

Doing Well or Doing Good?

At altogether too great a frequency, I am asked to review manuscripts. I comply because (a) after so many years of writing poorly, I am getting to be fairly good at this, (b) I always am flattered when someone wants my opinion about anything, (c) doing so gives me the opportunity to see what is being done in various areas of research, and (d) as an associate editor for various journals, I know how difficult it is for editors to identify competent volunteers for this work, people who will do a good job and do it in a timely manner. On the other hand, it is a great deal of work, work for which we are not paid. Thus I try to slip my reviewing between tasks for which I do get paid, between baseball games, between my own writings, and between my unsuccessful efforts at relaxing. Editing is a sacrifice, but a worthwhile sacrifice. In the words of Arthur Polotnik, "You write to communicate to the hearts and minds of others what's burning inside you. And we edit to let the fire show through the smoke."

In my opinion, writers should put into their writing as much work as I do editing it, but I am afraid not all do this. For reasons best known to themselves, a small proportion of writers arrogantly put numerous words on paper (or on a computer), smile, have a glass of wine, and go to bed, assuming that an anonymous copyeditor will fix any small mistakes the authors might have made; miracles are for the Bible, not for scientific writing. Sometimes, I am certain, the glass of wine precedes the writing, which is not necessarily a good thing (Samuel Johnson said that, "One of the disadvantages of wine is that

it makes a man [or a woman] mistake words for thoughts."). Given that copyeditors usually have little or no idea what the authors mean by the scientific words they use, and only attend to style (add a comma or remove a comma; correct spelling errors and balance subject-verb agreements; and so on *ad nauseum*), substantive editing should not be left for them to correct. After all, their names are not on the published paper.

Is it worth writing?

Having spent many hours planning, finding funding, making certain everyone knows his or her job, arguing over space with administrators, purchasing the necessities, conferring with statisticians (who, when asked how many samples are needed, always say, "One more than you plan to sample."), losing sleep to take a blood sample at 3 AM, and finally getting the task completed, the time arrives to begin putting a summary of the work and the results into the scientific record, where it will, for good or not, there be enshrined forever. When a study (clinical, field, laboratory or otherwise) has been done and the protagonists begin to summarize the results (usually only one person does this hard work), the really difficult work begins. Usually, there are numerous co-authors (choose these well, as [those who] "lie down with dogs, get up with fleas."), some who had considerable in-put, some who did not, and some who were standing in the hall at the time the work was done. First, the authors prepare a "rough draft," simply to see how it looks. Then

take a few days off to puff out the chest and say, "I have helped move humankind incrementally from ignorance to wisdom." It is clear, however, that the philosophy of science of some authors is the converse of Phillip Earl Stanhope's comment, "Whatever is worth doing at all is worth doing well," resulting in "Whatever is not worth doing at all is not worth doing well." This must be so because there are so many poorly written and therefore useless manuscripts that will forever float in the ether or appear in *Acta Retracta*.

Your view of the importance of the work

One of the symptoms of an approaching nervous breakdown is the belief that one's work is terribly important.

Bertrand Russell

Most of the manuscripts I review, particularly those from journals in non-English-speaking countries, are replete with redundant or superfluous words and the authors seem to be trying to show the editor and reader just how many nice words they know. This is a mistake: it makes the manuscript overly long, it confuses the reader as to what was done and why it was done, and what happened; and it aggravates the reviewers, at least this reviewer. Recognizing that "the difference between genius and stupidity is that genius has its limits," I always wonder whether the authors are using these pleonasms (an excellent word, taught to me by my good friend, Marian Horzinek, veterinarian, former Director of Utrecht University's Institute of Veterinary Research, and former Director of the Utrecht University Graduate School of Animal Health, bon vivant, and lover of words, in seven languages) in an attempt to cover a basic flaw in the hypothesis or in the actual process of conducting the experiments, so I read it even more carefully than I usually do, trying to determine what was not said. The more I read, the more errors I find.

And speaking of extra words (pleonasms), what about extra thoughts (I do not know a word for this)? Scientific journal editorials, news-

paper articles, government reports, television, and conversations at the local grocery store all speak of "bird flu" or, more properly, "avian influenza." Knowledgeable people have indicated that the next great human plague might very well arise from an influenzavirus that has almost all the characteristics of a pandemic strain of this virus; almost. All that is required for this virus to become the latest scourge of humankind is for just the right (wrong) mutation to occur in either the hemagglutinin gene or the neuraminidase gene. Millions of words have been written and spoken, the "buzz" word "emerging" (necessary for funding) has been invoked and we now wait. For what? For a mutation to occur and for hospitals to fill or for a mutation to not occur; when will that be? Words sometimes are all that stand between us and ignorance but using even good words in bad situations cannot possibly be helpful. It is called propaganda, and it does a disservice to our constituencies. I would prefer toning down rhetoric, rather than expanding it, would rather write accurately and read accurate, succinct, and objective reports than speculation clothed as prediction.

When Ernest Hemingway submitted the first draft of his great novel "For Whom the Bell Tolls," his editor did not care for the last 10 pages. Hemingway revised that section tens of times, until the editor was satisfied. Of course, Hemingway then felt that the book was not entirely "his". Nonetheless, those 10 pages are considered by some to be the best part of the book. (Relax, dear writer, there is nothing personal about a critique. Take suggestions as proposed aids to improvement, not as personal attacks.) As Russell Lynes said, "No author dislikes to be edited as much as he dislikes not to be published."

Words have meaning

What is the use of words? Why do we need them? We could grunt and point. We could draw pictures. We could use mathematical expres-

sions. Instead, we have words. Whether in Croatian, Farsi, English (the current favorite for international communications), Mandarin, Sanskrit, or any other language, people express and explain themselves with words, either orally (God help us!) or in writing, which at least can be reviewed for accuracy by an editor; a conscientious and responsible editor, we trust. Editors, however, are not simply lumps of clay who rubber-stamp what people submit. As Ernest Hemingway said, "The most essential gift for a good writer (or editor) is a built-in, shockproof shit detector. This is the writer's (and editor's) radar and all great writers have it." It simply is not possible to scratch out torrents of words and expect that no one will *really* look closely at them. This should not and will not happen. Reviewers and editors find all sorts of things that are wrong, unnecessary, and therefore unclear, and clarity is the *sine qua non* of scientific writing, just to quote Sydney Smith, "In composing, as a general rule, run your pen through every other word you have written; you have no idea what vigor it will give your style," or Abraham Lincoln, "He can compress the most words into the smallest idea of any man I ever met." What is the point of doing a great deal of work and then not publishing a summary in a clear and readable style and format? Are the people paying your salary willing to allow you to use the laboratory as a hobby? When you are gone, what will you have left – detailed documentation of important studies or a mess?

Here is something I read recently, a good example of a student paying attention: "Proper attire is required in the cafeteria at the University of Maine." To enforce that rule, the management posted this notice: "Shoes are required to eat in this cafeteria." Next to it, a student added, "Socks can eat wherever they want." The University of Maine should be a bit embarrassed at its construction error, but very proud that its students are learning how to use words, what they mean and in what order they should appear. This particular student has a bright future.

Say what you mean

When I had drafted my first manuscript, I took it to Roy Chamberlain, who was a marvelous writer, and asked him to have a look at it. Without looking at it, he asked me to tell him about the work: why I had done it, what my null hypothesis was, how I had designed the work, what the results were, what my conclusions were, what I thought it meant in the larger view. At the time I did not even know what a null hypothesis was. I answered all his questions and, without even looking at the manuscript, he suggested that I rewrite it. He was keenly perceptive of the fact that I was trying to write the manuscript as I *thought* a manuscript should be written but he suggested, instead, that I tell the story of this scientific adventure. I did that and *then* he took his red pen and fixed the wording of the second draft. I was, in retrospect, embarrassed that he had done so much work and that I had done so little. Generously, and correctly, he related his feeling that the work was fine but that I had no idea how to write, and that I must learn to write by writing and having it criticized and edited and re-edited and re-re-edited until it was readable and understandable by the reader. He suggested that I be more objective about the Materials and Methods section but that I could let my mind run loose, or at least looser, when I reached the Discussion section.

Choosing the right words

I do not like the word bomb. It is not a bomb. It is a device that explodes.

Jacque LeBlanc, French Ambassador to New Zealand

Skewed usages and contortions of language are for tenebrific politicians, not for scientists. Politicians use a great many words to say very little, whereas scientists are required to compress complex processes and great ideas into the fewest possible words. When you write, think of the page charges! Particular scientific styles are outlined

by journals in the Instructions to Authors. Reference styles, capitalizations, figures, and other sections may differ from journal to journal but, classically, manuscripts are required to comprise Title, List of authors, Abstract, Introduction, Materials and Methods, Results, and Discussion, then figures, tables and references, in that order. The Results section is not to include discussion material, or vague thoughts about ex-girl friends, football, or other non-Results dialogue. In a first year students' class I taught last year, I explained all this, so that my students would know what was to be expected of them when they wrote their term paper. I explained each section and, while discussing the Materials and Methods section, commented that it should be rather straightforward, and might be rather dull, but that that would be okay. The next night I had a telephone call from one of the students, who said that her topic was so exciting to her that she expected to have a difficult time making it boring and dull, "as you had suggested." I told her I had every confidence that she would have no problem making it dull. What she had not done was listen to what I said. It is difficult for first year students to pay attention to words, as no one had ever taken the time to insist on that before. When one is going out for the evening and leaving a teenage child at home, one must surely say, "Be in bed no later than 9 PM, and alone," and not say "Be sure to go to bed." Manuscripts should be written no less clearly.

In most languages, each word has a specific meaning, so that using the wrong word transmits the wrong meaning. However, connotations may vary by usage, ie, who is saying what, and nuances are important. In Victor Lowmes' words: "A promiscuous person is someone who is getting more sex than you are." My family and I spent a year in Finland about two decades ago and we placed the children in a Finnish-language school – for one day, after which they announced that they were going home. So, we moved them to a Swedish-language school and all was well until our daugh-

ter came home one afternoon and announced that she was not going back to school until we found a new teacher for her; this one had insulted her, spoken to her as though she were a dog. When we inquired further, it became clear that the teacher had asked her to "fetch" a piece of chalk. In American English, we say "get", and reserve the word "fetch" for when we are commanding a dog to retrieve a stick or a ball. We explained this to our daughter and all was well after that between her and her London-educated teacher. [G.K. Chesterton: "The word good has many meanings. For example, if a man were to shoot his grandmother at a range of five hundred yards, I should call him a good shot, but not necessarily a good man."]

I certainly do not know all the words in the English language. I know many of them but there are many others that I have never seen (or noticed) and some I have seen but of which I do not know their meanings. This is the reason I always ask people to edit my manuscripts after I have written what I believe to be decent or good drafts (or cannot stand to see them any more); first, my wife, who is an excellent writer and editor, then my co-authors, then my supervisor, also an excellent writer and editor. Only then do I screw up the courage to submit the manuscript to a journal, where an editor will scan it, send it to two anonymous people who hate it, then send it back to me, and by this inexorable combination of events, I then am able to send it again to the journal. This process is like having a baby; takes about 9 months (or longer if the reviewers are not conscientious). [Samuel Johnson: "I found your essay to be good and original. However, the part that was original was not good and the part that was good was not original."]

Emphasizing the purpose of words

An American comedian, Tom Lehrer, said: "I wish people who have trouble communicating would just shut up." So do I. The purpose

of words is to put into someone else's head a thought that is in yours. This is tricky business, partly because it is hard work to choose exactly the proper word to use but also because the meaning of a word is not always the same for two people, which leaves the opportunity for misunderstandings. Wars have been fought over such misunderstandings. Unfortunately, people will speak and write whether they know what they are talking about or not, and whether they can speak or write precisely and accurately even when they do understand what they are thinking. If I say to my wife, "That is one of the 10 nicest dresses you have ever worn," she would be quite justified in asking me to name the other nine. If I told her "I like you a great deal," when I should have said, "I love you," wouldn't she be justified in feeling hurt, even angry? If I said to someone, "For a fat person, you do not sweat much," might I not next expect a slap in the face or a challenge to a duel? If you said, "That baby is so ugly you will have to hang a piece of pork around its neck to get the dog to play with it," you might be correct (and the sentence does paint a marvelous picture, without paint), but you also might get punched in the nose by one or both parents. Be very careful, even extremely careful, and perhaps compulsively careful, of the words you use, and ask for help from someone who is better with words or, more correctly, is better with words of the language in which you are writing. Do not try to use as an excuse the fact that English is not your native language; we all have problems with English. My guess is that people who do not write well in English do not write well in any language.

You may be so familiar with the thoughts that you imagine that you have used the right words. Take your time. There is no rush to do this properly. [Gustave Flaubert: "May I die like a dog rather than hurry, by a single second, a sen-

tence that isn't ripe."] Be not discouraged; just shut up and rewrite it. Keep in mind how proud you will be when you get it right, and maintain (or develop) a good sense of humor about all this agony [Dr Alfred Nash, in *Stanley and the Women* by Kingsley Amis: "The rewards for being sane may not be very many but knowing what's funny is one of them."]

Finally, pity the poor reviewer and editor who must read what you write. Send her or him a bottle of nice wine (not "a nice bottle of wine"); not as a bribe (there is no such thing as a *post facto* bribe), but in thanks for helping you describe to the world the great stuff you have done and the brilliant ideas you have about this great work.

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I thank the journal Editor, Matko Marušić, for flattering me by asking me to provide brief, free-form opinions about writing and editing, and for repairing the draft I submitted. It is slightly embarrassing to me to have my English edited by someone whose native tongue is not English; however, the goal was to publish this and I would like to move on to other writings, so I say "Thanks" and move on. I also am grateful to my wife, Shelley Calisher, for editing earlier drafts of the manuscript and for changing it from free-form and exceedingly opinionated to slightly less opinionated and therefore more acceptable. Finally, I thank the people well known to me, and the majority of the anonymous reviewers, who have taken me to task for the ridiculous juxtapositions of words I have used in innumerable manuscripts. I have learned from them and become better off for all that criticism. Karl A. Menninger: "When a trout rising to a fly gets hooked on a line and finds itself unable to swim about freely, it begins with a fight which results in struggles and splashes and sometimes an escape. Often, of course, the situation is too tough for it. In the same way the human being struggles with his environment and with the hooks that catch him. Sometimes he masters his difficulties; sometimes they are too much for him. His struggles are all that the world sees and it naturally misunderstands them. It is hard for a free fish to understand what is happening to a hooked one." Write on!