New Books of Interest

History of Technology Series


The books may be ordered from the Peter Peregrinus Ltd./IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854.

ASCE Book Highlights Communication Skills

Communication for Professional Engineers, a practical guide to communication skills, is now available from the American Society of Civil Engineers (ASCE). The book is designed for engineers at all levels, from the senior engineer who must conduct meetings, to the junior engineer who wants to acquire basic communication skills to advance his or her career. The book addresses four main areas of communication: public speaking, speaking in meetings, interviewing, and writing.

The hardcover, 240-page book costs $15.50 and can be ordered from ASCE Publications, 345 E. 47th St., New York, NY 10017.

PCS Information Hot Line

To encourage member participation, particularly international members, the Administrative Committee has appointed Lois K. Moore, PCS vice-president, as "international hot line representative." Members—and nonmembers—are invited to write, phone, or cable her for information about PCS activities:

Lois K. Moore
The Johns Hopkins University
Applied Physics Laboratory
Laurel, Maryland 20727 USA
(301) 953-5000 x8313
APLJHU

PCS Annual Report

1. Membership

PCS membership passed 2,500 as of 31 December 1984. Although we fell short of our Centennial goal (122 new members, a 5% increase), we did gain 96 new members (a 3.9% increase) by year's end. It is gratifying to note our modest but consistent membership growth at a time when many groups/societies are experiencing membership decline. We hope this growth is a result of an increased awareness of the value and importance of effective professional communication in every IEEE member's career.

Although PCS remains the 4th smallest of the six Division VI societies (only Education is smaller with 2,385 members), PCS was first in percent growth in 1984 for our Division.

We are designing new membership brochures for both IEEE members and Affiliates. While our Affiliate membership is presently quite modest (46 members, 1.7%), we are planning to increase our effectiveness in Affiliate recruiting.

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Left to right: Dr. Richard J. Goren, 1984 IEEE President; Deborah Flaherty; Dr. Daniel Bosch, 1985 PCS President.

The Keys were laser cut from a three-inch silicon disc composed of 256k metal oxide semiconductor (MOS) material.

Deborah Flaherty was selected by PCS to receive this award. She received a B.A. degree from Regis College in 1979 and the M.S. degree from Rensselaer Polytechnic Institute in 1980. She is currently a product planner in AT&T Technologies' Electronic Components Division.
From the editor...

One of the major objectives of any professional organization is the recognition of outstanding achievement in the given field. Through its Institute Awards, the IEEE recognizes excellence in the field of electrical and electronics engineering. These recognition programs are found at all levels of the IEEE structure.

IEEE Awards serve several purposes: 1) they are an expression of recognition for outstanding contributions to the art and science of electrical and electronics engineering; 2) they are an incentive to youth to emulate excellence; 3) they are a personalized presentation to the public of the achievements of the profession and its members; and 4) they are the identification of IEEE with these achievements.

The Institute Awards fall into six categories: Medal of Honor, Major Annual Medals, Field Awards, Service Awards, Prize Paper Awards, and Scholarships. The Medal of Honor and the Major Annual Medals aim at the recognition of achievements having outstanding significance for the profession, the Field Awards recognize unusual accomplishment in a particular field of interest to the Institute, the Service Award recognizes outstanding service to the Institute, and the Prize Paper Awards recognize publications significant for their excellence. The Scholarships aim at the support of worthy superior students. Recipients of Prize Paper Awards and Field Awards may in some instances receive future major awards for the same work if time demonstrates that the work has exceptional significance.

All individual members, Societies and Sections of the IEEE are eligible to nominate candidates for awards, medals, scholarships, and prizes; and to support such nominations by submitting forms and relevant communications to the Staff Secretary of the Awards Board at IEEE Headquarters.

The date schedule for receipt of nominations for the various awards is:

- Medal of Honor: before July 1, 1985
- Major Annual Medals: before July 1, 1985
- IEEE Service Awards: before July 1, 1985
- Prize Paper Awards: before July 1, 1985

For further information and nomination material, contact a PC's officer or Staff Secretary, IEEE Awards Board, 345 East 47th St., New York, NY 10017.

I urge all members to participate in the IEEE Awards Program. It is our responsibility to see that qualified people receive proper recognition for their achievements.

Flaherty Receives Key (continued from page 1)

In remarks to the Centennial Young Engineers, an actor portraying Benjamin Franklin, perhaps the first great electrical engineer, issued a challenge encouraging the key recipients to follow in the tradition of excellence and innovation of their forebears, serving others with technical skills.

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IEEE Professional Communication Society

Officers
Dan Rosich, President
Lois Moore, Vice-president
Leon Pickus, Treasurer
Deborah Flaherty, Secretary

Staff
Deborah Flaherty, Editor


Editorial correspondence: AT&T Technologies, 1 Oak Way, Room 3W118, Berkeley Heights, NJ 07922. Articles, letters, and reviews from readers are welcome.

offer solutions, if any. Ask for input when appropriate.
- Look at pros and cons: State the options, then discuss each advantage and disadvantage. Close with the option you select and why.

Now comes the dessert—adding that certain polish. Getting down to specifics does not mean examining every word under a magnifying glass, but it does demand some attention to detail. These tips should help:

- If one word will do, use it. For example, instead of at the present time, use now. It is more compelling. Soon is better than in the near future. Do not use the reason is because. Just write because. Rather than invisible to the eye, use invisible. Everyone knows vision is through the eyes. The same applies to a qualified expert: The person has got to be qualified in order to be an expert. And never use personal opinion. All opinions (except experts) are personal. Opinion is fine.
- Use action verbs. They add more zip. Instead of are going to, use will. Decide rather than make a decision.
- To personalize a letter, you can use you or your instead of we or our.
- The English language is one of the most complicated. Although affect means influence or cause, effect refers to the actual result. Assure, ensure and insure might be interchangeable, but complement is to praise and complement is to complete. Follow up with the dictionary to check your usage. (Follow-up, as in a follow-up report, has a hyphen when follow-up is not used as a verb. Whew!)

- If you are answering a letter, it is a good idea to have it in front of you for easy reference.
- Salutations should be as specific as possible; however, certain salutations are acceptable even when specific information is unknown. For example, initials such as R. A. Brown could mean male or female, so Dear R. A. Brown is acceptable, as is Dear Leslie Brown. Also acceptable are salutations according to title (Dear Director of Advertising), company name (Dear ABC Nut and Bolt), or classification (Dear IRA Investor).
- Contractions like can't are fine on occasion in formal business writing, but do not go overboard, especially with can't.
- Have standard letters or reports on hand to use as guides. Some letters can be copied almost word for word.

Books on effective written communication are everywhere. If you are in the market for one, make sure it is current. Look at the style. Do you like it? If so, it probably is a good investment.

Amid all the technique, however, do not lose your personal touch. Writing can be inhibiting if you ponder every word. Just write; let it flow naturally.

Later, you can fix it up.

—Adile Greenfield
Freelance writer and consultant
Reprinted with permission from The Executive, Female, publication of the National Association for Female Executives, 1041 Third Ave., New York, NY 10022.

Writer's Resources

What follows is a personal selection of English-usage/technical writing guides that I have found quite helpful and enjoyable. What are your favorites? Please send your comments to the editor.


—Deborah L. Flaherty
User-friendly Correspondence

Writing effective business reports, proposals and letters takes a little know-how. Many of these communications have become less formal and more conversational because business is beginning to recognize that doing business does not preclude the fact that real human beings actually talk to other human beings. For example, letters are now (to quote a computer term) "user-friendly" and sound natural. The guideline is simple: If you wouldn't say it, don't write it.

When you want to project a competent image, you can do it if you use contemporary phrasing. In fact, it is even better. Hackneyed sayings or old-fashioned cliches are absolutely and positively out. And so are redundancies like "absolutely and positively." One of these will do, since both mean the same and identical (here we go again) thing.

For example, does this sentence belong in the 1980s?

"Attached hereto, please find a memo pursuant to inviting the esteemed professor Dr. White to deliver a lecture on the date of our conference. Trusting you will read this..."

Slightly exaggerated? Maybe. No reader wants to wade through such gibberish. If you can barely read it aloud, look for another way of saying it.

"I am enclosing a memo about inviting Professor White to speak at our conference."

Not only does the second version sound like an actual person wrote it, it gets rid of all that excess verbosity (or shouldn't I say wordiness?). It has a streamlined design, contemporary style.

Since every designer has tools, here are a few in the form of three questions to ask yourself to help you design your writing:

Why am I writing this? The purpose should begin with a verb: to sell, to explain, to ask for something. Do not write it unless you are asked to state a goal, but keep it in mind as you work.

Who will be reading this? Who your audience is bears directly on what or how you write, since you are trying to make certain points. What kind of response do you want?

What do I need to say? The points you describe should support your purpose and be aimed at your audience.

Once you get the facts and write a draft, there are even more questions, concerning focus and image. In a sense, you are functioning as an editor.

- Is it complete? Check for omissions and consistency.
- Does it sound like it is written by a person or a machine? (Of course, if writing by machine is what you are after, reverse the question.)
- Is your topic clearly taken?
- Is your work logically organized?
- Is it clear, concise and free of jargon, or does it have big, impressive and confusing words? If you must use the language particular to an industry or topic, go ahead. But, at least know better, and try to keep such usage as minimal as possible.
- Will the reader lose face or be put off in any way? If so, your effectiveness will be diminished.
- Is it "letter-perfect"—grammatically and typographically correct?

Reading Faster and More Efficiently

An interesting article in Chemical Engineering magazine offers seven tips for increasing reading speed by overcoming bad habits and seven more for improving reading efficiency. Three of the tips for better efficiency are:

1. Preview the material.
2. Read with purpose in mind.
3. Review to retain information.

The article is "How Good Are Your Reading Skills?" by Barbara Mann, and it is on pages 165, 166 and 168 of the February 18 issue.

- Rudy Joenk
  Boulder, Colorado

Big things may be ahead for the computer, the video recorder, even that old standby, the TV, but books will never leave us, says Librarian of Congress Daniel J. Boorstin in a recent U.S. Census Report. Because of its convenience, independence from outside power sources, and unique individualism, the book stands to remain a "fertile resource" for decades to come, Boorstin said.

- Universal Press Syndicate

Opportunity for a Dynamic Bilateral Commitment

Communicators in industry, especially those who manage publications departments, are seeing impressive growth in contact documentation requirements. Twice this past year at our laboratory, new documentation tasks have expanded almost faster than we could staff to meet them. Sometimes it's a cause for panic. As Chuck McCule of Lawrence Livermore National Laboratory says, "You'd better be able to recognize a bull elephant when it's staring you in the face."

From all indications, these requirements will continue to grow. End users are realizing that more extensive and reliable documentation helps to cut training costs and minimize costs of repair and replacement by ensuring effective and appropriate operation and maintenance procedures. The bottom line is that we'll continue to be COTS. And customers realizing that effective documentation is not simply a nice-if-you-can-afford-it frill.

For example, a widget packaged with documentation that clearly identifies operating restrictions, design considerations, and fault isolation procedures (troubleshooting is simply worth more in the marketplace than an undocumented widget. Effective documentation more than pays its own way. That's why customers are requiring more extensive and sophisticated documentation.

We not only need more professionals to staff these growing requirements, we also need a broader range of skills for new services and for innovative solutions to costing, scheduling, and production problems. This trend presents challenges to all of us, whether we work in industry or in universities.

While employers want to know that universities will produce all of the qualified graduates they will need, university faculty want to know that there will be adequate employment opportunity for all of their graduates. With some dedicated collaboration and cooperation, academics can help employers meet staffing needs while employers help academics place new graduates.

Even so, striking a balance won't be easy.

We need opportunities for professionals in both groups to share their needs, goals, and plans, and to establish broader goals and plans for the professional field.

That's one reason I'm looking forward to PCC/85 and the sessions on University and Industry Collaboration. Through presentations by professional communicators in both groups, we can share ideas about the special knowledge and skills needed in our field, and about various programs for mutual support. Perhaps many of us can establish contacts for developing new programs, for launching collaborative research, or for coauthoring books that will contribute to our field.

Whatever benefits such collaboration offers us individually as professionals, trying to meet the escalating demands of our positions in industries or in universities, we may find a higher and broader benefit: Our professional field stands to gain a dynamic bilateral commitment from communicators who are rising to a challenging opportunity.

-Susan Dressel, PhD
Physical Science Laboratory

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- Universal Press Syndicate
PCS Education: What Next? (Round 3)

A panel discussion at the October 1984 PCS conference in Atlantic City identified two opposing points of view concerning report writing as a subject in an engineering curriculum: some delegates felt strongly that the humanities should be retained as an integral part of a communications program, while others felt that the communications program should concentrate solely on developing an undergraduate engineer’s skill in reporting technical information. I reported this in the January edition of the PCS Newsletter, and invited readers to respond. Here are excerpts from two letters I have received.

Jim Fritts writes from Rockford, Illinois:

Both at home and at work I am daily confronted with technical people who either have or lack the humanities.

My five children are all inclined to technical disciplines. There are three seniors in college, two in mechanical engineering and one in life science (two women and one man). My oldest son graduated from a two-year college and is now a computer operator. My youngest child is a sophomore in high school and wants to be an electrical engineer.

She got an A in Fortran in summer school last year. Do you or any of your panel realize how much effort it takes to get there? Technical disciplines take brains, effort, and guts. Adding courses in humanities to an engineering program is absolutely wrong.

In a depth course in technical writing is, however, a must. At work I am confronted with people who have taken technical writing courses and those who have not. Very often those who have not taken writing courses are aware of their shortcomings. The pathetic creatures are those who do not know that they cannot write. They are usually gently shoved off into areas where they cannot waste money and time.

As far as the lack of humanity courses for engineers shows up—that is what society will have to live with.

I pushing my children into traveling (as I have in the past). I figure if they walk through enough old castles, cathedrals and the like, maybe something will rub off on them.

Any veneer of civilization an engineer acquires will have to be done outside of work and school.

A second view came in from Dr. William Kiskern, who teaches technical communication at Red River College:

It should not be necessary to teach humanities in a Technology program. Every person with a secondary education should be familiar with the principal figures and events, ideas, and works of history, philosophy, and literature (to name only three major branches of the humanities). But, then, educational values have progressed over the last two decades and my views, I realize, are antiquarian at best.

The goal in education at present (if I remember the jargon correctly) is to enable students to adapt to, and function in, society (which, I am told, is even changing, and rapidly at that). I think this probably means that education should prepare students for jobs; that is, it should enable them to participate in the process of production and consumption.

Clearly, then “history,” to quote Henry Ford, “is bunk.” What need have we to understand the origins and trace the evolution of our ideas, our institutions, and our culture? What is ancient Greek art, philosophy, literature, and architecture to us? What can we learn from the rise and subsequent decline of the Roman Empire? Surely the development in the Middle Ages of modern nations out of feudal fields has nothing to teach us (perhaps there is a strange parallel with the emergence of, and struggles among, ever-growing multinational corporate powers, but so what?). What need have we to know what greatness mankind is capable of, or into what barbarity it can sink? “History is bunk.”

So, too, is philosophy. It asks us to question everything, particularly our values. And, as everyone knows, because these questions have no answers, they ought not to be asked. Indeed, how could we have developed hydrogen bombs and IBM computers, and its agent orange, stripped forests, destroyed wildlife, and polluted lakes and the air if we had stopped to ask useless questions? The “real” question in today’s “real” world is: What is the bottom line?

agenda, after several people have already headed for the airport. Then mini-disaster—someone innocently asks about Quorum (I talked to him about it later). Now we can only talk about the issue, can’t vote anymore. Finally clean everything up in time for supper.

Whe... no more meetings for me for about 24 hours.

Next is TAB OpCom dinner meeting Saturday night. Still have a bunch of stuff to read, but should have time to sightsee Houston tomorrow. The BoD’s Executive Committee meets tonight and tomorrow, but that’s mostly IEEE member officer, not regular Directors. We get their agenda and minutes but only attend by specific invitation.

Saturday morning, Rain, distant thunder. My sightseeing will be limited to the 200 Gallery shops in the hotel complex. (Beware of shopping complexes that display no prices whatever!) Finally bought another computer book, Jack Emmerich’s “The Programmer’s Toolbox,” $19.95, Dilithium Press. A well put together collection of BASIC routines and methodologies for program development and specific application needs. I recommend it, but not for the novice.

Saturday evening. Back to meetings. TAB OpCom was informal—discussed goals, philosophies, perspectives, needs, problems, standards of individuals: ideas which have worked, failed, new ones to try; relationships with other IEEE entities; how best to serve the Society members (TAB’s constituency), the general needs of the Institute, and the profession. Very worthwhile—we don’t usually have time for much of this—good chance to get to know our TAB members a bit better.

Sunday, 7 am. Breakfast Meeting of IEEE representatives to the AES (American Association of Engineering Societies). I wanted to find out more about IEEE’s activities in this. All 3 IEEE Presidents were there (Past, Current, Elect—there’s IS NOT an honorary job). Also IEEE’s Executive Director, 2 IEEE VP’s, and 3 other Division Directors.

Sunday, 9 am. Board of Directors. Got through quite a bit of everything. Evening: BoD Reception and Dinner hosting Houston area section and chapter officers and spouses. Short talk by President Bud Eldon, then a Q&A session on general concerns, plus hotel assistance, and related matters. Next a short break, then another informal TAB OpCom meeting, mostly on relationships with non-IEEE technical organizations. Quit at 11 pm.

Monday. Wrap up BoD agenda. Home stretch الفترة—actually finished by 11 am! Surprise, can’t change “EXC” class plans except with week’s notice—but odds look good on standby. I should be home Monday night instead of Tuesday afternoon. Lots more paper to carry home than I brought.

This narrative must stop here, if I’m going to get it mailed to the newsletter deadline. But, one note I want to emphasize. All of the volunteers as well as the IEEE BOD staff are sincere, dedicated people focused on the best interests of IEEE and its members. The structure of IEEE is complex and cumbersome, and making things happen is often a tedious and frustrating effort—at times I am the only person in the room who sees things this way.

Best wishes to you all.

—Charles Stott

Did You Know

There are over 400,000 words in the English language. The average person knows or can use less than three percent of them. Even journalists are able to use only about 20,000 words, only five percent of the total number.

For generations, buoyant young men, at about age twenty, have been reaching these conclusions: (1) that all work can be cleanly divided into either creative-directive work or detail work. (2) that they are unmotivated creative-directive types, qualified for impressive earnings and salaries but that they will be plenty of people available who will be content to support their efforts and "handle the details,” and (3) that creative work is for smarter while detail work is for sissies. While detail work is for squares. Now, consider that striking anomaly of the college graduate who is an irreconcilably poor speaker. At some time in his career he formed the conclusion, and was not disabused of it, that because speaking is a detail of education, it is not important enough to bother about. Rather late in the game he discovers that the shortcoming is not one that can be solved merely by "looking it up,” since, because he has never taken the trouble to learn the rudiments of spelling, he has difficulty even in entering a dictionary. The result, allowing for the contradiction in terms, is an educated illiterate.
High-Tech Art (continued from page 9)

5. Corrosion Pits

Some Words From The
Division VI Director

Greetings. This is in part a response to a lament that we have not had a Division VI Director’s column for 10 years. (After reading this, you may decide it was better that way.) More to the point, there are things that I want to share with you.

In my IEEE wanderings over the last dozen or so years I’ve found a fairly broad non-awareness of what a Division Director does (maybe nobody cares?). What you see in “The Institute” is sometimes overwhelming in its reference to various Boards, Committees, Councils, and other entities, with an endless array of acronyms, and limited insight toward figuring out who the players are. The rest of this essay will be a sort of diary of my 7 days at the February Board of Directors’ (BoD) and related meetings.

[Technical note: I am writing this as the meetings progress, on a TBS80 Model 100. At home I’ll upload it to my IBM PC, do some cleanup editing, and print it. For Editore: I can ship it to you on IBM PC/DOS 15 or 25 1-25” diskette, or via IEEE Computer Society’s CompuServe.]—

By the time you see these words you should also have received “The Institute’s” account of the events. It may be of interest to compare them.

Tuesday. Arrived in Houston in time for USAB (US Activities Board) dinner meeting. Adjourn 11 pm. I’m 1 of 3 Division Directors appointed to the USAB, plus the 6 US Regional Directors, and several appointees.

Wednesday. USAB all day. After supper: Review “new” USAB material received at meeting. Any surprises? Information to be shared, forgotten, presented at later meetings, other action? Next, finish reading 2-3 ring binders of agenda references for TAB (Technical Activities Board) and TAB OpCom (Operating Committee—really TAB’s executive committee) for tomorrow. Next, start agenda for my Division meeting tomorrow night.

Thursday. TAB OpCom all day. Then, dinner meeting of Division VI Committee—the 5 society presidents. We finished early (10 not 11 pm) partly because 2 presidents were not represented. Extra phone/mail work when I get home, to get the absentee on board.

Friday. TAB agenda looks short, simple—still took all day. An item I consider important comes late in the

How Does This #%%@! Thing Work?

No matter what happens, do not look at the manual.

“You press the button, we do the rest.” That marvelous, unselfconscious slogan helped sell millions of Eastern Kodak cameras starting in 1988. Today, however, the owner of a new video cassette recorder or some other electronic wonder must turn to an instruction manual to get his machine working. But that is often when the trouble begins: the consumer opens a booklet to find a compilation of jargon, gibberish and just plain confusion. “There is a major disease in this country called wall-stare,” says Sanford Rosen, president of Communication Sciences, a Minneapolis consulting firm. “When people read a computer manual, they just want to put it down and stare at the wall for as long as possible.”

Bad instructions are bad business as well as a torture to read. A maddening manual can cripple sales of products that might have been successful. Coleco lost $55 million in the fourth quarter last year partly because people flocked to return the initial version of its Adam computer, which the company offered for $800. In a statement to shareholders, Coleco blamed much of the consumer dissatisfaction on “manuals which did not offer the first-time user adequate assistance.”

Observes Joseph Sugarman, president of JSA, a mail-order house that specializes in high-tech merchandising: “Very often, items with the highest rate of return are those where customers are frustrated with the instructions.” Coleco has reintroduced the Adam computer, complete with a new instruction manual.

Directions for hooking up and operating video cassette recorders can be particularly maddening. A frequent mystery is how to connect the machines to television sets and antennas. Owners must often pick their way through pages of programs and technical terms like “One-touch type F connector” that seem to have been written for licensed electricians. Some manuals compound the confusion with illustrations that differ from the actual machine. Notes the 46-page booklet for a Panasonic OmniVision model: “Please be assured that this difference is not due to mistake but to ongoing product improvement.”

Fortunately, better manuals may be on the way. Leading technical schools like Rensselaer Polytechnic in Troy, NY, and Pittsburgh’s Carnegie-Mellon have writing programs that teach students how to translate complex facts into clear directions. Enrollment in the
classes is high, and instructors say that the corporations have been snapping up their graduates.

But for now, at least, many consumers are likely to continue to find operating booklets more frustrating than enlightening. Indeed, some may feel like twisting the famous bromide “If all else fails, consult the manual” into a new maxim: “No matter what happens, do not look at the manual!”

—By John Greemalad—

Reported by Dorothy Forbush, New York and Carol Fletter, Chicago

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Computer Writers Announce Electronic Clearinghouse

An electronic clearinghouse for writing assignments and an electronic distribution system for news releases were recently announced by the Computer Press Association (CPA), a new organization representing freelance writers who specialize in topics related to computers.

The association offers the services of The Source, an electronic information and communication system for personal computer owners supplied by Source Telecomputing Corporation, a subsidiary of The Reader’s Digest Association, Inc.

The clearinghouse allows publications, which pay a per-use fee if they are not CPA members, to post announcements of available writing assignments to which writers can respond. The news release system allows news sources to distribute releases electronically to freelance writers, many of whom work out of their homes and are often not reached by releases sent out by conventional means.

To use The Source, members, publications, and news sources will need a personal computer and a modem linking their computer to a telephone line. The one-time sign-on fee and the minimum monthly use fee are waived for CPA members, but members will still have to pay a monthly storage fee and the hourly usage fee.

Information can be obtained from Barry Bayer, CPA secretary, P.O. Box 1506, Homewood, Illinois 60430.
PCS Annual Report

(continued from page 1)

PCS has proposed major modifications of our TIP (Technical Interest Profile) which we believe will better serve the Institute’s membership. A membership drive is planned once the new TIP categories are formally approved and in place.

2. Conferences

Since 1981 PCS has held an annual conference. While we have drawn many specialists in professional communication both from within the IEEE and from the professional/engineering communication community at large, we have been somewhat less effective in attracting the more numerous IEEE-member engineers, computer scientists, and engineers managing.

Approximately half our attendees are IEEE members. We are exploring approaches both to developing a greater IEEE-member presence and to recruiting our non-IEEE member attendees as PCS Affiliate members.


The annual conference has been a catalyst in reshaping and redirecting PCS. Increased membership involvement in many PCS activities is a direct result of conference attendance and participation. We expect our growing conference attendance will continue.

3. IEEE Transactions on Professional Communication

Dr. Valerie M. Arson of Drexel University has assumed the editorship of the IEEE Transactions on Professional Communication effective 1 January 1985. An expanded editorial advisory board is being organized and we expect this group will prove a valuable resource in improving the quality and scope of both our Transactions and our annual conference.

Several special topic issues are planned through 1987 and we look forward to potential collaboration and active involvement with other IEEE entities. We especially welcome suggestions for special topic issues and nominations for guest editors.

4. Finances

Our finances remain stable—modest but real cost increases effectively offset our modest gain in member-ship. Much of our annual budget reflects the costs of producing and distributing the IEEE Transactions on Professional Communication, costs over which we cannot exercise any real control.

Our annual conferences have provided a new source of income which was unknown prior to 1981. We readily envision conference income as a critical resource in our future. Yet another potential income source may be PCS’s share of royalties from PCS-sponsored IEEE Press books.

We are keenly aware of the need to develop new sources of income and we are exploring several avenues. We anticipate our long range financial plan to be completed by late summer and to be discussed at our annual Administrative Committee meeting in October 1985.

5. Acknowledgment of Support

The accomplishments of the Professional Communications Society in 1984 were the result of an exceptionally dedicated corps of committee members, chairmen volunteers, and officers. I would like to thank each of these PCS “activists” for their loyal support and devoted efforts. It is a testament to their efforts that PCS remains a financially and intellectually viable Society.

—Dan Rosch
PCS President

West Coast Members Seeks Regional Activity

Administrative Committee member Lacy R. Martin, publications manager at AMDahl Communication Systems, Los Angeles, is still seeking more names and addresses of local PCS members who would like to help initiate some regional and local activities—meetings, seminars, newsletter, etc. He thanks those who have contacted him thus far.

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—Diane Clarke-Kuless

In the long run, you can’t find motivation in your own ideas and your own system of values, you’ll never find a lean and satisfying motivation anywhere.

Newsletter Deadline

Articles, news, and comments for publication must reach the editor by the following dates:

<table>
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<th>Issue</th>
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<td>July</td>
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<td>August 24</td>
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Send your contributions to Deborah Flaherty, AT&T Technologies, One Oak Way, Rm. 3WC110, Berkeley Heights, NJ 07922.
EMS and PCS Get Together in Denver

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Attendance was 20—better than expected for a first attempt at a new series of meetings. The next get-acquainted meeting will be in May and a meeting to organize will be called in September. For pre-meeting information, phone Professor Michael Hayes at the University of Colorado Denver College of Business, (303) 623-4436, or Rudy Joenk, (303) 447-6041. Announcements will be published in Western Engineer.

—Rudy Joenk
Boulder, Colorado

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The International Business Machines Corporation has appointed Rudy Joenk as its official representative to the Professional Communication Society. IBM has official representatives to 66 professional societies around the world. This appointment emphasizes IBM’s interest in technical communication.

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High-Tech Art

The world of a high-technology photographer is a strange one indeed. What appears to be a serving of new coagulate is in reality cluster of electro deposited gold. These photographs are from "MicroScapes: The Hidden Art of High Technology," an exhibit of photographic images of microelectronics and lightwave communications touring the country. The exhibit was put together by AT&T Technologies.

These and about forty other photographs can be viewed at the University of Nevada, Las Vegas from March 19-April 21; Reading Public Museum, Reading, Pennsylvania from May 11-June 23; and Midland Center for the Arts, Midland, Michigan from July 19-August 25.

And what do these nine photographs represent? See how many you can identify.

1. Sulfur Crystals

An epoxy-glass printed circuit board was treated with sulfuric acid. Sulfur-containing residue crystallized in anemone-like formations. Robert Woods, AT&T.

2. A Tungsten Silicide "Garden."

The silicon wafer shown here in cross section was first covered with a layer of tungsten, then heated with a laser beam. Plant-like structures of tungsten silicide are all that remain of the surface layer. The laser heating experiment was part of ongoing studies of ways to improve integrated circuit manufacturing processes. George Sheng, AT&T.

3. Gold Flowers

Electroplated gold on connector pins should be smooth, not rough and irregular as in this test sample. The flowerlike features are a result of current density variations during electroplating. Robert Woods, AT&T.

4. Connector Pins

A head-on view of some of the 10,000 pins on a connector for complex electronic equipment. A computer-controlled system has aligned the pins with an accuracy of 9 thousands of an inch so that the connector can readily be inserted in the receptacle on a circuit pack. Charles Lewis, AT&T.

(continued on page 129)
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(continued on page 12)
PCS Education

(continued from page 4)

Easily the most frivolous of all the humanities is literature, the purpose of which is to provide entertain- ment and escape for those who lack the courage or the ability to function in the real world. Only professors of literature would be shameless enough to admit to having read Homer, Shakespeare and Milton, and only they would presume to suggest that from each they have learned much about the human condition.

If the humanities are not taught in the high schools, why should they be taught in Engineering and Technology programs? (And, in the same vein, if students have not learned how to write in high school, why should they be forced to learn how to do so at any other stage in their education?) I ad- mit that Engineering and Technology students are overworked, and I have a great deal of admiration for their perseverance and dedication. To add humanities to their programs would require that their time at university or college be extended.

But why bother at all? As anyone who has studied the humanities at length knows, a lifetime is not sufficient to fully master even one small corner of a single discipline. It would be better, then, to leave it alone altogether and get on with the business of developing a technology that will answer our highest needs and aspirations: to stay warm and well- fed.

Rather than comment on or add my own views to these two letters, I am opening them to PCS Newsletter readers: drop me a line with your views, supporting, disagreeing with, or adding another dimension to these writers’ viewpoints. I’ll be glad to print them in the next edition of the PCS Newsletter providing our editor has sufficient space available. Send me your comments to: Box 181, Postal Station C, Winnipeg, Manitoba, Canada, R3M 3T7.

--Ron Blicq
PCS Education Chairman

The Ultimate In Graceful Rejection Slips

"A British writer’s submission to a Chinese economic journal, according to Los Angeles magazine, was returned with the following cover letter: ‘We have read your manuscript with boundless delight. If we were to publish your paper, it would be impossible for us to publish any work of a lower standard. And as it is un- thinkable that, in the next 1,000 years, we shall see its equal, we are, to our regret, compelled to return your divine composition and beg you a thousand times to overlook our short sight and timidity.’"

--Media Industry Newsletter

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PCS Annual Report

(continued from page 3)

PCS has proposed major modifications of our TIP (Technical Interest Profile) which we believe will better serve the Institute’s membership. A membership drive is planned once the new TIP categories are formally approved and in place.

2. Conferences

Since 1981 PCS has held an annual conference. While we have drawn many specialists in professional communication both from within the IEEE and from the professional/engineering communication community at large, we have been somewhat less effective in attracting the more numerous IEEE-member engineers, computer scientists, and engineering managers.

Approximately half our attendees are IEEE members. We are exploring approaches both to developing a greater IEEE member presence and to recruiting our non-IEEE member attendees as PCS Affiliate members.


The annual conference has been a catalyst in reshaping and redirecting PCS. Increased membership involvement in many PCS activities is a direct result of conference attendance and participation. We expect our growing conference attendance will continue.

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12

How Does This %$@! Thing Work?

No matter what happens, do not look at the manual.

―By John Greenwald
—Reported by Dorothy Ferenbaugh, New York and Carol Fletcher, Chicago
© Copyright 1984 TIME, Inc. All rights reserved. Reproduced by permission from TIME.

Computer Writers Announce Electronic Clearinghouse

An electronic clearinghouse for writing assignments and an electronic distribution system for news releases were recently announced by the Computer Press Association (CPA), a new organization representing freelance writers who specialize in topics related to computers.

The association offers the services of The Source, an electronic information and communication system for personal computer owners supplied by Source Telecomputing Corporation, a subsidiary of The Reader’s Digest Association, Inc.

The clearinghouse allows publications, which pay a per-use fee if they are not CPA members, to post announcements of available writing assignments to which writers can respond. The news release system allows news sources to distribute releases electronically to freelance writers, many of whom work out of their homes and are often not reached by releases sent out by conventional means.

To use The Source, members, publications, and news sources will need a personal computer and a modem linking their computer to a telephone line. The one-time sign-on fee and the minimum monthly use fee are waived for CPA members, but members will still have to pay a monthly storage fee and the hourly usage fee.

Information can be obtained from Barry Bayer, CPA secretary, P.O. Box 1006, Homewood, Illinois 60430.
PCS Education: What Next? (Round 3)

A panel discussion at the October 1984 PCS conference in Atlantic City identified two opposing points of view concerning report writing as a subject in an engineering curriculum: some delegates felt strongly that the humanities should be retained as an integral part of a communications program, while others felt that the communications program should concentrate solely on developing an undergraduate engineer's skill in reporting technical information. I reported this in the January edition of the PCS Newsletter, and invited readers to respond. Here are excerpts from two letters I have received.

Jim Fritts writes from Rockford, Illinois:

Both at home and at work I am daily confronted with technical people who either have or lack the humanities.

My five children are all inclined to technical disciplines. There are three seniors in college, two in mechanical engineering and one in life science (two women and one man). My oldest son graduated from a two-year college and is now a computer operator. My youngest child is a sophomore in high school and wants to be an electrical engineer.

She got an A in Fortran in summer school last year. Do you or any of your panel realize how much effort it takes to get there? Technical disciplines take brain, effort and guts. Adding courses in humanities to an engineering program is absolutely wrong.

An in-depth course in technical writing is, however, a must. At work I am confronted with people who have taken technical writing courses and those who have not. Very often those who have not taken writing courses are aware of their shortcomings. The pathetic creatures are those who do not know that they cannot write. They are usually gently shoved off into areas where they cannot waste money and time.

As far as the lack of humanity courses for engineers shows up—that is what society will have to live with.

I pushing my children into traveling (as I have in the past). I figure that if they walk through enough old castles, cathedrals and the like, maybe something will rub off on them.

Any veneer of civilization an engineer acquires will have to be done outside of work and school.

A second view came in from Dr. William Kniskern, who teaches technical communication at Red River College:

It should not be necessary to teach humanities in a Technology program. Every person with a secondary education should be familiar with the principal figures and events, ideas, and works of history, philosophy, and literature (to name only three major branches of the humanities). But, then, educational values have progressed over the last two decades and my views, I realize, are antiquarian at best.

The goal in education at present (if I remember the jargon correctly) is to enable students to adapt to, and function in, society (which, I am told, is ever-changing, and rapidly at that). I think this probably means that education should prepare students for jobs; that is, it should enable them to participate in the process of production and consumption.

Clearly, then, "history," to quote Henry Ford, "is bunk." What need have we to understand the origins and trace the evolution of our ideas, our institutions, and our culture? What is ancient Greek art, philosophy, literature, and architecture to us? What can we learn from the rise and subsequent decline of the Roman Empire? Surely the development in the Middle Ages of modern nations out of feudal fieldsmen has nothing to teach us (perhaps there is a strained parallel with the emergence of, and struggles among, ever-growing multinational corporate powers, but so what?).

What need have we to know what greatness mankind is capable of, or into what barbarity it can sink? "History is bunk."

So, too, is philosophy. It asks us to question everything, particularly our values. And, as everyone knows, because these questions have no answers, they ought not to be asked. Indeed, how could we have developed hydrogen bombs on agent orange, stripped forests, destroyed wildlife, and polluted lakes and the air if we had stopped to ask useless questions? The "real" question in today's "real" world is: What is the bottom line?

agenda, after several people have already headed for the airport. Then mini-disaster—someone innocently asks about Quorum (it talked to him about it later). Now we can only talk about the issue, can't see anyone anymore. Finally clean everything up in time for supper.

Whew... no more meetings for me for about 24 hours. Next is TAB OpCom dinner meeting Saturday night. Still have a bunch of stuff to read, but should have time to sightsee Houston tomorrow. The BoD's Exec- 

utive Committee meets tonight and tomorrow, but that mostly IEEE Operations officers, not regular Directors. We get their agenda and minutes but only attend by specific invitation.

Saturday morning, Rain, distant thunder. My sight- seeing will be limited to the 200 Galleria shops in the hotel complex. (Beware of shopping complexes that display no prices whatever.) Finally bought another computer book, Jack Emmerich's "The Programmer's Toolbox," $19.95, Dilithium Press. A well put together collection of BASIC routines and methodologies for program development and specific application needs. I recommend it, but not for the novice.

Saturday evening, Back to meetings. TAB OpCom was informal—discussed goals, philosophies, perspectives, needs, problems; status of individuals societies: ideas which have worked, failed, new ones to try; relationships with other IEEE entities: how best to serve the Society members (TAB's constituency), the general needs of the Institute, and the profession. Very worthwhile—we don't usually have time for much of this—good chance to get to know our fellow TAB members a bit better.

Sunday, 7 am! Breakfast Meeting of IEEE representa- tives to the ASCE (American Association of Engineering Societies). I wanted to find out more about IEEE's activity in this. All 3 IEEE Presidents were there (Past, Current, Elect—there's NOT an honorary job). Also IEEE's Executive Director, 2 IEEE VP's, and 3 other Division Directors.

Sunday, 9 am. Board of Directors. Got through quite a bit of everything. Evening: BoD Reception and Dinner hosting Houston area section and chapter officers and spouses. Short talk by President Bud Eldon, then QA&A session on policy concerns, plus HQ assistance, and related matters. Next a short break, then another informal TAB OpCom meeting, mostly on relationships with non-IEEE technical organizations. Quit at 11 pm.

Monday. Wrap up BoD agenda. Home stretch fever—actually finished by 11 am! Surprise, can't change "EXC" class plane tickets except with week's notice—but odds look good on standby. I should be home Monday night instead of Tuesday afternoon. Lots more paper to carry home than I brought.

This narrative must stop here, if I'm going to get it mailed to the newsletter deadline. But, one note I want to emphasize. All of the volunteers as well as the IEEE HQ staff are sincer, dedicated people focused on the best interests of IEEE and its members. The struc- ture of IEEE is complex and cumbersome, and making things happen is often a tedious and frustrating ef-fort—always compounded by the varying perceptions of "best" held by each of us. The processes do work. IEEE is flourishing, moving forward, and serving its membership well, with a great deal of individual effort helping to make it happen.

Best wishes to you all.

—Charles Stott

Did You Know

There are over 400,000 words in the English language; the average person knows or can use less than three percent of them. Even journalists are able to use only about 20,000 words, only five percent of the total number.

For generations, buoyant young men, at about age twenty, have been reaching these conclusions: (1) that all work can be cleanly divided into either creative-directive work or detail work; (2) that they are unmystically creative-directive types, qualified for impressive earnings and income; and (3) that creative work is for smarts while detail work is for drudgery, but he has not taken the trouble to learn the rudiments of spelling, he can tactfully wrap it in entering a dictionary. The result, allowing for the contradiction in terms, is an educated illiterate.
User-friendly Correspondence

Writing effective business reports, proposals and letters takes a little know-how. Many of these communications have become less formal and more conversational because business is beginning to recognize that doing business does not preclude the fact that real human beings actually talk to other human beings. For example, letters are now (to quote a computer term) "user-friendly" and sound natural. The guideline is simple: If you wouldn't say it, don't write it.

When you want to project a competent image, you can do it if you use contemporary phrasing. In fact, it is even better. Hackneyed sayings or old-fashioned cliches are absolutely and positively out. And so are redundancies like "absolutely and positively." One of these will do, since both mean the same and identical (here we go again) thing.

For example, does this sentence belong in the 1980s?

"Attached hereto, please find a memo pursuant to inviting the esteemed professor Dr. White to deliver a lecture on the date of our conference. Trusting you will read this . . . ."

Slightly exaggerated. Maybe. No reader wants to wade through such gibberish. If you can barely read it aloud, look for another way of saying it.

"I'm enclosing a memo about inviting Professor White to speak at our conference." Not only does the second version sound like an actual person wrote it, it gets rid of all that excess verbosity (or shouldn't I say wordiness?). It has a streamlined design, contemporary style.

Since every designer has tools, here are a few in the form of three questions to ask yourself to help you design your writing:

Why am I writing this? The purpose should begin with a verb: to sell, to explain, to ask for something. Do not write it unless you are asked to state a goal, but keep it in mind as you work.

Who will be reading this? Who your audience is bears directly on what or how you write, since you are trying to make certain points. What kind of response do you want?

What do I need to say? The points you describe should support your purpose and be aimed at your audience.

Once you get the facts and write a draft, there are even more questions, concerning focus and image. In a sense, you are functioning as an editor.

- Is it complete? Check for omissions and consistency.
- Does it sound like it is written by a person or a machine? (Of course, if writing by machine is what you are after, reverse the question.)
- Is your topic clearly taken?
- Is your work logically organized?
- Is it clear, concise and free of jargon, or does it have big, impressive and confusing words? If you must use the language particular to an industry or topic, go ahead. But, at least know better, and try to keep such usage as minimal as possible.
- Will the reader lose face or be put off in any way? If so, your effectiveness will be diminished.
- Is it "letter-perfect"—grammatically and typographically correct?
- Are the message and the professional image being conveyed the way you would like? Besides tone, correspondence must look good.
- Are there any redundancies, out-of-date language, wordiness, or stiff, "pregame-advised" phrases that sound as if they belong in a law book?

A design is not a design, however, unless the form is in some kind of order. In this sentence, for example, the repetition works for emphasis. If it is overdone, though, the impact will be lost. Structure will help you organize your thoughts into words. Here are some basics:

Develop your paragraphs. The first and last sentences are the most likely to be remembered. Usually, the first gives some clues on what the paragraph is about, and the last sentence either sums it up or acts as a transition to the next paragraph.

Organize your paragraphs. What follows what? Paragraphs, like sentences, should flow from one another. They need to be clear and logically ordered. No reader wants to be jarred. Some common structures are:

- Chronological: Information is presented in order of occurrence.
- Ranking: Go from most to least important, or the other way around. Ranking is good for listing such things as recommendations, and if often used in persuasive writing.
- Discuss a problem: State the problem, analyze the factors, cause and other pertinent elements and then

Opportunity for a Dynamic Bilateral Commitment

Communicators in industry, especially those who manage publications departments, are seeing impressive growth in contact documentation requirements. Twice this past year at our laboratory, new documentation tasks have expanded almost faster than we could staff to meet them. Sometimes it's the cause of panic. As Chuck McCaleb of Lawrence Livermore National Laboratory says, "You'd better be able to recognize a bull elephant when it's staring you in the face."

From all indications, these requirements will continue to grow. End users are realizing that more extensive and reliable documentation helps to cut training costs and minimize costs of repair and replacement by ensuring effective and appropriate operation and maintenance procedures. The bottom line is thus been and will continue to be COSTS. And customers realizing that effective documentation is not simply a nice-if-you-can-aford-it frill.

For example, a widget packaged with documentation that clearly identifies operating restrictions, design considerations, and fault isolation procedures (trouble-shooting) is simply worth more in the marketplace than an undocumented widget. Effective documentation more than pays its own way. That's why customers are requiring more extensive and more sophisticated documentation.

We not only need more professionals to staff for these growing requirements, we also need a broader range of skills for new services and for innovative solutions to costing, scheduling, and production problems. This trend presents challenges to all of us, whether we work in industry or in universities.

While employers want to know that universities will produce all of the qualified graduates they will need, university faculty want to know that there will be adequate employment opportunity for all of their graduates. With some dedicated collaboration and cooperation, academics can help employers meet staffing needs while employers help academics place new graduates. Even so, striking a balance won't be easy.

We need opportunities for professionals in both groups to share their needs, goals, and plans, and to establish broader goals and plans for the professional field. That's one reason I'm looking forward to PCC '86 and

the sessions on University and Industry Collaboration. Through presentations by professional communicators in both groups, we can share ideas about the special knowledge and skills needed in our field, and about various programs for mutual support. Perhaps many of us can establish contacts for developing new programs, for launching collaborative research, or for coauthoring books that will contribute to our field.

What ever benefits such collaboration offers us individually as professionals, trying to meet the escalating demands of our positions in industries or in universities, we may find a higher and broader benefit: Our professional field stands to gain a dynamic bilateral commitment from communicators who are rising to a challenging opportunity.

-Susan Dressel, PhD
Physical Science Laboratory

Reading Faster and More Efficiently

An interesting article in Chemical Engineering magazine offers seven tips for increasing reading speed by overcoming bad habits and seven more for improving reading efficiency. Three of the tips for better efficiency are:

1. Preview the material.
2. Read with purpose in mind.
3. Review to retain information.

The article is "How Good Are Your Reading Skills?" by Barbara Marrs, and it is on pages 185, 186 and 188 of the February 18 issue.

-Rudy Joenk
Boulder, Colorado

Big things may be ahead for the computer, the video recorder, even that old standby, the TV, but books will never leave us, says Librarian of Congress Daniel J. Boorstin in a recent U.S. Census Report. Because of its convenience, independence from outside power sources, and unique individualism, the book stands to remain a "fertile resource" for decades to come, Boorstin said.

-Universal Press Syndicate
I urge all members to participate in the IEEE Awards Program. It is our responsibility to see that qualified people receive proper recognition for their achievements.

Flaherty Receives Key (continued from page 1)

In remarks to the Centennial Young Engineers, an actor portraying Benjamin Franklin, perhaps the first great electrical engineer, issued a challenge encouraging the key recipients to follow in the tradition of excellence and innovation of their forebears, serving others with technical skills.

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offering solutions, if any. Ask for input when appropriate. 
• Look at pros and cons: State the options, then discuss each advantage and disadvantage. Close with the option you select and why.

Now comes the dessert—adding that certain polish. Getting down to specifics does not mean examining every word under a magnifying glass, but it does demand some attention to detail. These tips should help:

• If one word will do, use it. For example, instead of at the present time, use now. It is more compelling. Soon is better than in the near future. Do not use the reason is because. Just write because. Rather than invisible to the eye, use invisible. Everyone knows vision is through the eyes. The same applies to a qualified expert: The person has got to be qualified in order to be an expert. And never use personal opinion. All opinions (except expert) are personal. Opinion is fine.

• Use action verbs. They add more zip. Instead of are going to, use will. Decide rather than make a decision.

• To personalize a letter, you can use you or your instead of we or our.

• The English language is one of the most complicated. Although affect means influence or cause, effect refers to the actual result. Assure, ensure and insure might be interchangeable, but complement is to praise and complement is to complete. Follow up with the dictionary to check your usage. (Follow-up, as in a follow-up report, has a hyphen when follow-up is not used as a verb. Whew!)

• If you are answering a letter, it is a good idea to have it in front of you for easy reference.

• Salutations should be as specific as possible: however, certain salutations are acceptable even when specific information is unknown. For example, initials such as R. A. Brown could mean male or female, so Dear R. A. Brown is acceptable, as is Dear Leslie Brown. Also acceptable are salutations according to title (Dear Director of Advertising), company name (Dear ABC Nut and Bolt), or classification (Dear IRA Investor). Contractions like can’t are fine on occasion in formal business writing, but do not go overboard, especially with can’t.

• Have standard letters or reports on hand to use as guides. Some letters can be copied almost word for word.

Books on effective written communication are everywhere. If you are in the market for one, make sure it is current. Look at the style. Do you like it? If so, it probably is a good investment.

Amid all the technique, however, do not lose your personal touch. Writing can be inhibiting if you ponder every word. Just write, let it flow naturally.

Later, you can fix it up.
—Adelle Greenfield
Freelance writer and consultant
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Writer’s Resources

What follows is a personal selection of English-usage/technical writing guidebooks that I have found quite helpful and enjoyable. What are your favorites? Please send your comments to the editor.


The Associated Press Stylebook, Howard Angione, Editor, Lorenz Press, Dayton, Ohio.


—Deborah L. Flaherty
New Books of Interest

History of Technology Series


The books may be ordered from the Peter Peregrinus Ltd./IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854.

ASCE Book Highlights Communication Skills

*Communication for Professional Engineers,* a practical guide to communication skills, is now available from the American Society of Civil Engineers (ASCE). The book is designed for engineers at all levels, from the senior engineer who must conduct meetings, to the junior engineer who wants to acquire basic communication skills to advance his or her career. The book addresses four main areas of communication: public speaking, speaking in meetings, interviewing, and writing.

The hardcover, 240-page book costs $15.50 and can be ordered from ASCE Publications, 345 E. 47th St., New York, NY 10017.

PCS Information Hot Line

To encourage member participation, particularly international members, the Administrative Committee has appointed Lois Moore, PCS vice-president, as "international hot line representative." Members—and non-members—are invited to write, phone, or cable her for information about PCS activities:

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Flaherty Receives Key

A high point of the special banquet concluding IEEE's Centennial Year was the presentation of the Keys to the Future. The "Keys to the Future" were presented to 34 individuals representing the Institute's 53 technical societies. Each recipient was identified as an individual in the early stages of his/her career "who best demonstrates sound understanding of the evolving technologies" in the individual's chosen field and whose "progress shows the greatest promise for applying these technologies to the development of new industrial products and systems for the improvement of society."

Left to right: Dr. Richard J. Goven, 1984 IEEE President; Deborah Flaherty; Dr. Daniel Bosch, 1985 PCS President.

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