the author should proceed with the writing of the review. He will have the assurance that the article will be accepted, providing, of course, that he does a good job of writing.

At the time the editor sends his preliminary approval of the review, a definite date will be set for receipt of the manuscript.

Review manuscripts sent to the editor without preliminary approval will also be carefully examined and, if acceptable, will be published at the earliest date consistent with the publication schedule.

III. DIVISIONS OF THE MANUSCRIPT

Authors should examine a current issue of *Chemical Reviews* for guidance with respect to format, style, and presentation of the review.

A. Salutation

Title. This must be selected with great care. It must be precise and should indicate the accurate chemical content, for indexing.

Authors' Names. In general, the senior author's name should be placed first.

Name and Location of Institution.

Table of Contents. The items should be descriptive so that they can serve in place of an abstract or summary. Authors should consult previous issues for format. Note that main divisions are indicated by Roman numerals, subdivisions by capital letters and Arabic numbers, and subclasses by lower-case letters. This classification of material must correspond to the same parts in the body of the article.

B. Introduction

This should be about one or two pages long and should state precisely the scope and limitations of the review and the years covered. The nomenclature (organic or inorganic) or notation system used should be clearly stated. Names and numbering systems used by *Chemical Abstracts* in recent indexes, as well as common or trivial names, should be indicated. In general, official *Chemical Abstracts* names are preferred. It is the author's responsibility to select the proper nomenclature before the review is written and then to use the chosen notation consistently throughout. Authors should remember that the review article is designed for service to the readers and hence must indicate the names or topics which will enable the reader to locate future articles in *Chemical Abstracts.*

C. The Review

The material in the review should be clearly and logically arranged, with main divisions and subdivisions. It should be organized according to the reactions or theories involved and usually not according to purely historical sequence. In general, the entire article should not be chronological.

The length of an article should be determined by the character and amount of material, and the number of references. The editorial board does not dictate the exact length. However, this does not mean that authors should take up excessive space with unnecessary words or phrases. Repetition and redundant phrases should be avoided. The style should be clear and concise. Do not give a historical development and then repeat this material later. Weave in the development of the topic under the proper scientific heading. If the development up to a certain year has been given in an article, book, or monograph, do not repeat this material, even if it has never appeared in *Chemical Reviews.* Cite the reference.

Each sentence and paragraph should convey definite information to the reader. Facts, laws, and theories should be so presented that the reader does not have to examine the original literature to get a clear picture of the results. Do not give extended descriptions of experimental details, but do state the general method. Compare results such as percentage yields, kinetic order of reactions, accuracy, precision, and reproducibility. Readers should consult the original references to obtain exact experimental procedures.

New, original, experimental, and theoretical work customarily should be published in other journals. However, the critical examination and evaluation of prior work in a review article may lead to hypotheses, theories, or laws which coordinate and clarify apparently disconnected data. Such interpretations are entirely suitable for inclusion.

The material should be treated objectively and critically—avoiding personalities and polemics—because the fundamental purpose of a review is to advance the science of chemistry.

D. Organization and Writing

If a considerable number of compounds have been made by one general reaction, these are conveniently summarized in tables with suitable references. In physicochemical articles the notation and meaning of symbols should be specifically defined at some suitable point. Conventional symbols, as described in the ACS "Handbook for Authors," should be used whenever possible. Tables and graphs should be numbered consecutively and referred to in the text by number; *i.e.*, use "Figure 5," "Table II," etc., and not "the following figure," "the above table," etc. To save space in printing, tables should be distributed throughout the paper and not grouped at the end in a special section or appendix.

To avoid repeating long complicated names of compounds in the text, their structures may be drawn and denoted by boldface Arabic numerals; boldface is designated to the printer by a small wavy line beneath the number, as 127. These numbers should always be underlined as shown, whether they appear beneath a formula or in the body of the text. Roman numerals may be used if the author prefers them, but in general they should be avoided if the article contains a large number of formulas. In articles having a number of equations (chemical or mathematical) denote these by placing (1), (2), (3) at the right side of the equation and refer to them in the text as eq 1, eq 2, etc., except at the beginning of a sentence, where Equation is spelled out. Do not put these numbers in parentheses in the text.

References should be designated by a superscript; this should always follow a word, and never follow a chemical or mathematical formula. This avoids confusion with subscripts and superscripts, *e.g.*, mathematical expressions with factors raised to a power ($y = ax^4$).

In the text when referring to data reported by a number of coauthors, it is courteous to give all of the names on the paper or else to omit all of them (preferable). Since the reference will usually appear on the same page, beneath the text, the reader can quickly spot the authors' names if he wishes.

Preferred:

The heat of hydrogenation of styrene to ethylcyclohexane was found[164] to be −77.8 kcal/mole.

or

The heat of hydrogenation of styrene to ethylcyclohexane was found to be −77.8 kcal/mole.[164] (Note that the reference *follows* a punctuation mark.)

Undesirable:

Dolliver, Gresham, Kistiakowsky, and Vaughn[164] studied the hydrogenation of styrene and found that complete reduction to ethylcyclohexane involved a heat of hydrogenation amounting to −77.8 kcal/mole.

Try to avoid expressions such as "Dolliver, *et al.*" or "Kistiakowsky and co-workers." The example cited also illustrates the importance of simple construction and the elimination of long, complicated, wordy sentences.

Scan your manuscript for "idle words" and delete them. Various introductory phrases which are quite natural in speech should not be used. For example, "It will be recalled that . . ." and "It is obvious that . . ." are redundant. Use active rather than passive verbs; "depends on" rather than "is dependent upon." Do not use the word "utilize" in any of its various forms; it can always be replaced by some form of the word "use."

Avoid personal pronouns: I, we, you, he, she, they. Recasting the sentence without pronouns usually makes for clear precise statements and avoids ambiguity in antecedents. Except in special instances do not use direct quotations. State the author's data, theories, and conclusions fairly, but avoid selecting a phrase, sentence, or paragraph out of context.

Authors may wish to consult articles by H. R. Struck, *Science*, **119**, 522 (1954), E. S. McCartney, *ibid.*, **119**, 525 (1954), and J. C. Lane, *J. Chem. Doc.*, **4**, 126 (1964), for helpful hints on style and organization. Webster's "New International Dictionary" (unabridged) is an excellent source of information about words, phrases, and sentences. The ACS "Handbook for Authors" contains many excellent suggestions for preparing manuscripts. A copy may be obtained from the Society's Director of Publications.

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F. Footnotes

Use of footnotes should be minimal, since they tend to distract the attention of the reader. A reference in a footnote should be designated as in the body of the text, *i.e.*, by a superscript. The reference should not be included in the footnote.

G. Acknowledgments

All acknowledgments should be placed in a separate paragraph at the end of the review. Include

acknowledgments to copyright owners, federal agencies, state agencies, philanthropic gifts, thanks to fellow chemists for assistance, everything.

H. References

References and all footnotes should be numbered in one consecutive series, repetition being avoided by using the superscript number corresponding to the first time the reference appears. Reference numbers should be typed as unparenthesized superscripts in the text, but should be enclosed in parentheses in the reference. References may be placed at the bottom of the typed page or may follow immediately, in separate lines, the line of text containing the words to which they refer. Use a separate number for each reference; for example

"the thiirane was obtained from a sugar α-thiocyanomesylate in high yield,[30,31] whereas direct conversion of the corresponding epoxide is difficult[30,32]"

(30) J. E. Christensen and L. Goodman, *J. Am. Chem. Soc.*, **82,** 4738 (1960).

(31) J. E. Christensen and L. Goodman, *ibid.*, **83,** 3827 (1961).

(32) R. D. Guthrie, *Chem. Ind.* (London), 2121 (1962).

Official *Chemical Abstracts* abbreviations should be used for names of journals, and the volume, page, and year should be given. Include authors' initials and punctuate as shown in the examples above. If a reference is to an obscure or generally unavailable journal, the *Chemical Abstracts* reference should be given in addition to the original.

Example

(11) A. E. Arbuzov and Y. P. Kitaev, *Tr. Kazansk., Khim.-Tekhnol. Inst.*, **23,** 60 (1957); *Chem. Abstr.*, **52,** 9980 (1958).

References to translated journals should be clearly indicated as such, and the original reference should also be cited.

For books, the author(s), title, publisher's name and address, year of publication, and the chapter or page(s) should be included.

Example

(12) S. W. Benson, "The Foundations of Chemical Kinetics," McGraw-Hill Book Co., Inc., New York, N. Y., 1960, p 342.

Regularly published volumes such as *Organic Syntheses, Inorganic Syntheses, Biochemical Preparations, Annual Reports of the Chemical Society, Annual Review of Biochemistry*, etc., should be treated as serials. The names of the submitters or authors of chapters and not those of the editors should be given.

Example

(27) R. C. Cookson, *Ann. Rept. Progr. Chem.* (Chem. Soc. London), **54,** 174 (1957).

(28) W. E. Truce, *Org. Reactions*, **9,** 37 (1957).

Citations of patents should include the author's name (or the name of the company if no individual is named as the patentee), the patent number, the year, and a reference to *Chemical Abstracts, Chemisches Zentralblatt*, or other source.

IV. STRUCTURAL FORMULAS, GRAPHS, ILLUSTRATIONS, FIGURES

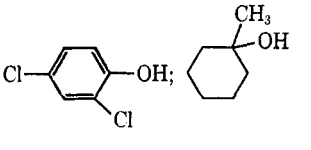
Illustrative material is of two types: pen and ink drawings, which are reproduced by the line-engraving process, and glossy photographs. All drawings should be made with India ink on tracing cloth or paper, white paper, or blue-lined coordinate paper. Lettering of numerals and legends at the sides and bottoms of graphs, as well as of any numerals or words appearing on the graph itself, should be large enough to be seen clearly when the drawing is reduced. Most figures can be advantageously drawn for a reduction of from 50 to 75%, *i.e.*, a drawing measuring 6 by 8 in. may be reduced to one measuring 3 by 4 in. or even 1.5 by 2 in.

Printers have difficulty in setting certain complicated drawings such as fused-ring structures, coordination structures of complex compounds, stereochemical conformation structures, perspective diagrams, π complexes, and structures using curved arrows. These are expensive to set by hand. Authors should therefore draw these diagrams with India ink on tracing cloth or paper, plain white paper, or blue-lined coordinate paper. A stencil should be used for the lettering, and formulas and letters should be made twice as large as desired in the final cut. These drawings can be reproduced photographically. Legends for the figures should be typed on a separate page.

Linear formulas and simple structures where the bond lines make standard angles (90°, 60°, 45°) with each other can be set. Consultation of recent issues of the journal will indicate the formulas that can be set in type. The Senior Production Editor will answer any queries as to the possibility of setting certain formulas in type.

Use dots only for electronic formulas, lines for covalent linkages, and plus and minus signs for charges on ions. For the unsubstituted phenyl radical, use C_6H_5; do not use the hexagon. Even disubstituted benzene derivatives can be typed as *o*-$C_6H_4Cl_2$; *m*-$O_2NC_6H_4SO_3H$. Use the hexagon only when necessary to avoid ambiguity or when discussing certain points concerning mechanism, polarization, or resonance.

The Kekulé formulas should be used for aromatic compounds to distinguish them from the cycloparaffin derivatives, *e.g.*



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For further technical guidelines, authors should read appropriate sections of the ACS "Handbook for Authors."

V. TYPING

Manuscripts should be typed double-spaced on one side of white bond paper measuring 8.5 × 11 in. Bond paper of 14–16 lb weight is recommended. Pages should be numbered consecutively in the upper right-hand corner. Manuscripts *must* be submitted in duplicate, but more expeditious action is possible if three copies are supplied. Xerox or mimeographed copies are preferable to conventional carbon copies.

Formulas and equations should be separated from the text by a space. Linear formulas may be typed; more complex structures should be neatly and accurately drawn with India ink, using a stencil for any lettering (see section IV). Formulas should not be crowded. Copy should be clear, unambiguous, and easily legible, as the manuscript is to be set in type by an operator who is not a chemist.

VI. SUGGESTED PROCEDURE FOR PREPARATION OF MANUSCRIPT

The problem of writing the review and arranging the large number of references without error may be solved in a number of ways, and is perhaps a matter of personal taste. However, authors may find some suggestions helpful. One writing technique which minimizes labor and which eliminates reference errors uses the following steps:

1. Complete the literature survey, recording the material in any fashion you prefer: punched cards, index cards, or paper sheets. Then sort the material according to the main divisions and subdivisions in the outline.
2. In the first draft of the review, insert the references throughout the article (separated by two horizontal lines) at the specific point to which each reference applies (see section III.H). Place each reference on a separate line and use no numbers. If pages are rearranged, be careful to move the references as well.
3. If the first draft is neat enough to be used as copy for final typing, make a photocopy of it. Otherwise, have two copies of a second draft typed, double-spaced. The references and footnotes are still unnumbered, and certain references may appear in more than one place throughout the manuscript. Corrections and revisions may now be made on these copies. Read the discussion given above concerning the writing of the review (section III.C and D). Rewrite and polish the article, retyping any pages with the interlined references.

   It is a good idea to put the article away for a week and then reread it critically. Ask a colleague to read it and to mark questionable places.

   This is the stage at which you may do last-minute literature work. Recent references can be added easily now, and divisions and subdivisions of the text with the accompanying references can be rearranged. Sections which include a large number of changes and additions should be retyped in duplicate.
4. The duplicate copy from step 3 is used to assign correct numbers to the references and footnotes, and to eliminate duplicate references. The references are cut apart from the text, clipped or pasted to separate sheets of paper or index cards, and arranged alphabetically according to authors' names. This job can be done by a secretary or other clerical help, if available. It may be convenient to type the alphabetized reference list. Duplicate references are thus easily located and deleted. *Only through some sort of alphabetization procedure can duplicate references be located and systematically eliminated.*
5. The proper reference numbers are now written on the revised copy prepared in step 3. References and footnotes are numbered consecutively, as unparenthesized superscripts in the text and in parentheses in the reference or footnote (see section III.H). As each reference is numbered, it is also located in the alphabetized list, and the assigned number is written adjacent to the reference. If the same reference appears later in the manuscript, the first number assigned to it will be apparent from the alphabetized list and should be assigned as a superscript in the text; the duplicate reference should be striken from the manuscript. If the job has been done correctly, the sum of the number of references in the alphabetized list plus the footnotes should be equal to the number of the last reference or footnote in the article.

   If necessary, sections of the manuscript may be retyped. Drawings and formulas should now be inked on the original.

Chemical Reviews is edited on a part-time basis and there are no full-time employees to revise, rewrite, or retype manuscripts. The editor depends on authors to furnish perfect copy for the printers, who are *not* chemists. Before mailing the manuscript it should be read carefully to make sure that perfect copy is being submitted. If a number of errors are found on one page, that page should be retyped. A clean, clear copy of text, formulas, and equations is needed by the printer.

At least two, preferably three copies of the manuscript should be placed between two sheets of

cardboard and inserted in a strong manila envelope for mailing. Thick manuscripts (100–300 pp) are best placed in a cardboard box and wrapped securely. Be sure to keep one copy in case the manuscript should get lost in the mails.

VII. CORRESPONDENCE

All correspondence, outlines of proposed reviews, and manuscripts should be sent by first-class mail to the Editor:

PROFESSOR HAROLD HART, *Editor*
Department of Chemistry
Michigan State University
East Lansing, Michigan 48823

DO NOT use "certified" or "registered" mail. An acknowledgment is sent by the editor immediately upon receipt of a manuscript or outline.

When two or more authors collaborate in the preparation of a review, *only one* of these should carry out all correspondence with the editor, handle the galley proof, and order the reprints.

After an article has been accepted for publication, it is edited and prepared for the printers by the Senior Production Editor:

DR. CHARLES R. BERTSCH
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Research Journals Production Office
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Easton, Pennsylvania 18042

VIII. PROOF

About two months before the article is to appear, galley proofs will be mailed to the senior author. If there are two or more authors, only one will serve as proofreader. Proofs should be read carefully and checked against the manuscript. Corrections should be made according to the instructions sent with the proofs. Authors must limit changes to the correction of errors. They should *not* rewrite material or add more material at this stage. Even though articles pertinent to the review may have appeared since the mailing of the manuscript, the author is protected by the date of its submission and by the statement in the introduction to his review.

The corrected galley proofs should be mailed to Dr. Charles R. Bertsch *within three days*.

IX. REPRINTS

Reprints may be ordered only at the time the galley proof is received. A table showing the cost of reprints with an order slip is sent to the senior author and must be returned along with the galley proof. Orders for more than 200 reprints are generally not accepted owing to the nature of the articles in *Chemical Reviews*.

Twenty-five additional reprints of the type ordered (with or without covers) will be furnished free. If no reprints are ordered, twenty-five copies of the issue in which the article appears will be furnished to the senior contributor free of cost.

X. BUSINESS AND SUBSCRIPTION INFORMATION

At present, there is no page charge to authors for articles in *Chemical Reviews*. To continue this practice it is important that readers and authors become regular subscribers to *Chemical Reviews*.

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