IN editing the *Journal of Microelectromechanical Systems* and this book, I have examined many hundreds of articles, some well written, some poorly written. Below are some thoughts on how to effectively write an article.

Communication is the prime consideration. Good grammar, sentence structure, vocabulary, and organization have evolved to aid effective communication.

Who is your audience? I visualize three people: a novice, someone knowledgeable in science who knows little about the field, and an expert. Then, as I write, I talk to these three individuals. Each paragraph and each section ideally has something of interest for each reader. When an extended section is needed, for perhaps the expert, the novice can be warned, "The rest of this section contains a detailed examination of the boundary conditions at infinity."

Many of your most important readers will spend only a minute or two reading your article. You want them to understand the salient points, so they will remember and look up your article when it becomes important. The first page of your article is critical. (Having a good figure on the first page of your article that clearly conveys the major thrust of your work is most helpful.)

Before writing, try explaining your article to an intelligent friend who knows little about the field. This will sharpen your sensitivity to the assumptions and jargon you and your colleagues use. If you cannot explain your work to this friend, spend some time thinking about what you are really doing.

Now, before engaging the word processor, take the journal chosen for publication. Glance through several issues, and choose the articles you think are especially well written. Then, use these articles to help plan a strategy to most effectively present your ideas. Finally, sit down with the Information for Authors, and read it carefully.

The abstract, introduction, and conclusion seem to be three places requiring identical information. This is not true.

The abstract will be read by people deciding *if* they want to read your article. What information about your work will help the correct people select your work from the many abstracts they are scanning? What are the key aspects? How does your work differ from the literature?

The introduction is a road map. After reading the introduction, the reader should be able to scan the article, and pick out the important facts.

After reading your whole article, readers may still not grasp the significance. The conclusion is your chance to put the article in perspective. At this point, you can assume the reader knows the details; she or he needs the broad view.

Following the article's introduction is usually a section on the previous work in the field. Many authors use this section to show that their work is clever, and the rest of the literature is stupid. There are several things these authors have forgotten. First, who do they think is going to review their paper? Second, their portrayal of the literature makes them, not the literature, seem simple and sophomoric. Third, the author is missing a chance to communicate important information. People learning the field appreciate a well-written review of previous work. Help them. If your references allow them to discover the literature, they will forever consider you one of the experts in the field.

While writing the body of the article, I stop every few paragraphs and visualize the three people I have chosen for the audience. If someone's head is nodding, I speak to them, tell them what they want to know, and then rewrite to include material of interest to all readers. If you are not writing for your audience . . .

Changing the length and complexity of your sentences and paragraphs keeps your writing lively and interesting. Long sentences add a richness and complexity.

Short paragraphs emphasize.

The scientific literature is immutable. You cannot go back; you cannot change. Researchers a hundred years hence will still be reading the great works. Make yours one.