

GEOLOGICAL NOTES

A SCRUTINY OF THE ABSTRACT¹

KENNETH K. LANDES²

Ann Arbor, Michigan

ABSTRACT

The behavior of editors is discussed. What should be covered by an abstract is considered. The importance of the abstract is described. Dictionary definitions of "abstract" are quoted. At the conclusion a revised abstract is presented.

Presumably new editors, like new senators and small children, should be seen and not heard. But unfortunately the Association has elected (the electorate had no choice) an editor who is a non-conformist. For many years I have fretted over the inadequate abstract, and now perhaps I can do something about it—but not by keeping quiet.

Many of the abstracts appearing in the publications, including the meeting programs, of the A.A.P.G. can best be described by the use of a homely word that refers to an infestation by certain minute organisms. The abstract appearing at the beginning of this note is in that category. I regret to say that it is not an extreme case. My collection contains several that are worse. Dean Russell of Louisiana State refers to such abstracts as "expanded titles." They could also be looked upon as a table of contents, in paragraph form, with "is discussed" and "is described" added so as to furnish each subject with the verb necessary to complete the sentence. The reader is left completely in the dark not as to what the paper is about but as to what it tells! The information and the interpretation contained therein remain a mystery unless the reader takes the time to read or listen to the entire paper. Such abstracts can be likened to the "teasers" which your local movie manager shows you one week in the hope of bringing you back next week. But the busy geologist is more likely to be vexed than intrigued by the coy abstract.

To many geologists, especially to the tyros in exposition, the writing of the abstract is an unwanted chore required at the last minute by a rule-ridden editor or insisted upon even before the paper has been written by a deadline-bedeveled program chairman. However, in terms of market reached, the abstract is *the most important part of the paper*. For every individual who reads or listens to your entire paper, from ten to five hundred will read the abstract. It is much better to please than to antagonize this great audience. Papers written for oral presentation should be prepared with the deadline the abstract date instead of the delivery date. Later discoveries can be incorporated within the paper—and they would miss the program abstract anyway.

My dictionary describes an abstract as "a summary of a statement, document, speech, etc." and "that which *concentrates in itself the essential qualities of anything more extensive* or more general, or of several things; essence." The definition I like best has been set in italics. May all writers learn the art (it is not easy) of preparing an abstract containing the *essential qualities* of their compositions! With this goal in mind I append an abstract that I believe to be an improvement over the one appearing at the beginning of this discussion.

ABSTRACT

The abstract is of utmost importance, for it is read by 10 to 500 times more people than hear or read the entire article. It should not be a mere recital of the subjects covered, replete with such expressions as "is discussed" and "is described." It should be a condensation and concentration of the *essential qualities* of the paper.

¹ Manuscript received, May 5, 1951.

² Editor of the *Bulletin*.

GEOLOGICAL NOTES

A SCRUTINY OF THE ABSTRACT, II¹

KENNETH K. LANDES²

Ann Arbor, Michigan

ABSTRACT

A partial biography of the writer is given. The inadequate abstract is discussed. What should be covered by an abstract is considered. The importance of the abstract is described. Dictionary definitions of "abstract" are quoted. At the conclusion a revised abstract is presented.

For many years I have been annoyed by the inadequate abstract. This became acute while I was serving a term as editor of the *Bulletin* of The American Association of Petroleum Geologists. In addition to returning manuscripts to authors for rewriting of abstracts, I also took 30 minutes in which to lower my ire by writing, "A Scrutiny of the Abstract."¹ This little squib has had a fantastic distribution. If only one of my scientific outpourings would do as well! Now the editorial board of the Association has requested a revision. This is it.

The inadequate abstract is illustrated at the top of the page. The passive voice is positively screaming at the reader! It is an outline, with each item in the outline expanded into a sentence. The reader is told what the paper is about, but not what it contributes. Such abstracts are merely overgrown titles. They are produced by writers who are either (1) beginners, (2) lazy, or (3) have not written the paper yet.

To many writers the preparation of an abstract is an unwanted chore required at the last minute by an editor or insisted upon even before the paper has been written by a deadline-bedeveled program chairman. However, in terms of market reached, the abstract is *the most important part of the paper*. For every individual who reads or

listens to your entire paper, from 10 to 500 will read the abstract.

If you are presenting a paper before a learned society, the abstract alone may appear in a pre-convention issue of the society journal as well as in the convention program; it may also be run by trade journals. The abstract which accompanies a published paper will most certainly reappear in abstract journals in various languages, and perhaps in company internal circulars as well. It is much better to please than to antagonize this great audience. Papers written for oral presentation should be *completed prior to the deadline for the abstract*, so that the abstract can be prepared from the written paper and not from raw ideas gestating in the writer's mind.

My dictionary describes an abstract as "a summary of a statement, document, speech, etc. . . ." and that which *concentrates in itself the essential information* of a paper or article. The definition I prefer has been set in italics. May all writers learn the art (it is not easy) of preparing an abstract containing the *essential information* in their compositions. With this goal in mind, I append an abstract that should be an improvement over the one appearing at the beginning of this discussion.

ABSTRACT

The abstract is of utmost importance, for it is read by 10 to 500 times more people than hear or read the entire article. It should not be a mere recital of the subjects covered. Expressions such as "is discussed" and "is described" should *never* be included! The abstract should be a condensation and concentration of the *essential information* in the paper.

¹ Revised from K. K. Landes' "A Scrutiny of the Abstract," first published in the *Bulletin* in 1951 (*Bulletin*, v. 35, no. 7, p. 1660). Manuscript received, June 3, 1966; accepted, June 10, 1966.

Editor's note: this abstract is published together with The Royal Society's "Guide for Preparation

and Publication of Abstracts" to give *Bulletin* authors two viewpoints on the writing of abstracts.

² Professor of geology and mineralogy, University of Michigan. Past editor of the *Bulletin*.

The Abstract Rescrutinized

It would seem that little more could be said about writing abstracts after K. K. Landes's (1951, 1966) concise classics, but an irritating new weakness seems to be creeping into manuscripts, calling for further scrutiny. I refer to the growing tendency of authors to write long, eloquent abstracts that are actually *introductions* rather than summaries. Let me reproduce one sentence (slightly disguised) that begins the "abstract" of an otherwise excellent manuscript I am currently reviewing: "The long-standing concept of the _____ region of _____ as part of the stable craton which has undergone only minor tectonism during the past several hundred million years is being modified in view of accumulating evidence for minor, but widespread Quaternary and recent activity." This preamble is followed by 1½ similar pages, which would be a good introduction but is not a good abstract.

I would like to help authors avoid this problem by adding a few refinements to Landes's maxims. First, start the abstract by telling the reader at once what the paper *is*: new data, a review of progress, a new technique, a synthesis, or whatever describes the *nature of the paper*. To be sure, this recommendation can in principle be followed by a well-designed title, such as Isachsen's (1975) "Possible evidence for contemporary doming of the Adirondack Mountains, New York, and suggested implications for regional tectonics and seismicity," almost an abstract by itself. But if the title does not make it clear what the paper is, the abstract should, preferably in the first line: "This paper reports a comparative study of digital image enhancement techniques for synthetic aperture radar (SAR) using SIR-B and Seasat images of the Canadian Shield" (Masuoka et al., 1988). This first line should not be a simple restatement of the paper's title.

A second suggestion: write the abstract in a terse, almost telegraphic style, saving your eloquence for the body of the paper. The abstract is not an introduction to the paper, but a freeze-dried version of it, so to speak, intended as a "condensation and concentration of the essential information in the paper" (Landes, 1966). It should be written for quick reading, with the assumption that interested readers can go on to (or look up) the paper itself. Unnecessary descriptive phrases ("critically placed"), qualifiers ("limited number"), and caveats ("it must be pointed out") that may be necessary for completeness in the text should be left out of the abstract if at all possible. (The examples quoted are from actual manuscripts I have recently reviewed.)

A final suggestion: pack as much specific information into the abstract as possible—locations, rock names, temperatures, pressures, anomaly values, stratigraphic thicknesses, petrologic systems, and the like. The

way to do this is to cancel temporarily the assumption of the previous paragraph, and to write the abstract as if it were all that would survive the fall of civilization. There are obviously limits to how much can be included in an abstract, especially without figures, and it may even be necessary to use phrases detested by Landes, such as "is described" or "is presented." But abstracts can be surprisingly informative and self-sufficient if properly written.

A word on timing: I suspect that many authors make the mistake of writing the abstract before the paper. I used to do this myself, until I found I was writing—yes—introductions. The way to avoid this is obviously to write the abstract after the paper is finished, when you will know exactly what you are summarizing.

Following Landes's precedent, I present an abstract of this paper.

This paper presents three suggestions for better scientific abstracts: begin the abstract by briefly describing the *nature of the paper* (new data, review, critique, etc.); write the abstract not as an introduction to the paper but as a *tersely styled summary* of its essential information; and include as much *specific information* (locations, compositions, temperatures, etc.) as possible. Write the abstract after finishing the paper, to avoid the common fault of abstracts that are good introductions but poor summaries.

REFERENCES CITED

- Isachsen, Y.W., 1975, Possible evidence for contemporary doming of the Adirondack Mountains, New York, and suggested implications for regional tectonics and seismicity: *Tectonophysics*, v. 29, p. 169–181.
- Landes, K.K., 1951, A scrutiny of the abstract: *American Association of Petroleum Geologists Bulletin*, v. 35, p. 1660.
- 1966, A scrutiny of the abstract, II: *American Association of Petroleum Geologists Bulletin*, v. 50, p. 1992.
- Masuoka, P.M., Harris, J., Lowman, P.D., Jr., and Blodget, H.W., 1988, Digital processing of orbital radar data to enhance geologic structure: Examples from the Canadian Shield: *Photogrammetric Engineering and Remote Sensing*, v. 54, p. 621–632.

ACKNOWLEDGMENTS

I thank Ruth Freitag, Bruce Martin, and Barbara Christy for helpful reviews of this note.

Paul D. Lowman, Jr.
Goddard Space Flight Center
Greenbelt, Maryland 20771

GUIDE FOR PREPARATION AND PUBLICATION OF ABSTRACTS¹THE ROYAL SOCIETY²

London, England

GENERAL

1. "Abstract" is a term adopted to describe an author's summary of a scientific paper which is published simultaneously with the paper itself after editorial scrutiny by the editor of the journal in which it is published.

2. The purpose of an abstract is not only to add to the convenience of readers of the journal in which it is published, but also to reduce the cost and to expedite the work of the abstracting journals, and thus to contribute to the general improvement of information services in the scientific field.

3. The abstract should comprise a brief and factual summary of the contents and conclusions of the paper, refer to any new information which it may contain, and give an indication of its relevance. It should enable the busy reader to decide more surely than he can from the mere title of the paper whether it merits his reading.

4. The author of every major paper (excluding notes) is therefore requested to provide also an abstract of it, in accordance with the following suggestions.

STYLE OF WRITING

5. Use complete sentences rather than a mere list of headings. Any reference to the author of the article should be in the third person. Standard rather than proprietary terms should be used. Unnecessary contractions should be avoided. It should be presumed that the reader has some knowledge of the subject but has not read the paper. The abstract should therefore be intelligible in itself without reference to the paper.

¹ Modified from The Royal Society of London's "Guide for the preparation and publication of synopses." The original article was prepared by The Royal Society in fulfillment of a recommendation of the Scientific Information Conference sponsored by the Society in 1948. The original also has been adopted and distributed by U.N.E.S.C.O. as a result of the U.N.E.S.C.O. International Conference on Science Abstracting held in 1949. Permission to publish this was granted most kindly by N. H. Robinson for The Royal Society. Manuscript received, March 1, 1966; accepted, May 16, 1966.

Editor's note: this abstract is published together with K. K. Landes' "A scrutiny of the abstract, II," to give *Bulletin* authors another viewpoint on the writing of abstracts.

² Burlington House, London, W.1.

(For example, it should not cite sections or illustrations by their numerical references in the text.)

CONTENT

6. Because the title of the paper usually is read as part of the abstract, the opening sentence should be framed accordingly so as to avoid repetition of the title. If, however, the title is not sufficiently indicative, the opening sentence should indicate the subjects covered. Usually, the beginning of an abstract should state the objects of the investigation.

7. It is sometimes valuable to indicate the treatment of the subject by words such as: brief, exhaustive, theoretical, *etc.*

8. The abstract should indicate newly observed facts, conclusions of an experiment or argument, and, if possible, the essential parts of any new theory, treatment, apparatus, technique, *etc.*

9. It should contain the names of any new compound, mineral species, *etc.*, and any new numerical data, such as physical constants; if this is not possible, it should draw attention to them. It is important to refer to new items and observations, even though some may be incidental to the main purpose of the paper; such information may otherwise be hidden although in fact it might be very useful.

10. When giving experimental results, the abstract should indicate the methods used; for new methods, the basic principle, range of operation, and degree of accuracy should be given.

REFERENCES, CITATIONS

11. If it is necessary to refer in the abstract to earlier work, the reference always should be given in the same form as in the paper; otherwise, references should be omitted.

12. Citations to scientific journals should be made in conformity with the standard practice of the journal for which the paper is written.

LENGTH

13. The abstract should be as concise as possible. Only in exceptional cases should it exceed 200 words, so as—among other things—to permit it, when printed, to be cut out and mounted on a 3 × 5-inch card.