

CHAPTER 16

WRITING

During the first 25 years of my life, I never thought that writing would be even a minor part of my career. Ironically, my basic writing skills developed while completing industrial reports on river surveys, toxicity tests, industrial contracts, and academic grant proposals. Initially, Ruth Patrick did the lion's share of the writing, but, gradually over a period of years, I developed the necessary skills to assemble entire reports and proposals, which were nearly ideal circumstances for developing writing skills: (1) the incentive was strong to function adequately since the operation was entirely dependent on extramural funding, (2) both proposals and reports varied in size from short toxicity tests to major river surveys, (3) both proposals and reports had to be informative and understandable to a wide variety of professionals, and (4) meeting agreed upon deadlines was essential since the information was frequently used immediately.

In the 1940s, 1950s, and early 1960s, the Limnology Department of the Academy of Natural Sciences Philadelphia (ANSP) accepted some contracts to complete research that was not suitable for publication in peer-reviewed journals. Usually, these contracts served two purposes: (1) to obtain new equipment and (2) to carry out toxicity tests in a wide variety of circumstances with a wide variety of chemical substances. From the outset, all understood that the purpose of acquiring money was to generate information that would be useful to both science and society. Usefulness to science was met by publishing in peer-reviewed journals or books with established scientific publishers. Usefulness to society was met by a variety of means, including talks to citizen groups, articles in magazines intended for the general public, and occasionally an "open house" at a research site.

At ANSP, the staff consisted of curators, technicians, secretaries, and so on. Except for Ruth Patrick (also an adjunct professor at the University of Pennsylvania), none of us mentored graduate students. As soon as I left ANSP, I acquired graduate students, which was an additional important attribute of extramural funding involving students. Contracts and grants then had to be suitable for theses, dissertations, and other activities that would forward the careers of the graduate students. However, the purpose of acquiring money should always be to develop information useful to both science and society, not to support individuals or institutions. Obtaining money for use by individuals and for institutions can easily be rationalized, but this diversion takes the zest out of research!

The process leading to publication that worked best for me for 56+ years was to dictate the narrative, thereby getting my ideas on paper even if the sequence was not orderly. I then examined what I had dictated to make certain a unifying theme was evident. This illuminated areas of confusion and disorganization. For over three decades, Darla Donald has provided superb assistance in polishing my literary style, and B. R. Niederlehner helped me for almost two decades with the scientific portions. During this process, I filled in the gaps, attempted to tighten the logic, strengthened the discussion of important areas, and discarded distracting portions not clearly related to the central theme. I routinely let a manuscript sit unexamined for weeks or months if it had no deadline for completion. This absence definitely "made the heart grow fonder" because I was often distressed with sections that did not please, or at least satisfy, me earlier. I was blessed until recently with this method of writing by having skilled people for transcribing dictation, but I no longer have that assistance. Writing by hand or using a word processor simply does not allow me to maintain momentum that I once achieved by dictating. I considered using a voice-activated computer, but it was not satisfactory. Essentially, I "saw" manuscripts in my mind and simply read them into the dictaphone. I now write each manuscript by hand and then have it transferred to a word processing program. This process has not proved to be as onerous as I expected.

Naturally, publishing frequently for over half a century has produced some bizarre situations. Over two decades ago, one of my graduate students had his heart set on publishing in a particular journal. Since he was the first author on the paper, I reluctantly went along with the idea

and the manuscript was dispatched. In about two months, the manuscript was returned with favorable comments from reviewers and a letter from the editor to the graduate student stating that it was time that “John Cairns learned to write.” This correspondence was curious since the editor was not known for joking in this way and both reviews were very favorable and recommended publication.

Every few years I got a really harsh criticism of a manuscript from both the editor and reviewers. In some cases, I discarded the manuscript. However, if I felt the criticisms were not persuasive, I sent the entire package, reviews and all, to another journal. Every one of these has been published, and one even won an award. Editors and reviewers usually help strengthen a manuscript, sometimes making useful comments and going well beyond what an author should reasonably expect. A few times, an editor has told me that a manuscript is unsuitable for the journal to which it has been submitted but has suggested an alternative journal. Two journals for which I have a high regard came to my attention this way. I was even appointed to the editorial board of one.

Twice I was invited to write an article on environmental ethics for a religious magazine. Neither gave me any indication of what was expected, but both indicated that a “highly regarded” person had recommended me. Both journals rejected the manuscripts without a reason or comment on deficiencies. Both articles were subsequently published by professional journals interested in environmental ethics.

Just after arriving at Virginia Tech, I sent a manuscript with over 20 hand-drawn, original figures to a European journal via airmail. I learned later that someone in the campus mailroom decided the package was too expensive to send via airmail and had changed the designation to printed matter mail. Regrettably, the package was lost and the figures had to be redrawn at considerable expense and time.

Every three or four years, I received an invitation to write on a specific subject for a specific publication. Occasionally, the person who requested the article ended up asking me to change the content so much that I had difficulty recognizing the manuscript as the one I had submitted. Large sections of my original manuscript had been deleted and replaced with equally long, sometimes longer, rewritten sections. Naturally, I always withdrew the manuscript since the thoughts were no longer mine. I always wondered why the invitation had been issued at the outset. The person who asked for the manuscript should have written it personally. One possibility is that the inviter wanted a particular message of personal importance, but under my name. I could speculate on other reasons for this occurrence, none of which seems rational to me.

Numerous requests have come over the years asking me to assess or evaluate the prospects for a new journal that is being contemplated. Some of the ones I recommended have been extremely successful; others have had only moderate success thus far. The successful journals may have thrived because traditional journals were not adequately meeting the needs of a significant number of research investigators and readers. Science evolves and so do many journals, but some needs still exist, which is why new journals succeed if the timing is right. Some of the most successful journals have been interdisciplinary, and my hope is that transdisciplinary journals will emerge and succeed in the 21st century.

I have been told that I have a tendency to write “run-on” sentences. This penchant is almost certainly due, in part, to my attempts to make connections between disciplines for which no widely accepted terminology exists at present. Fortunately, my editorial assistant Darla Donald is available to help me cope with this style of writing. However, even she, at times, can do little with my sentences that might cover five to six printed lines because no other grammatical structure is possible.

In recent years, I have published articles in international journals, some of which are available on the Internet. Access to some of them is even free. In some cases, traditional journals have permitted me to reprint articles from their publications in free, on-line books (e.g., two such books on sustainable use of the planet are available at www.esep.de). This set-up is a superb means of reaching people who do not have access to a large library and/or cannot afford traditional journals

or academic materials. Sustainable use of the planet will not be possible unless people who cannot afford literature have access to it.

Well operated, electronic journals are also able to reduce the time between submission of a manuscript and its availability to a large readership. Quality control is still dependent on qualified reviewers of manuscripts. Their contributions in the context of electronic journals require rapid turnaround of reviews. Transdisciplinarity journals may find that identification of qualified reviewers is even more difficult than for disciplinary journals. However, the world's major problems (e.g., global warming and population stabilization) require that this issue be resolved. I hope that persons starting their careers in transdisciplinary and interdisciplinary areas have more access to journals that I did half a century ago. Fortunately, I was carrying out research on freshwater protozoans for which a number of traditional outlets were available.

My 600+ journal articles have appeared in 168 different journals. This diversity has been an important learning experience for me. Before sending a manuscript to a journal in which I have never published, I always read at least one issue. Most times, the articles for journals in which I had not previously published were prepared following an invitation from the journal. In such cases, I was usually given explicit instructions on what should be in the article. Since the instructions to the author varied from one journal to another, the assistance of Darla Donald was extremely valuable. The greatest benefit from reading new journals for me was seeing the common knowledge base within each discipline, which enabled me to be more effective in framing my message. The reviewers and letters following publication have always been extremely helpful in making effective connections between and among disciplines.