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How to write a paper

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I. Choice of subject of paper
   A. Choice of journal for article on particular subject
   B. Title to reflect subject of paper

II. Parts of scientific paper - "Rule of 3"
   A. Title (see above)
   B. Introduction
      1. What you plan to say
      2. Historical review of literature
   C. Body of paper
      1. Description of experimental work
      2. Statistical results obtained
      3. Discussion of significance of results
      4. Conclusions which can be drawn from results
   D. Summary
   E. Acknowledgements
   F. Bibliography

III. Physical preparation of paper
   A. Typing and corrections
   B. Charts, diagrams, photographs, illustrations
   C. Methods of citing literature
      1. Abbreviations
      2. Checking references
   D. Proof-reading

IV. How the library can help in preparation of paper
   A. By collecting literature for writer
   B. Preliminary reviews of literature
   C. Checking bibliographies
   D. Interlibrary loans, microfilms, photostats
   E. Suggestions for style, books, grammar, etc.

* Read at a staff meeting, Dept. of Dermatology, College of Physicians and Surgeons, Columbia University, Feb. 1947.
I stand before you a split personality. As the editor of a fairly scholarly journal (Bulletin of the Medical Library Association), I can talk to you about some of the errors and difficulties with manuscripts submitted for publication; and as a librarian, I can tell you some of the ways you can solve a few of these problems.

I wouldn't be a real librarian, however, unless I referred to other books on the subject. There are several such:

1) Some put out by a particular press, such as the University of Chicago style manual; or the Wistar style manual;

2) Others put out by a journal, such as the style manual of the Journal of Neurophysiology;

3) And still others put out by an individual or group of individuals, such as Morris Fishbein's work on medical writing, Trelease's book on the scientific paper, or Alburt's charming dissertation on thesis writing.

Most journals stick to one or another of these manuals; and my advice to you on this point is two-fold. First look in the magazine to which you plan to send your contribution to see if it insists upon a particular style. If so, of course you will have to stick to that style. My second point, however, is that in general you should have one personal manual to which you always turn when you write. If you do this, your style will at least be consistent, and you won't spell cooperation with a hyphen on one page and without a hyphen on the next.

You will, if you do any extensive writing, need a book on grammar. Even the best of us need to consult one now and then, and most of us ought to look at our grammar a lot more critically than we do. Examples of bad grammar come to the editor frequently. If not changed by him, serious boners appear in the printed work. For example, I once came across this in a published article:

"While injecting the solution, the vein was accidentally punctured."

I needn't call to your attention that this means the vein was injecting the solution—a neat feat, if you can get away with it. Yet neither the author nor
the editor had noted the error. There are many such examples: "Her skull was fractured by being thrown clear of the automobile," and, "He had arrived at his place of residence in an intoxicated condition," instead of, "He came home drunk." This latter might be labelled, "Intoxicated with the sound of his own language" or "He talks too much."

So much for the language. I should like to emphasize, however, that there is nothing sissy about considering your grammar, your sentence structure, and your style. After all, the purpose of writing is to make your meaning perfectly clear to your readers, and your words are the means by which you convey that meaning.

Now for the paper itself.

First you will have to pick out the subject of your paper. Usually this is what you start with—you have an interesting case you want to present, or you've just finished some world-shaking experimentation, or you have to write a thesis for a degree, or American Board, or perhaps there is an assistant professorship open and you think a number of articles to your credit will help you get the coveted position.

As soon as you decide on the subject of your paper, two other problems will immediately present themselves. First, to what journal should you send your contribution; and second, what will you call your article? In general, you should publish where you'll get the biggest audience—a general journal for a general article; a specialty journal for a specialized article. Pick out the journal which will give you the widest coverage of specialists working on your subject. If you have an article on the pathology of the skin during gallbladder attacks, you can profitably send it to a journal on pathology, or one on dermatology, or one on internal medicine. But it is better to send an article on pityriasis rosea to the Archives of dermatology rather than to a general journal, such as the New England
Journal of Medicine or American Journal of the Medical Sciences. Most dermatologists read the specialty journals in dermatology; if they have time, they will glance over the general journals for articles which might interest them, but this doesn't happen too often. If you're writing on how the general practitioner can diagnose a rare skin disturbance, however, you will find the diffuser journal—the American Medical Association Journal or the New York State Journal of Medicine—giving you more readers. To recapitulate, have the article fit the journal in which it is to be published.

Titles of articles are peculiar things. You have to steer between the Scylla of a long, scientific title which gives the contents of the entire paper, and the short, eye-catching, but coy title which hides the subject behind something like "An interesting case," or "Dermatological clues," or "Please." Let me give you a tip: put the subject under which you would like to see the article indexed in the title of your article. A good many very respectable indexing tools list articles from the titles alone, and not from the article itself. If you want to see your work listed under Langer's lines, you'd better have Langer's lines somewhere in the title.

Parts of a scientific paper.

In writing your paper, you should be as concise as possible. On the other hand, you want your readers to get all the information you have to offer. To do this, it is a good idea to follow the "rule of 3": say what you are going to say, say it, then say what you have said. This corresponds to the three main parts of a scientific paper: the introduction, the body of the paper, and the summary. Let us take these parts up separately.

The introduction should include not only the plan for your paper,
but also the historical review of the literature. You probably know the long, detailed literature surveys which precede many German works, particularly those in the Handbücher or encyclopedias. This was due, in part, to the fact that German writers were often paid by the word, and tried to write as many words as they could. A review of the literature, however, is a very useful thing to orient the reader in the subject matter of your work, and to explain why you are writing your paper anyway. If you are writing a thesis, or a report for the specialty Boards, you will be required to review the previous work in the field, and we will discuss later how you can collect the previous literature in your field and standard methods of citations.

The body of your paper will contain several parts:

1) a description of your experimental work, if any,
2) the statistical results obtained,
3) a discussion of the significance of your results, and
4) the conclusions which can be drawn from your results.

Dermatology, of course, more than many other specialties in medicine, goes in for case reports, and you should practice describing appearances and lesions accurately but vividly—a difficult thing to do, as any one who has tried it will admit.

In presenting your experimental work, you should explain your technique and your apparatus—and, please, I beg of you, don't say "The Smith reagent was used in a Jones machine;" because if you do, a whole generation of librarians will then spend their lives searching to find what the Smith reagent contained or for what purpose the Jones machine was constructed. Put the scientific facts in parenthesis, or in a footnote if you want to commemorate Smith or Jones. Say, "The Smith reagent (a 2% soln of 2-7-1 triethyl-guanidine)" or "The Jones machine for measuring the breaking strength of catgut (obtainable from F. G. Smith and Co., 31 E. Park Avenue, N.Y.C.)..."
and librarians will bless you for all eternity.

When it comes to discussing statistically the experiments they have completed, I find that all the world is divided into two camps—those who can and those, who for probably some Freudian reason, feel they can't. I could refer you to simple works on the subject—I myself am guilty of having published one—but my real advice to you is to find a statistician and cultivate his friendship assiduously. Then, when you have a problem, bring him your data, tell him what you'd like to find out from the data, and let him do the rest. It will save you much wear and tear.

If you follow this advice, also, you will avoid drawing sweeping conclusions unwarranted by your facts. It is amazing how many papers are submitted for publication in which the conclusions appear to be wishful thinking rather than sober derivations from the data. Even more surprising is the number of such articles which are printed—I recently came across an article, for example, which said it proved more male babies were born during the 2d world war than during peace time. The facts to support this assertion, however, were the birth records of one small hospital in a semi-rural neighborhood in one of our Southern states!

Finally you will want to summarize what you have said. Here again, I warn you to be cagy. Many people glancing over periodicals, will read the title, the first paragraph, and the summary of the articles. If these appeal to them, they will then go back and read the entire article. In addition, some abstracting toolbase the author's summary of his article as the abstract. For these reasons, you should work over your summary until it says exactly what you want the article to say. It is eminently worth taking pains on this.

The very last part of your article should be your bibliography; but I will merely mention it here, and discuss it in greater detail later. The form for this, as well as the position of acknowledgements of help from others, and the address of the authors, depends greatly upon the particular magazine in which you are publishing and it's no use my giving you general rules on the
Physical preparation of paper

When you have all your material, and your notes, you will then have to write it up. People vary in their technique of this, as much as in any other thing. Some like to outline the entire paper before writing it; others do not. Some like to write it out in longhand, and then have it typed; while others prefer to write it directly onto the typewriter and make corrections later in longhand. A paper which has no corrections from the first draft to the final one is probably evidence of a sloppy writer (tell them story of Thos. Henry Huxley). If you write on the typewriter, leave 3 spaces between the lines for insertions and corrections, or else you probably won't be able to read the manuscript when you get thru.

The final paper presented to the editor should, of course, be typed double-spaced, on one side of the paper, with a margin of about 1\(\frac{1}{2}\) inches on the left side and 1 inch on the right. It should be held together by clips and not by staples, and as many copies as that particular journal requires should be sent. Keep one carbon copy for yourself. Corrections of a few words may be made in ink, but any large corrections call for retyping of the page, or (occasionally) stapling the new section over the old one.

Charts, diagrams, photographs, and other illustrative material should be separate from the typing and have the author's name and short title of the article on the back. Photographs should be on glossy, not matt paper, the background should be plain, and the part being illustrated should be in sharp focus. Remember, half-tone cuts down on clarity.

Charts and figures should be drawn in India ink on a white, semi-glossy background suitable for photography or engraving. Do not crowd your chart so that it is difficult to read. If you are taking the chart from another work, indicate your source, and see that you have any necessary copyright permission. The headings or title also should indicate clearly what the chart
is supposed to show and how the figures were obtained. Printing on the charts should be clear and of sufficient size so they are readable when reduced for publication. Several lettering machines are on the market for those who cannot do artistic lettering in longhand. Charts should be numbered consecutively throughout the paper.

The cost of printing illustrative material is very high, especially if the journal is printed on rough paper which makes it necessary to tip in special glossy pages for illustrations. Because of this, some journals limit the number of illustrations they will print free. Consult the section on "suggestions to contributors" in the journal in which you are going to publish beforehand, or you may find yourself with a tidy bill to pay.

Talking about bills, I ought to warn you that very few journals nowadays send the author free reprints. Usually reprints cost about $10 for 100 copies of a 4-page article. And they must be ordered when the galley proofs are returned to the printers. Don't order 100 reprints (the smallest amount you can order) if you will need 500—it costs almost nothing to print up the extra copies while the originals are being printed, but it is very expensive to reprint that material later.

That brings me to the question of proofreading. I have seen very intelligent people get into a panic state when confronted with their own article in the proof stage, so I guess I'd better talk a little about how to do proofreading.

(Bring examples to lecture) Proofs come in two forms—the galley proof and the page proof. The galley proof is the first one made—I won't go into the technical details here—and changes made in this copy take a great deal less of the compositor's time than changes made in page proof; consequently these changes cost less and you can make many more of them without bankrupting either yourself or the journals. Once the copy has been set into pages, however, changing even small bits may mean resetting several pages, and this refoliation costs like the very dickens. If you must make changes here, try to balance them by
other changes in nearby sentences so that the length of the individual page stays constant. (Most journals only send you galley proofs, but if you write a book, you'll get page proof too.)

Errors due to faulty typography cause the major amount of proofreading changes. The printer may have left out a letter, or misspelled a word, or put in the wrong font of type, or omitted some mark of punctuation, or done any one of a number of other things. These you must point out to him, and for this purpose we have developed a series of short-hand proof marks which are really quite simple, tho' they sometimes seem to bewilder the newcomer.

If you have never done any proofreading before, let me tell you you can find proofreader's symbols in any fairly large dictionary. You can also get cards showing these marks from most of the printers, and if you do a large amount of proofreading, you will find it convenient to post this card somewhere on your desk and refer to it frequently. And finally, if you have any questions about particular points in your proofreading, come to the library and let us try to straighten it out for you.

That brings me to the final part of this discussion: what can the library do to help you write your paper? I have hinted at a few things: helping with citations, proofreading, giving you suggestions for style books, and the like. Let me take up four or five of the most important things we can do for you.

Citations. I have been ducking the question of collecting and citing the literature throughout this talk, but now I think we will have to talk about it.

Comes the revolution and I am dictator, nobody will be allowed to publish any incomplete citations on pain of instant death! Nothing wastes more of the time of readers and librarians alike than trying to figure out what important article an author wants to have posterity read when he coyly refers to "Le Grand. Compte Rendu 1835" or "Schmidt. Sitzungsber, April 17, 1893". If the author would take the trouble to get and give a complete reference, he
would spend let's say five minutes of his time. If he doesn't he saves his
five minutes, but every reader—usually plus a secretary, laboratory assistant,
or librarian—must use up his own five minutes—and if only half a dozen
readers attempt to read the reference, thirty minutes are lost to save five.
And as time goes on, it gets more and more difficult to locate these references;
so that instead of taking five minutes to find each reference, it may take
half an hour.

A complete citation to a journal article includes the author's
name (last name and initials of Christian names), title of the article;
journal in which the article was published, abbreviated according to a
standard list of abbreviations (preferably the Quarterly Cumulative
Index Medicus or the Surgeon-General); the volume, date, and inclusive
pages. Books should be cited by author's name, title of book, place,
publisher and date.

This is one of the places the library can help you. Bring in
your bibliography before you send your article to the editor, and we'll go
over it (free of charge, of course) to see that it is accurate and in correct
form. Of course we need time in which to do the job. (story of Meleney's book).

The library exists to get you the medical literature you need.
If the 145,000 volumes in our stacks do not contain the particular book or
journal you want, we can either borrow it for you from another library, or we
can order photostats or microfilm for you. If we borrow the book from one
of the other libraries at Columbia or from the New York Academy of Medicine,
you don't have to pay anything; but if we borrow it from somewhere else, we
ask you to pay the express charges. The cost of photostats is usually about
25¢ for a double page, while microfilm costs about 3¢ a page, plus a small
service charge. You are welcome to use the library's microfilm reading
machine at will.

It is when you come to making your surveys of the literature,
however, that the library really comes into its own. There are 5 main places to locate dermatological literature, and I'd like to tell you a little about each. They are:

1) the library catalog
2) Quarterly Cumulative Index Medicus
3) Surgeon-General
4) Current List of Medical Literature
5) Excerpta Medica — Ztblatt. haut. u. geschlects. krank.