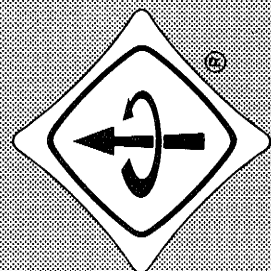


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I E E E



Professional Communication Society

N E W S L E T T E R

# Growing Requires Risk Taking

by Gene T. Trosky

A mockingbird just flew up to the top of our four story building and perched confidently at the very edge of a sheer 50 foot dropoff. Any human being with an ounce of intelligence would have thought twice before standing unprotected at the same spot. But the mockingbird has little to fear from a fall, because he can glide effortlessly to a soft landing.

It was not always so easy for the bird, though. As a fledgling, he had to practice flapping his wings and later may have been pushed from the nest by a parent anxious to see his offspring fly. The first flight involves taking a risk, but once the skill is mastered, it seems easy and the bird has confidence.

How did you feel the first time you were asked to give a presentation before a large group of people? Did your manager have to push you onstage, like the fledgling that was pushed from the nest? Most people feel butterflies in their stomach at the thought of public speaking. Good public speakers report that after repeated efforts, they learn little tricks of the trade that help them to keep the audience's attention. It just takes practice to develop any new skill and the willingness at the beginning to accept the uncomfortable feeling of fluttering butterflies.

Learning can involve risk. My four year old son asked me to take the training wheels off his bicycle last week. During the next hour, he scratched his face when he ran off the road into a hedge, scraped his knee when he fell onto the pavement and bruised his leg and broke the car taillight when he ran into the car. But he was so excited about the newly discovered skills, that every time he managed to end a ride without mishap, he jumped up and down

and waved his arms over his head. Learning can be exhilarating.

My forty year old neighbor grew up in a country where few children had bicycles, so he does not know how to ride a bike. His wife wants him to

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*If we want to keep on  
learning and advancing,  
we must decide to continue  
to take risks.*

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learn, but he is reluctant. I suppose he fears possible injury and the embarrassment of the failures that are part of learning. It seems that it is easier to be satisfied with things as they are, than to take the risks and exert the energy needed to make improvements.

How does a bird feel if he cannot fly? How does a child feel if he can not ride his bike with his friends? Acquiring such abilities is worth taking a few risks. People find fulfillment and satisfaction in acquired skills, such as painting, playing the

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# FROM THE EDITOR

by Deborah  
Flaherty Kizer

## PCS's Nomination for Divisional Director

The Professional Communication Society has nominated one of its members for the position of Director of IEEE Division VI. (Division VI is composed of five IEEE Societies: Professional Communication, Education, Engineering Management, Reliability, and Engineering and Human Environment.)

Our nominee is Ron S. Blicq, who is a 14-year member of the PCS Administrative Committee (AdCom) and lives in Winnipeg, Canada. *The Institute* will be publishing Ron's biography and a candidate's statement, to which I am adding a few comments of my own.

From PCS records I discovered that Ron has been both an IEEE and PCS member for 32 years (he joined the Society's predecessor—the *Professional Group on Engineering Writing and Speech*—in 1958), has been a member of PCS AdCom since 1974, is an IEEE Senior Member, and was awarded PCS's Goldsmith Award in 1976 and the IEEE Centennial Medal in 1984.

From Ron himself I learned that his background includes 10 years as a military avionics officer conducting high altitude radar research, 10 years as a technical editor for CAE Industries editing documentation and writing proposals on radar and telecommunication systems maintenance for the USAF, and 23 years as a teacher of technical writing. This year he retired and is now devoting his "recreation" time to running his private communication consulting firm, The Roning Group.

During our telephone conversation I asked Ron four questions specifically relating to his nomination, and I am repeating his responses here.

*What is your platform—your point of view—as a potential Division VI Director?*

"It would be presumptuous of me to offer my opinion when I would be representing five disparate IEEE Societies. I would prefer to comment on what I perceive my role to be; that is, primarily to *listen*—to hear the Societies' opinions (by attending their AdCom meetings), to discuss their agenda, to identify which topics they believe are most significant or most pressing, and to present these to the IEEE Board."

*What, then, are you offering as a candidate?*

"Availability. I have resisted nomination to senior PCS and IEEE positions previously because I was not sure I could devote sufficient time to do justice to the job. I have agreed to this nomination only because I know I can set aside two years to focus on the task. (Now that I am retired I don't have to ask anyone for time to attend IEEE meetings!)

"If I am to be an effective Division VI representative on the IEEE Board, I must be active, articulate, and *there!*"

(Those of us who have served on the PCS AdCom with Ron know exactly what he means: although he has to fly a considerable distance, he has missed only one of the 21 AdCom meetings held over the past five years. And his philosophy is evident in the work he has done within the AdCom. During that five years alone he has: developed, field-tested, and is now presenting a PCS-sponsored course in technical report writing; developed a multimedia learning program for IEEE's Continuing Education Department at Piscataway; created a PCS archive at Fairleigh Dickinson University; chaired IPCC 87 (the PCS 1987 conference); written an IEEE Press textbook; and presented papers or moderated sessions at every one of PCS's conferences since 1982.)

*What about accessibility, from somewhere so far north?*

"Winnipeg may seem to be in the far-distant snow-driven wilds, yet I can be in Minneapolis in 60 minutes, and in any other major U.S. center within another three hours."

*Do you have anything you particularly want to say to Newsletter readers?*

"The important thing is to vote—either for Tom Rhyne (the Education Committee's nominee) or myself—so that the IEEE Board sees that PCS members are *interested* in whom they elect."

## IEEE PROFESSIONAL COMMUNICATION SOCIETY

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AT&T-International Communications Services, 412 Mt. Kemble Avenue, Room S190-W36, Morristown, NJ 07960. Articles, letters, and reviews from readers are welcome.

So if you want a PCS member to be your Division VI Director for 1991 and 1992, don't let the choice go by default. When the election package arrives, open it and exercise your prerogative! ◀

## PCS History Project

*by Rudy Joenk*

Two volunteers now have the go-ahead to write a history of the Professional Communication Society from its inception in 1957 as the IRE Professional Group on Engineering Writing and Speech to its 35th anniversary, which will be celebrated at IPCC 92 in Santa Fe, New Mexico.

Our historians are Carline Romain, a student member who has been attending Administrative Committee (AdCom) meetings for the past year, and Bob Woelfle, a long-time member who was active on the AdCom in the '70s. Bob holds some of the memories whereas Carline has access to the archives in Madison and Piscataway, NJ, and New York City. Both are excellent writers.

Please communicate with Carline or Bob if you have any recollections or material to offer, whether they are human-interest anecdotes or business affairs or major events or developments in technical communication or . . . We'd especially like to have photographs, and we'd like to hear from former editors and authors, conference participants and chairmen, and AdCom members.

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## PRESIDENT'S MESSAGE



*by Rudy Joenk*

### Summer?

The summer doldrums don't seem to exist for some people. Consider Ron Blicq, for example. He recently retired, but it seems that just made it possible for him to market and teach more sessions of the PCS writing course he developed. And he's presenting and moderating sessions at IPCC 90 in September. And he's been asked to speak at the IEEE Sections Congress in Toronto in October. And he's the division representative on the TAB Publication Products Council. And he's a candidate for Director of IEEE Division VI (our Division)!

John Moffett and "Mick" Byford and their colleagues were definitely hustling with the IPCC (which comes a month early this year). Dan Plung and his crew had a couple of summer meetings on IPCC 91. Bob Woelfle and Carline Romain launched their PCS history project. Bill Kehoe and Janet Rochester were (and still are) seeking a resurgence of the CommuGuides, looking for authors and negotiating with the American Association of Engineering Societies for marketing support. David Beer, Bob Woelfle, and Jim Hill and Tim Whalen were (and still are) getting writer's cramp from making progress with their IEEE Press books that PCS is sponsoring. The publishing cycle never lets up for editors Scott Sanders (*Transactions*) and Debby Kizer (*Newsletter*). And so it went . . .

### Eastern Europe

When Dr. Heinrich Lantsberg, president of the professional communication group of the All-Union Popov Society of the U.S.S.R., visited New York in April, he spoke of working with PCS to organize a mini-conference or colloquium on technical communication.

Then, in June, the IEEE Technical Activities Board (TAB) voted support for an "initiative" in Eastern Europe in 1991, which might include colloquia, workshops, lecture tours, etc.

We should endeavor to be part of that initiative. I'm looking for someone, or several someones, to spearhead PCS planning and be in communication with both TAB and Dr. Lantsberg. Any volunteers?

In July, I received a telex from Dr. Lantsberg inviting me and three PCS colleagues to participate in a September "conference and workshop on the problems of new information technology, mainly discussing the problems of application of personal computers in information systems," and possibly to visit other All-Union Information Centers. The conference is in Talinn, Estonia, just across the Gulf of Finland from Helsinki.

This is not a typical technical communication conference but it certainly represents some of the broader aspects of PCS's interests. At this writing (July) we don't know who will attend but, since the Talinn conference immediately follows our Guildford conference, we should be able to have a full contingent.

### Humor in Technical Communication

I'm collecting examples of the use of humor in communication, primarily but not exclusively technical writing, e.g., journal articles, user guides, maintenance manuals, etc. I'm also interested in analyses and guides on the use of humor. Please send samples, copies, bibliographic reference, etc. to me at . . .

... IBM Corporation, 500 Columbus Ave., Thornwood, NY 10594; online, JOENK@THORNVN.IINUSI.IBM.COM; Compmail II, r.joenk@ieee.org; fax, (914) 742-6034; phone (914) 742-5665 (o), (914) 948-3411 (h).

### Annual Meeting

The annual meeting of the Administrative Committee (AdCom) is scheduled for Friday, October 12, in Orlando, Florida. It will be at the Sheraton World Resort, which is the hotel for IPCC 91.

At the annual meeting, in addition to regular business, the AdCom elects six members to three-year terms and chooses a president and a vice president for one-year terms. This year, in addition, there is an open AdCom position with two years remaining.

Members are always welcome at AdCom meetings. ◀

### Growing

(continued from page 1)

the piano, scuba diving, flying a plane and public speaking. It can be exhilarating to learn a new skill, but there can be big payoffs in just improving everyday skills. Suppose you learned how to communicate just a little better with your spouse or your manager? Suppose you learned how to cope with stress just a little better? There is no reason to believe that improvements cannot be made in ordinary things and that creative ideas cannot be developed for everyday living and ordinary office work.

#### Choose to Continue Growing

As professionals, we know how important it is to keep up to date with new developments in our fields and to continue growing in our work skills. We can choose to maintain our vitality, like my son, or to procrastinate for a while, like my neighbor. It commonly happens that, as we grow older, we find ourselves becoming less adaptable

and more resistant to change. We stop learning in the spiritual, political and economic dimensions and settle into rigid and unchanging views. Why do we resist the continuous personal renewal that could bring so much vitality and freshness to our jobs and our lives?

Fear of failure may be one of the obstacles to growth. A sixty year old friend of mine learned to drive a car thirty years ago, but she had an accident; she has not driven since. Like her, many of us have tried things and failed, with the result that we have no intention of ever trying them again.

We avoid the things we do poorly, and we confine ourselves to the things we do well, even when big improvements could be made with a little study and practice. In a sense, we build prison walls around ourselves. We pay a heavy price for this, because we restrict the exploration and experimentation that may lead to the discovery and development of hidden talents and interests. We must overcome self-imposed obstacles if we want to achieve individual enrichment.

As children, we learned very difficult skills, such as walking and talking and riding bikes. We found fulfillment in gradually developing our innate capacities. And we learned at an incredible rate—a rate we may never again experience.

We experienced a large number of failures, but without excessive discouragement. Falling is a natural consequence of learning to ride a bike. We did not mistakenly extrapolate from, "I fell off my bike three times," to "I am a failure at bike riding. I am a failure as a person." To avoid discouragement as adults, we need to view failure objectively. Small failures in learning simply provide the input that is required for making continued improvements.

#### Aim for Perfection

The IBM business culture and lore, for example, have a lot to say about risk taking. In his 1963 book, *A Business and Its Beliefs*, Thomas J. Watson, Jr. says, "It is better to aim

at perfection and miss than it is to aim at imperfection and hit it . . . Better to do something—even the wrong thing—than to do nothing at all. . . . The men who set out to do what others say cannot be done are the ones who make the discoveries, produce the inventions, and move the world ahead." If we want to keep on learning and advancing, we must decide to continue to take risks.

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*Continuous growth of a company depends on the creative spark of employees who are committed to lifelong learning.*

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But do you really WANT to keep on learning? That probably depends on whether you enjoy what you are trying to learn. It is hard to stay motivated when you dislike what you are doing. Each of us has noticed astonishing energy when we enjoy what we are doing.

#### Do Something You Care Deeply About

Ask yourself whether you enjoy the things you are doing. Are you pursuing various activities that you do not enjoy just because it brings more money or status? Are your activities motivated merely by a need to measure up to the expectations of others? If you want to regain your enthusiasm and motivation, choose to do something in your career or extracurricular activities that you care deeply about.

#### Renewing the Organization

Most successful organizations are built by people with spirited convictions. If you feel dissatisfied with your organization, challenge yourself to be one of the impatient people who renews it. You can take the risk to do something meaningful, even if you feel it is not your job. As long as you use good judgment, few

people will try to stop you. Instead, you will find many people who are willing to follow a leader.

### Taking Risks in Business

Business firms face the same risks as individuals. When a product is offered on the market, sales may be low or high. It is difficult to determine, in advance, the customer's true needs and desires for a product that introduces new technology and functions. In these cases, a firm may have to stand behind a leading-edge product for a while, until the public begins to understand and accept it. But some new products will still miss the mark and have disappointing sales. Successful companies learn from their mistakes to produce better products. Mistakes are just input for course corrections.

A technically vital company produces some of its most successful products by betting on the visionary proposals of its technically vital employees. Trouble only develops if the employees allow themselves to become complacent or if the company overreacts to its failures by playing it too safe.

In his book, Watson said he was concerned about "the cautious attitude of so many young men in middle management today. They seem reluctant to stick their necks out or to bet on a hunch . . . I wish we could stir them up a bit and encourage a little more recklessness among this group of decisions makers." Twenty-seven years later, we still struggle with the same dynamics.

### Lifelong Learning

Continuous growth of a company depends on the creative spark of employees who are committed to lifelong learning. You should never view yourself as finished. Some people seem to view education as something they do until they graduate. It is like a mine that is worked for a little while and then abandoned. I personally feel as if I have learned more of real value to my life since leaving school. At graduation, you should view yourself as a half finished masterpiece that still needs to be completed over

the course of a lifetime. That is why commencement speeches frequently point out that graduation is a beginning, not an ending.

Good companies foster a free environment that encourages individual fulfillment and growth. They provide educational opportunities for increased self-development. Watson said, "The real difference between success and failure . . . can be traced to how well the organization brings out the great energies and talents of its people." The company can go just so far though.

It is up to you to accept responsibility for your own growth. Set goals for yourself and commit yourself to a concerted effort at realizing your potential. Finding unsuspected talents is one of the most rewarding and exhilarating aspects of the process of self-discovery and renewal. When we learn to achieve personal renewal, we find a valuable secret to unlocking new sources of vitality for ourselves, our companies and our society. ◀

## Podium Dressing

If you are traveling on the speaker circuit or giving a speech at a home-based meeting, the outfit you choose is as important as an actor's costume. Unfortunately, in the corporate world you will have to serve as your own costume department. To help you choose the best podium wear, Peggy Cone, president of Rare Flair, Inc., based in New York City, offers the following suggestions:

- When choosing an outfit, remember to keep it simple, clean and classic. Don't overdress or your audience will feel uncomfortable. "At the conclusion of a lecture I presented," says Cone, "one or two women came up to me and started apologizing for the way they were dressed. This was a valuable lesson for me. I had done a great disservice to myself and my audience by overdoing it."

- Choose colors carefully. Your clothing is the audience's visual entertainment during the time you speak. Wear something rich and pleasant for listeners to rest their eyes on. Keep away from prints that are too busy—this will distract your audience from your message.

- Coordinate one or two podium outfits from top to bottom. Include every detail. Cone follows the advice of Ida Stewart, spokesperson for Estée Lauder, "You don't need many changes of clothes when traveling on a speaker circuit—the crowd doesn't see you more than once. Most important, pick an outfit you feel comfortable in and stick with it."

- Wear comfortable shoes. You are as comfortable in your head as you are on your feet. Also, your body and mind work better when your shoes aren't new.

- Choose accessories carefully. Make sure they don't climb off you. Says Cone, "The speaker at a recent luncheon I attended looked great. The only problem was her shawl kept slipping off her shoulders. She spent most of the time pulling it up, and the audience spent most of its time focusing on her slippery shawl."

*Reprinted from the Executive Female, July/August 1990.* ◀

## Speed Up Meetings

Cut meeting times in half by taking the chairs out of the conference room. Stand-up meetings are more action-oriented and productive, according to Dr. Roger Flax, president of Motivational Systems, a management development organization in West Orange, New Jersey. "You can often accomplish as much in a 20-minute stand-up meeting as you can in 45 minutes of sitting," says Flax.

*Reprinted from the Executive Female, July/August 1990.* ◀

# Guidelines for Organizing Effective Use of Volunteer Committees

by A. Meloni

## How do I get people to do a job?

Ask them. Few people will volunteer services. This doesn't mean that they don't want to be active, however. People wait to be asked. Asking builds activity.

## Who should ask them?

If possible, someone they know and trust; someone whose influence they respond to—a friend, a neighbor, a colleague in the same department, a person with prestige. But if you can't arrange for someone else to ask, do it yourself. Remember that the act of asking is important.

After this has been done, be sure that the new recruit is welcomed. The effective combination, therefore, is being asked by someone the person already knows, and being welcomed by whomever leads the activity.

## What do I tell them?

- Make clear what job you are asking them to do and be sure it has a definite beginning and end. People don't want to sign up for life, so don't overwhelm them.
- Ask people to do things they can do well, especially in the beginning. People are more willing to begin tasks they know they can do. Later, when they are really a part of your group, they will be more willing to try new things.
- Tell each person how his or her job fits in with the rest. People want to understand things they are a part of, and they work best when they know that others are depending on them.
- Let each person know that his or her help is needed. If a person feels that you are "just looking for people," he or she also will feel easily replaceable and less responsible for doing a job.
- Discuss with volunteers their personal goals and how they fit into

those of the campaign. You must help people keep their expectations realistic; otherwise you won't be able to meet them.

- Do these things in person; don't rely only on printed circulars, on letters, or phone calls. There is no substitute for face-to-face communications. It lets people know that you consider the discussion important and it gives you a chance to get acquainted with each volunteer.
- You have a right to be enthusiastic about the importance of your work. Don't apologize or belittle it. Your mood will get across to the people you talk to, and they'll respond to it.

## How do I build an active committee?

- Keep records; you can't keep it all in your head. Have a list of members with names and up-to-date addresses and phone numbers. Keep minutes or notes of jobs to do and decisions made. Keep a list of each person's skills and "strong suits."
- Keep your committee together. Call meetings regularly; don't just keep in touch with each person separately. People need to see and feel that they are part of something big, not just hear about it from you. Let members share in deciding what jobs to do, how they can best be done and who can do them best. They know some things you don't and they will work harder for things they decide for themselves.

## How can I keep people motivated?

- Set high standards of activity. Members will take their cue from you. Remember, you probably don't get more than you ask for.
- For each activity, get agreement on group goals. Achieving them will give everyone a real feeling

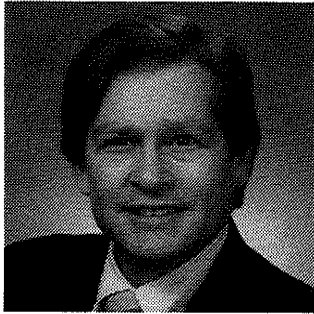
of accomplishment. If there are no challenges, members feel that activity is unimportant.

- Get enough people to do the job. Overworked volunteers stop volunteering and besides, the extra lift of the group really begins when you have at least 7 or 8 people involved.
- Be sure members know their jobs and positions in the group. It's not enough for you to know; ask the volunteers and listen to make sure each individual knows too.
- Do things at meetings. Transact business; make decisions; review past work; plan new tasks. People will be more committed to tasks that have been agreed on in the group. Besides, they won't keep coming to meetings unless they accomplish something.
- Pay attention to people who don't meet committee standards and expectations. If you ignore their failure, other members will follow them. If a member doesn't live up to committee standards, speak to the volunteer personally, asking frankly what the problem is. Be encouraging; offer help. Other members can speak to the person and show interest. Reassign the person to another job if necessary.
- Recognize good work and reward it. What you can do will depend on the local situation, of course, but you can always commend good workers at meetings, express your appreciation in person, and write letters of thanks.

From IEEE Instrumentation and Measurement Society Newsletter, April 1990.



# TECHNOLOGY & COMMUNICATION



by David L. McKown

## Communication on Communications

In the last column about electronic bulletin boards (EBBs), I mentioned communications settings you might need to connect to an EBB. They looked like

2400 8 1 N

which means 2400 baud, 8 data bits, 1 stop bit, no parity.

Although the EBB SYSOP will tell you these settings, and you can set your equipment just by following the manuals, a more thorough understanding of electronic communications makes the process more interesting.

But before we go into all those technical details, please permit a short philosophical digression.

### Communications (not Communication)

This is the *Newsletter of the IEEE Professional Communication Society*. This article is about communications, NOT communication. If that sounds confusing, it is. Some definitions may help:

#### Communication

The process of transferring useful information from one person to another. This may include spoken, written, visual, or paranormal. The key is that ideas or useful information are exchanged. The medium of exchange is unimportant.

#### Communications

The process of transmitting data between one device and another. The key is that data are exchanged, and the medium of exchange is all important. It is unimportant whether or not ideas or useful information is exchanged.

Note: we use *useful information* to satisfy information theory purists who correctly point out that any process that results in valid data being transferred (like just an *a*) has transferred information. We shall only concern ourselves with useful information—ideas, concepts, jokes, and so on.

Now for those technical details.

#### Electronic Communications

This need to differentiate between communication and communications would be unnecessary if people always spoke to one another in person. Even the alphabet is a form of communications technology which can either perform communication or not. This paragraph is communication. The following one is not, even though it uses the proper set of symbols for the English language:

Tjn dlkj0mw kgrei88sdm(?)  
msldk lksefkj ' ] ] [wepf + msdf

The difference is that the second example follows all the rules for communications (the characters all are formed nicely, and all are legitimate), but none of the rules of communication (there are no legitimate words, no proper punctuation, no syntax).

The same could be said of Morse code. Using the medium, the code · — is interpreted by sender and receiver as an *a*. But unless the sender follows the rules of the language, no communication will happen. Other examples of communications media are semaphore, smoke signals, drums, and even music (the Navy pipes visitors aboard, but the notes must be in the right order).

Here, we are concerned with only one communications medium, electronic, and only with the communications that occur between computers.

For our discussion, let's define electronic communications as the transfer of digitally encoded information from one electronic device to another over an electrical transmission medium. And, let's further limit ourselves to the transmission medium of the telephone system. Why the telephone system? Because it is an existing transmission medium that already connects virtually the entire world.

#### Digital vs Analog

As you probably know, electronic data can be analog or digital:

- *Analog* information is continuous; it can assume any value within the physical limits of the medium. A sine wave is analog information, such as a radio wave, or a sound wave.
- *Digital* information is discontinuous; it can assume only certain discrete values. Paul Revere's lantern signal, which could assume only two states (one if by land; two if by sea) is an example, as is Morse code (three states: dot dash, silence).

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*This need to differentiate between communication and communications would be unnecessary if people always spoke to one another in person.*

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The digital information that concerns us is binary information, which can exist in only one of two states: on (or one), and off (or zero). In computers, these states are represented by the presence or absence of a signal, and are usually represented by 1s or 0s, called *bits* (Binary digiTs). The binary representation of the number 3 is 011, which is an example of a *byte*, a grouping of bits.

The number of bits per byte is dependent on the computer. Seven- or eight-bit bytes are most common

in communications. Another way of looking at groupings of bits is as *characters*. The difference is that a character always translates into a letter, number, or punctuation mark; a byte may translate into a code that tells the computer to stop sending, for example. In the above example, the byte 011 is also the character 011, which is translated as the number 3.

So far, we've got the transmission medium (the telephone system), we've got the data generator and the data receiver (computers), and we've got the useful information to communicate (your golden prose). What's missing? The rules . . . how the data are transmitted (mode and rate); how the data are represented (transmission code); and how the computers talk (protocol and interface).

## Modems

So you've got this computer full of good information that you want to communicate over the telephone system to another computer so that communication can happen. How do you do it?

You need a way of converting the digital data inside the computer into analog data that can be sent over the telephone system, and then back into digital data so the receiving computer can understand it.

The device that does this is a *modem* (MODulator/DEModulator).

What's important to know about modems are the transmission mode and the transmission rate.

## Transmission Mode

Data can be exchanged between two computers in one of two ways:

- In *simplex* mode, the transmitting computer sends data to the receiving computer with abandon. That is, it requires no information feedback acknowledging receipt, or any other message. This mode is used only infrequently, because most folks would like to know if their messages have made it through. (An analogy is the commercial radio and television broadcasters who send out their signals to you, but require no reply. And even they have some

method of eventual feedback: the pollsters.)

- *Duplex* mode, as you might expect, provides some communications in both directions. But it isn't as simple as that. There are two duplex modes, half- and full-duplex.

- *Half-duplex* mode allows data to flow in only one direction at a time. When one computer has finished sending, it must notify the other, which must wait for the transmission path to clear before sending its data. This waiting for clear paths slows down the overall transmission rate.

- *Full-duplex* mode allows data to flow in both directions at the same time. The receiving computer can be replying to one message while the transmitting computer can be sending the next one. Obviously, this speeds up the process.

## Transmission Rate

There are two measures of transmission rate (how fast the data are transmitted): bit rate and baud rate. These two measures are similar and are often confused with one another.

- *Bit rate* is just what it says: the number of bits of data transmitted per second, measured as bits-per-second (bps). Common bit rates are 300, 1200, 2400, 4800, and 9600 bps.

- *Baud rate* is not the same as bit rate. Instead, it is the number of transitions (from 0 to 1 or from 1 to 0) the signal makes per second. For bit rates of 2400 bps or less, the baud rate is identical to the bit rate. However, because the electrical characteristics of a standard telephone line limit the baud rate to 2400, data compression schemes have been developed to allow the transmission of higher bit rates at this lower baud rate. For example, 9600 bps transmission is done by encoding 4 bits per baud ( $2400 \times 4 = 9600$ ). If this is all too confusing, just think of bit rate and baud rate as being the same thing, and order up a 9600 baud modem. Almost everyone else does.

## Transmission Codes

Transmission codes are the rules by which the sending computer converts the data into bits and bytes that correspond to the data to be sent, and by which the receiving computer translates those bits and bytes back into data. Obviously, both computers must be using the same transmission code for any particular transmission. Transmission codes are identified by name and by level, or how many bits make up a byte.

Some transmission codes also are able to check for errors in transmission.

Common transmission codes include:

- *Baudot* is a 5-level code, capable of generating only 58 characters. It is used primarily in Teletype™ and telegraph systems. It has no error-checking capability and is one of the oldest transmission codes still in use.

- *EBCDIC* (pronounced ep-se-dic), the Extended Binary Coded Decimal Interchange Code, is an IBM creation. It is an 8-level code, capable of generating 256 characters. It is used primarily in scientific computing.

- *ASCII* (pronounced askie), the American Standard Code for Information Interchange, is widely used in the United States, and probably is the transmission code you will encounter most frequently. It is a 7-level code, capable of generating 128 characters, and has an eighth bit used in error correction. ASCII is the universal standard for data transmission.

Error correction has been mentioned several times in conjunction with transmission codes. Because random electronic noise is present in any electronic transmission medium (the static you hear on the radio is one form), it is desirable to have some way of checking to see if the data were received without error. One of the most common schemes for error-checking, *parity*, involves adding one or more extra bits (the parity bits) to the data byte, with their value dependent in some way on the data itself.



In the ASCII transmission code, the parity bit is the eighth bit appended to a seven-bit data byte. Its value depends on the sum of all the 1-bits in the byte: in an even parity scheme, its value is 1 if the sum of the rest of the 1-bits is odd (to make the sum with itself even); in an odd parity scheme, its value is 1 if the sum of the rest of the 1-bits in the byte is even (to make the sum with itself odd). The receiving computer knows the parity scheme being used, totals up the 1-bits in the received byte, and checks to see if the value of the parity bit is correct. If not, an error is noted and a request for retransmission may follow.

## Protocols

Just as in diplomatic circles, a protocol is the set of rules by which business is conducted. A diplomatic protocol controls interactions at state dinners and at summit meetings; it governs who enters first, who sits next to whom, and who is introduced to whom.

A transmission protocol controls interactions during conversations between computers; it governs introductions, acknowledgments, and error control.

There are two primary transmission protocols,

- *Asynchronous* (usually referred to as *ay-sink*) requires the least expensive equipment to implement. Most common modems used for electronic mail and bulletin board communications use asynchronous communications. This protocol is called asynchronous because there is no separate source of timing—no synchronization—of the characters across the transmission path. Instead, each character is preceded by start and stop bits so the receiving computer knows when to start and stop interpreting a string of data bits as one character. This allows the error checking to accommodate a variable data rate, such as would be encountered if a human operator were keying in data to be transmitted. However, the extra start and stop bits take time and reduce the effective transmission rate.

- *Synchronous* protocols depend on a timing (clock) signal to control the interpretation of the bit stream. Also, data are not transmitted bit by bit, but instead are stored in an internal buffer (memory) until a block of data of some constant predetermined size is collected. Then the entire block is transmitted, along with timing and error-correction data. Because the entire conversation between the two computers is under this timing control, synchronous protocols can provide automatic

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*The interface is simply the mechanical and electrical description of the wire and plugs that are used to connect the modems to the computers.*

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notification that the receiving computer is ready to receive, that the transmitting computer is ready to transmit, and that the data have been communicated with or without an error. The protocol also can provide automatic retransmission of data received with errors. The advantages of synchronous transmission protocols are higher speed and fewer errors; the main disadvantage is more costly equipment. There are several synchronous protocols in use; here are two:

- *BISYNCH* (Binary SYNCHronous communications protocol), character-oriented, and an IBM development.

- *HDLC* (High-level Data Link Control), bit-oriented and widely used in Europe, of which IBM's SDLC (Synchronous Data Link Control) is the best known in the United States.

## Interfaces

So you've got computers to generate and transmit, and to receive and translate; you've got modems to convert the signals from analog to digital and back; you've

got telephone wires for a transmission medium; and you've chosen transmission codes and protocols. What more do you need? A way to hook it all together: the interface.

The interface is simply the mechanical and electrical description of the wires and plugs that are used to connect the modems to the computers. Naturally, both the modem and the computer must have the same interface specification (although the receiving computer and its modem need not use the same interface specification as do the transmitting computer and its modem).

- The most common interface specification in the United States is *RS-232*, an industry standard. RS-232 calls for a 25-pin D connector, which you have probably seen on the back of almost any computer. The interface specification dictates which pins carry which signals, and the voltages levels that are acceptable. RS-232 interfaces can accommodate transmission rates of up to 19,200 bps (also called nineteen-dot-two).

- Outside of the United States, *V.24/V.28*, a compatible interface developed by the CCITT (Consultative Committee for Telegraph and Telephone), is widely used.

Other interfaces exist and have communities of supporters, but you will find that most of the communications equipment you will encounter will be RS-232 compatible (unless you are a telecommunications expert, in which case you already knew that).

## Go Ye Forth and Communicate

There is much, much more to electronic communications than is discussed here. However, these basic terms and concepts should give you a little more understanding of those bulletin board or electronic mail logon instructions that read, "Set the communications parameters to 1200/2400B 7 1 E."

And that should enable you to use communications for your communication. ◀

# IEEE-USA Publishes New Employment Guidelines

IEEE-USA's new printing of *Guidelines to Professional Employment for Engineers and Scientists* is now available. The third edition has been updated and approved by 33 engineering and scientific societies, including the Institute.

The guidelines were developed for use by employers in evaluating their own practices, by professional employees in evaluating their own responsibilities and those of their employers, and by new graduates and other employment seekers in evaluating their potential new employers.

A sample copy of the document and information about receiving bulk copies for distribution are available from the IEEE-USA Office in Washington, D.C.

## If You Become Unemployed . . .

IEEE-USA makes several forms of employment assistance available to help you in finding a job.

### • *Free Employment Guide Includes Directory of Employers*

A free copy of the book, *Employment Guide for Engineers and Scientists*, published by IEEE-USA, is available to unemployed members simply by writing to the IEEE-USA Office in Washington, D.C. The 236-page revised, expanded second edition of this popular guide contains chapters on employment agencies, resume preparation, employment contracts, and interviewing. The guide includes a recently updated directory listing employers of IEEE members by state with addresses and contact names. When requesting the book, please mention that you are currently unemployed and include your IEEE membership number. You can also purchase the book through the IEEE Service Center by call (800) 678-IEEE.

### • *Computerized Employment Registries Are A Member Benefit*

IEEE-USA also maintains a computerized resume database called PEER, the Professional Engineering Employment Registry, which is free for members. A segment of the reg-

istry is the Nonemployed Engineers Employment Registry, or NEER. The difference between the two registries is that PEER is confidential (members' names and current employers are shielded), while NEER is nonconfidential and free of charge for employers. Two other employment registries are also available: SEER, the Self-Employed Engineers Registry for consultants, contractors, and subcontractors; and GEER, the Graduating Engineers Employment Registry for graduating student members.

The PEER registries include an on-line job posting system accessible to members with a personal computer (or terminal) and a modem. You can call the on-line Career Network at (508) 263-3857. Simply press your RETURN key twice and enter the password "PEER" to log on. Additional information about the PEER services is available by talking computer. Call, using a touch tone phone only, (508) 263-6823. When requested, slowly enter User ID 200# 225# and the Password PEER#. For more information about the PEER services, call or write PEER Service Center, CTC, 6 Londonderry Commons, 44 Nashua Road, Londonderry, NH 03053; (603) 437-PEER.

### • *Employment Assistance Seminar Is Available to Your Section*

If your employer has initiated a large layoff, you might want to contact your IEEE Section Chairman or PACE Chairman. IEEE-USA presents a one-day seminar entitled *Career Planning & Employment Assistance*, which Sections can sponsor. IEEE-USA will provide planning materials and handouts and even partially subsidize a speaker for the seminar from its Employment Assistance Committee. For more information about this service, contact IEEE-USA Employment Assistance Committee Chairman John Miller at (703) 475-3420.

### • *Get In Touch With Other IEEE Members*

Remember that local IEEE meetings are a great place for networking.

You can find more jobs through personal contacts than by answering advertisements. Simply introduce yourself, and don't be embarrassed about being unemployed. It happens to most people at least once in their careers. If you are still unemployed at IEEE dues renewal time, there is a dues reduction available.

Good luck on your job search! For more information about any of these services, contact IEEE-USA, 1828 L Street, N.W., Suite 1202, Washington, DC 20036; (202) 785-0017. ◀

## Making the Introduction

by Leslie Smith

"I hate making introductions to a group because I'm afraid I won't remember everyone's name."

"I am not comfortable introducing myself because I don't know the best way to make sure people remember me."

"At networking meetings, I rely on name tags to remember names, and I'm afraid that's rude!"

Making introductions, being introduced and introducing yourself are a necessary part of effective networking in all situations—at network gatherings, business meetings and in social situations. But, as with all networking etiquette, practice and confidence and, sometimes, "tricks" are the ingredients necessary to do it well.

### Introducing Yourself

When you are introducing yourself, your goal is to be remembered. According to Donna Vilas, whose Houston-based Discovery Seminars runs "Power Networking" programs, you have seven seconds in which to make a positive and lasting impression. Three things can happen during what Vilas calls "the seven-second syndrome": You can

interest people in yourself, you can turn them off or you can leave them indifferent.

Vilas suggests the following five criteria for introducing yourself effectively, either to an individual or to a group.

- Your introduction must be clear.
- It must be concise.
- It must be distinctive (catchy, but professional)
- The introduction must be unique to you.
- You must be engaging (no matter what kind of mood you're in).

Pretend you are approaching a group of three people standing at a network cocktail reception. According to Vilas, there is a good and a bad way to introduce yourself. The bad way is the following: "My name is Sherry Baker and I'm a CPA at the Alton Company." As outlined above, the good way would be: "My name is Sherry Baker. I'm a CPA and I help you make friends with your money and the IRS." If you are in real estate, instead of just stating your title and where you work, you could add: "I help people achieve the American dream—home ownership. I sell anything from condos to castles."

### Introducing Others

Elizabeth Post, in *Emily Post on Etiquette*, points out that there is a hierarchy in introducing people. For example, a man is always introduced to a woman; a young person is always introduced to an older person; and a less important person is always introduced to a more important person. "The easiest way not to slip up is to always say the name of the woman, the older person, or the more prominent person first, followed by the phrase, "I'd like you to meet" or "This is" or "May I introduce." (Always include a person's full name in a business-setting introduction.)

For businesswomen, the handshake is an important part of the introduction. Although some say that you should wait to extend your hand until the older or "more important"

person has done so first, many women now say that it is always appropriate to shake hands. "It's a gesture of friendship," states Pat Poole Newsome of Atlanta, southeastern NAFE network co-ordinator. "If I'm introducing myself, I always extend my hand, and hang on until I've implanted the person's name and company in my mind—and until I have *his or her* attention."

If you're seated at a table and someone is going from person to person and introducing herself, you might want to extend your hand from a half-standing position. Being seated and shaking hands with someone standing puts *you* in the less powerful position.

If you are the host to a small group, you can introduce a newcomer to the group and then ask everyone to introduce himself.

### Forget You Not

Many people dread making introductions because they fear forgetting names. A potentially embarrassing situation can be eliminated by using some tips to help you remember the names of people you've just met.

Try to remember something about the person that will make him or her stand out for you after the introduction. Lollie Moyer, one of the directors of the Tampa Bay Network (Florida), and a founder of the new Executive Women in Sales and Marketing, looks for something distinctive about the person's appearance. She remembers meeting a woman a year ago with red, black and gold earrings and she told her how much she liked them. When Moyer chanced to meet this woman again recently, she remembered the woman's name and remembered her earrings (and told her so!) Moyer said the woman was "astounded and very pleased" to have been remembered from so long ago.

Newsome also tries to remember personal conversations with the people she meets—the number of children they have, the type of company they work for, people they know in common.

When you do forget, there are several ways to cover up gracefully. Elizabeth Post says, "There is nothing you can do but introduce the friend who has joined you to the person whose name you've forgotten by saying to the latter, "Oh, do you know Janet McCall?" Moyer, however, prefers a direct approach. She's found herself saying "This is one of those times I dread—I've forgotten your name. Please help me." Moyer has found that many times the person replies, "Oh, I've been through that myself" and is very understanding. The key thing to remember when someone forgets *your* name is not to make the person feel bad about it. If someone shows any hesitation in introducing you, help him or her out by introducing yourself first.

Being the introducer gives you a certain degree of power and prestige. Act as if you are enjoying the role and don't be flustered if you forget a name now and then (everybody does). Introduce yourself with confidence—confidence is contagious!

*Reprinted from the Executive Female, July/August 1990.*

## The Long and the Short of It

Just as acronyms have inundated the U.S. Capital, they have also overtaken the E.C. in Brussels.

Inventive jargon is appearing at a faster rate than the E.C.'s 11,000 officials can adapt their vocabularies. Recently, a dictionary of acronyms was put together in an effort to eliminate confusion.

But still no acronym has been invented for the 75-page dictionary itself with the horrendously long title, *Dictionary of Acronyms for European Community Action Plans and Programs*. There has been, however, one humorous suggestion to call it the Commission's Reduction Acronym Plan.

## PCS AdCom Election Nominations

As announced in the last edition of the *Newsletter*, three incumbents on the Administrative Committee (AdCom) are up for re-election and four positions are vacant. The PCS AdCom is soliciting nominations for these positions, which may be sent to Ms. Kimberly S. Manthy, 4436 MacArthur Blvd., #6B, Washington, D.C. 20007, (202) 625-7898 (evenings). Please send your nominations no later than September 9, 1990. The following people have been nominated, in addition to those AdCom members nominated in the last *Newsletter*.

### Susan Dressel

Susan Dressel began studying problems of reference and meaning during her undergraduate work for a double major in English and psychology and continued this study for her master's degree in philosophy. For her doctoral dissertation, she drew from cognitive science, information theory, and communication theory to study how individuals construct and communicate technical and natural-language concepts.

These interests, along with experience in newspaper work, teaching, and management, led her into technical communication. She has fourteen years of experience with writing, editing, and publishing processes, including government and private-sector operations.

Dressel joined Los Alamos National Laboratory in February 1989 to lead an organization of sixty-five technical writers and editors. She brings to this position seven years of experience managing a full-service publications department for Physical Science Laboratory, another government-contracting organization.

In 1973, she taught college-level writing courses emphasizing principles of communication and dis-

tinctions between natural and technical languages. In 1979, she developed a new course emphasizing the construction and communication of technical concepts and expanded this course in 1981 for graduate students.

As a manager, she has continued to emphasize education and has established graduate internships in technical communication at both the laboratories mentioned above. To date, twenty-six young professionals have launched their careers through these internships.

Her contributions to IEEE include presentations at the annual Professional Communication Conference and service as Associate Editor for *IEEE Transactions on Professional Communication*.

Dressel is active also in the Society for Technical Communication, having twice won the Outstanding Speaker Award for her presentations at the Society's annual International Technical Communication Conference. She serves as the book review editor for *Technical Communication*, the Society's journal.

### Gabriel Pei

Dr. Pei is Lead Scientist at MITRE Corporation, Navy Systems and Technology Division. Prior to joining MITRE, he was a research staff member at the Institute for Defense Analyses, Science and Technology Division from 1986 to 1989. He has also worked at IBM Federal Systems Division from 1983 to 1986 and at Daniel H. Wagner Associates from 1980 to 1983. His research publications include topics in sensor and signal processing, automated detection and recognition systems, surveillance systems and target tracking methods. Dr. Pei received his B.A. in mathematics from the University of Virginia, Charlottesville in

1974, the M.S. in 1975 and the Ph.D. in 1980 in mathematical statistics from Carnegie-Mellon University, Pittsburgh.

### Cheryl Reimold

Cheryl is the author of more than one hundred articles and several books, including *How to Write a Million Dollar Memo* and the best-selling *Being a Boss*. Both books have been translated into French and German. With her husband, Dr. Peter Reimold, she wrote the TAPPI Home Study Course *Effective Writing*.

Her syndicated column, *The Language of Business*, has been running in numerous journals (the *Microwave* and *Professional Communication Society Newsletters of the IEEE*, *TAPPI Journal*, *Executive Female*, and others) since 1980. This column is the winner of numerous S.N.A.P. (Society of National Publications) and S.T.C. (Society for Technical Communication) awards.

Cheryl received her B.A. from Middlebury College and her M.A. and M. Phil. from Columbia University. She has taught at Columbia University and SUNY at Stony Brook, and was Senior Editor of *Westchester Illustrated* magazine and Account Executive at Burson-Marsteller Public Relations Company.

Cheryl is currently teaching an IEEE Professional Communication Society course, "*Writing Technical Correspondence and Reports*." Her firm, *PERC Communications*, offers advertising and copy writing services and teaches in-house courses and workshops on communication, writing, negotiation, and creative problem solving. ◀

# CURMUDGEON'S CORNER



by Joan G. Nagle

## Hypertthought

You've heard, of course, of hypertext . . . the system of connecting information files, or nodes, by associative links, in an attempt to mimic the human brain and the way it processes information. I am told that the basic idea was first articulated by Vannevar Bush, who published an article in 1945 entitled "As We May Think." Bush, President Roosevelt's Science Advisor, envisioned a computer system which functioned the same way the brain functions, recalling information by association.

You know how that works too. Someone mentions *Paris*, and the associations begin sparking around in your brain. You picture Paris in April and chestnuts in blossom (ah!). You taste again that first sip of French coffee (ugh!). You arc over to coffee in general, and remember that you scraped the bottom of the can for this morning's breakfast. You wonder if there's time to stop at the market on the way home. No, because you remember that you have to be at a meeting at 7:30. Horrors—you suddenly recall the action items you neglected to do anything about, and now it's too late. Your brain goes into guilt overload, and if you can't switch circuits quickly you find the associative links bringing up every sin of omission or commission in your entire life.

While this might be good for the soul, it is certainly a long way from Paris.

*Mirabile dictu*, we are now teaching computers to think this way. As we think. Through the wonders of hypertext, we can call up a map of Europe on our computer screen, and point the cursor to Paris. A window containing associative options pops up . . . perhaps history, climate, sights not to be missed, restaurants, hotels. Choosing restaurants, we see a new window showing a selection of restaurants listed by price. In our medium budget category we find a bistro specializing in *cassoulet*. We wonder what that may be, and ask for a definition, maybe even a recipe. And so it goes.

If all this were not enough, there are mypermedia systems that link the user to audio and video resources. Maybe we should forget the information search, just set back and enjoy "Last Tango in Paris."

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*One of the benefits of the computer era seems to be that thousands of students have found themselves in logics classes.*

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This is without a doubt the way my brain works. I move in hypertthought space all the time. Mostly, I wish I didn't. I like my brain best when it moves in linear or hierarchical fashion. That's the kind of brainpower I need for writing technical manuals, to say nothing of grocery lists. I wish other people would think linearly too, especially when they are preparing material from which I am to write a manual. Mostly, the model seems to be Brownian motion.

This is the curmudgeonly part. Is it really a good thing, I wonder, to teach computers to mess around along nearly endless, often circular, navigational paths (which many hypertext systems will even remember and retrace, for goodness sake, as if once wasn't enough)? Like the cowboy in the Old West who couldn't find wood for his breakfast fire, so started burning prairie grass. As the fire spread, he followed it with his skillet. By the time the coffee was done, he was two miles from his ham and eggs.

You see how this works? In the space of one paragraph, I have gone from computers to ham and eggs. (Characteristically, because for me the end node is usually in the food file.)

I have spent more than half a century assembling this hypertext system in my brain. Most of the stuff there is not worth having archived in the first place, let alone retaining (but my hypertthought problem has no mechanism for deleting nodes or links). How much time are we going to spend assembling encyclopedic files and complex relationships among them, and is it worth it? Further, will your idea of the information I need be correct, and will your associative logic be congruent with mine? How many wrong paths and dead ends will I go down? Will I lose sight of my original objective in the morass of information available to me?

One of the (largely unnoticed) benefits of the computer era would seem to be that thousands of students have found themselves in logics classes that have worked at making their thinking more rather than less linear, in order to learn to write computer programs. To learn to think like a computer.

A computer that thinks like me I don't need.

But then I thought I didn't need a microwave oven either. ◀

# Protect Your Intellectual Property

by Paul W. Oman and Talal Saeed

You've just spent several months developing and implementing an idea. It's good, and you think it has market potential. But how can you protect your investment while drumming up market support? How do you protect your idea from cloning, plagiarism and theft? Whether it's a chip, a circuit diagram, a technical report, or a computer program, there are well-defined steps you can take to protect your work. A word of caution, however . . . these steps must be started in-house, long before it's marketed.

There are four basic mechanisms for safeguarding your intellectual property rights: copyrights, patent rights, trademarks and trade secret laws. To varying degrees—with different purposes and different results—they all apply to computer hardware and software.

## Copyrights

The Federal 1976 Copyright Act was enacted as a means of protecting original authorship. The main purpose of copyright law is to protect the expression of an original work of authorship. The 1976 act covered any "tangible medium or expression" within two categories: literary works and audiovisual works (including motion pictures). In 1980 it was amended to explicitly include computer software.

Under the 1980 amendment, copyright protection covers not only text and drawings, but source code, object code and software embedded in microchips (firmware). When pertaining to software, the source code is the original authorship and the program's design and logic are the expression. Other computer-generated forms of the program, such as printed listings and object code (on disk or ROM), can be viewed as "copies" of the original authorship.

It is easy and inexpensive to copyright your work. All you need to do is include a copyright notice after the title of your work. A copyright notice consists of either

"Copyright," "Copr." or © followed by the date of creation and the name of the copyright owner. Actually, it's even simpler than that. As of March 1, 1989, the U.S. is now following the Berne copyright convention. Everything published since then carries copyright protection with or without the formal copyright notice. However, it's still recommended that you include the formal copyright notice on your programs and text.

Your copyright exists from the moment your original work is created, and need not be registered with the U.S. Copyright Office unless there is a question of copyright infringement. As a copyright owner you have exclusive rights to reproduce, distribute, display and create derivative works from your original work. These rights last for 50 years past the author's life (for corporate authors, 75 years from publication). But, copyright law does not protect your ideas, process or algorithms. That is, copyright protection for computer programs covers the manner in which an algorithm is expressed, but not the algorithm itself. Determining exactly what is and what is not part of a program's "expression" is difficult and has led to considerable court action.

One recent court case, NEC vs. Intel, has some significant implications on software copyrights. In this case, Intel claimed NEC had infringed on an Intel copyright by recreating the microcode in an Intel chip. The court, however, ruled in favor of NEC finding that: (1) Intel could hold a copyright on embedded microcode; but, (2) gave up those rights by distributing versions of the chip that did not contain proper copyright notices, and (3) NEC's process of cleanroom reverse engineering was an acceptable method of cloning Intel's software.

Clearly, copyright law did not give Intel the protection they wanted. They needed additional protection, like that offered through patents.

## Patents

Patents provide protection for the results of an inventor's ideas. It gives you exclusive rights to make, use and sell the derivative works of your patent. The object of the patent can be a process or design, a material composition or an apparatus such as a machine.

Patents have their origin in the U.S. Constitution and are presently administered by the U.S. Patent and Trademark Office under the 1976 Patent Act. Section 101 of that act states:

*"Whoever invents or discovers any new and useful process, machine manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."*

You have to apply for a patent through the U.S. Patent and Trademark Office. It is a time consuming and costly process. The patent office does an examination of your application to determine if your work is (1) technologically creative, (2) significant, and (3) original. You must convince them that your product or process is worthy of a patent.

Once granted, your patent rights last for just 17 years. But, despite its short duration, the protection afforded by the patent is very strong. It not only protects against intentional and unintentional copying, but restricts others from using equivalent processes and machines—even if they were developed independently from yours.

For many years, the patent office refused to grant patents on computer software. But in 1981 the Supreme Court ruled that denying a patent, just because an invention was a computer program, was inappropriate. This opened the door to software patents.

## Trademarks

We use trademarks everyday—many times without even recognizing them as trademarks. For instance, Unix, Macintosh and Lotus 1-2-3 are all registered trademarks. Occa-



sionally trademarks become so common that they revert to household names; Kleenex, Baid-Aid and Yo-Yo are examples. Trademarks are defined by a federal statute known as the Lanham Act. It states:

*"Any word, name, symbol, device or any combination thereof adopted and used by a manufacturer or merchant to identify his goods . . . and distinguish them from those manufactured or sold by others."*

Trademarks, service marks, and trade names are also covered by various state statutes and common law. A service mark is similar to a trademark except that it refers to a service, not a product. Trade names are names protected by common law, again similar to trademarks, except that they haven't been federally registered.

To fall under federal protection, trademarks must be used (or intended for use) for interstate commerce and be registered with the U.S. Patent and Trademark Office. Under the law, you can't file for a trademark until you actually begin using it. This is done by including a notice of trademark intent after your mark whenever you use it. Just put a superscripted "TM" after it while waiting for it to be registered.

Like patents, a trademark has to undergo an examination by the U.S. Patent and Trademark Office to make sure it meets all the statutory requirements of the Lanham Act. Once registered, it is kept active by indicating that it is a registered trademark and by filing affidavits of use with the trademark office. You indicate that your mark is a registered trademark by displaying it with a ® or include a written notice such as "(product name) is a registered trademark of (owner's name)."

When a trademark is registered it gives the owners the right to prohibit unauthorized use of the trademark. The purpose is to protect the goodwill and good name of the owners and products associated with the trademark. Thus, the owners have the right to prohibit

use whenever it is likely to cause confusion, mistake or deception. The scope of trademark protection is not limited to identical symbols; similar marks being used within the same area of commerce may also be prohibited.

### Trade Secret Laws

Trade secrets are precisely that—secrets of trade. That sounds ludicrous, until you realize that once a trade secret is divulged—whether by accident, legal, or illegal action—it is no longer a trade secret. Hence, the protection offered through trade secret law is inhibitory while the secret exists and punitive (or remunerative) once violated.

The idea of a trade secret was first defined by a 1939 publication called the First Restatement of Torts. It defines trade secrets as:

*"Any formula, pattern, device, or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it."*

Virtually all states have adopted this or similar definitions of trade secrets. Further, they have all passed laws governing trade secrets.

Trade secret laws are indirect protection to your ideas, products, processes and computer software. There is no required examination or registration as there is with the three federal protection mechanisms. Instead, two parties simply agree not to reveal each other's trade secrets. The trade secret laws then bind this agreement, thereby protecting both parties. In essence, it attempts to prevent the disclosure of confidential material to outside parties.

The heart of trade secret protection is the non-disclosure agreement between two parties, usually employer and employee. In today's volatile computer market, employee migration across businesses and corporations is fast and furious. Clearly, some sort of protection is needed to ensure that employees leaving one company will not carry

confidential information to the new company. That's why employers have you sign nondisclosure agreements when you're hired.

Nondisclosure agreements can be separate contracts or a clause within the employee contract. Such agreements are enforceable only if adequate steps are taken to (1) indicate which materials are proprietary trade secrets, and (2) restrict the distribution of the secret material. For instance, suppose you distribute a test-release of a new product to a group working with (or within) your company. If it's clearly marked as a trade secret and all persons within the distribution have signed nondisclosure agreements, then your trade secret should safely rest within that group. Marking something as a trade secret can be as simple as, "Confidential material, property of (owner's name), distribution and use is restricted."

Please note that trade secret laws protect your ideas only as long as they can be kept secret. There is nothing to prohibit independent creation of a similar product or reverse engineering from your original product to an analogous one. Hence, the process and components of your product must be hidden from examinations of the product.

### Summary

The incentive to spend time, effort and money on developing a new computer related idea usually comes from the expected gains of marketing a product. Your potential gain turns to a loss whenever your intellectual property is lost or stolen. Whether it's software or hardware, your risk is dependent upon the amount of protection you build around the product. Knowing how the four types of protection are used should help you prepare your defenses.

### About the Authors

Paul Oman is an Assistant Professor of Computer Science at the University of Idaho. He is a member of the IEEE Computer Society and is an editor for *IEEE Software Magazine*. His Ph.D. is in computer science.

Talal Saeed is a recent graduate in Computer Science of the University of Idaho. Originally from Syria, he is interested in intellectual property rights, which are not widely recognized in his native country.

The ideas and opinions expressed in this article are those of the authors and should not be interpreted as legal advice.

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April 1990.

## The Proposal as Project Plan

by G. A. Keene, Sr.

I know this may seem like heresy to the purists among my fellow professionals in the Proposal Management business—those who believe “*The Proposal*” is an art form. However, it may be the key to salvation for the average overworked engineering manager. The comparison of the proposal to the project plan, and the suggestions that relationship inspires, will not take the place of a client’s Proposal Preparation Instructions. When provided, those instructions should be followed religiously. However, such instructions are not always provided, and you may find yourself faced with the task of producing and delivering a compliant, qualifying proposal in too little time, with too little guidance, and with too few resources. Then you might wish to consider the similarities between the content and purpose of the proposal, and the project plan you will need when you win the job. In both cases, you must:

- *Know your client and his requirement.*
- *Understand the scope of work.*
- *Have a plan for completion of the work.*
- *Have quality control.*

Considering the essential elements of the proposal and those of the project plan, I have found that consideration of these elements in terms of the “WHO,” “WHY,” “WHAT” and “HOW” of the project makes it easier to organize the presentation in both the proposal and the project plan.

The “WHO” involves two parties. First there is the client—someone who will be paying to have a job done. You must convince him that you understand his requirement, the purpose and scope of the job, and that you are fully qualified to complete it. On the other hand is your corporate management—for whom you must establish a method for identifying, managing, controlling and reporting the resources needed to do the job. You must convince management that you understand the scope of work, and that you have considered all costs and risks involved. The same vehicle can satisfy the needs of both parties.

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*The theme should  
convince the client that  
your approach is the best.*

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The “WHY” establishes the purpose of the project. Both the proposal and the project plan must clearly and completely identify and define the product, objective, required result or output of the project. The output may be a hardware element, an integrated system, a study or report, or the satisfactory provision of a service. In any case, you cannot complete the project—nor convince the client that you can—unless you are able to state clearly the purpose and scope of work. If you fully understand the client’s requirement—why he wants the job done—you will be better able to establish the theme of your proposal. The theme should convince the client that your approach is the best—or only—way to do the job.

The “WHAT” of the project is a detailed description of the work to be done. This is your Technical Proposal. It may be in response to a Statement of Work (SOW) provided by the client; or it may be a statement of compliance to a specification. If there is no client-furnished SOW or specification, your description of the work or technical approach may be presented in the form of a SOW. Your SOW should include a preliminary work breakdown structure (WBS). The WBS offers an ideal framework or outline for describing the proposed work, even as it supports the development of the level of effort and costs.

The “HOW” of the project or proposal is the plan for execution of the project. It should include the project schedule, work breakdown, project organization, key personnel, facilities and other resources required for the project. It also may include task descriptions, a staffing plan keyed to the schedule and to the WBS, job descriptions, or resumes. This will constitute your Management Proposal.

In proposals, as in project plans, Quality Control is exercised at three levels. First, at the peer level, each contributor or participant should review the entire document to compare the substance of their separate inputs to the whole. Second, at the management level, the entire proposal should be reviewed by at least two senior managers (other than the Proposal Manager) who had no part in the preparation. Third, at the executive level, there should be a review to compare the client requirement and evaluation factors with the proposed job cost.

In summary, if you understand project planning and project management, proposal preparation and management should hold no fear for you. Treat your next proposal assignment as a project, and make the proposal your project plan. GOOD LUCK!

Reprinted from The IEEE Engineering Management Society Newsletter,  
April 1990.

# TOOLS OF THE TRADE



by Cheryl Reimold

## How to Overcome Writer's Block

It's one of the most frustrating moments of the day, you sit down in front of a pad of paper, typewriter, or word processor. You stare at it, willing that blank space to come alive, to make contact with your brain and turn your half-formed ideas into organized, communicable thoughts. It doesn't happen—you wait. You go to the water cooler in hope of irrigating the sluggish brain cells. Nothing. You get a cup of coffee, your heart speeds up a bit, but there's still nothing on the page.

You are suffering from writer's block, an occupational hazard of everyone who ever has to write. Since I know it only too well myself, I decided to analyze it and try to work out a solution of it.

First, I found that writer's block is usually a problem of *organization*. When I was staring at the paper or screen, all sorts of thoughts on the topic would come tumbling into my brain, but they were so quick, incomplete, and disconnected I could not possibly write them down.

Eventually, my brain would tire of these senseless acrobatics and move on to something altogether different, such as "Wouldn't it be nicer to be skiing right now?" And off it would slide into pleasant

meditations on skiing in heavy powder or making better parallel turns. But the page before me would remain blank.

Once I saw that writer's block was basically disorganized thinking, I worked out a simple technique to overcome it. And the great news is, it works. Writer's block is now part of this writer's history. Here's what you do.

### Organize Your Thoughts

At the top of the page, write your topic. Then write "PURPOSE" and note *what* you want to get across. Next write "METHOD" and note step-by-step *how* you plan to do it. Finally, write freely on each step. That's all there is to it.

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*Remember, writing involves steady, concentrated thinking to a purpose.*

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But your problems may not be entirely over. Before you start writing freely, you may have to deal with: exhaustion, insufficient knowledge, or sustained muddleheadedness.

**Exhaustion.** Writer's block saps your energy—at least it does mine. When I first tried this technique to break writer's block, I was exhausted from staring at the empty paper. I could only make a few notes on my purpose and method before I left it. The next day though, I followed my notes and wrote the piece quite easily.

Remember, writing is extremely demanding. It involves steady, concentrated thinking to a purpose. If you're too tired to write, put your work away, close your eyes, and take a break. You'll write faster and better later.

**Insufficient knowledge.** You may need to do some more research. You'll see what and where as you map out your method. If you find yourself hesitating or worrying over a subtopic, just put a star by it and go on. Determine to check that topic before you start writing. This quick technique can save you hours of wasted doodling, as it will show you quickly and precisely what you need to check.

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*Writer's block is basically disorganized thinking.*

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### Sustained muddleheadedness.

Don't laugh. Sometimes the state of writer's block is difficult to escape. The writer seems almost determined to stay stuck.

Let's suppose I'm blocked on this column. I dutifully write out my notes on purpose and method as in *Figure 1*. Now I should start writing on Step 1 under METHOD, but I won't if I'm in a state of sustained muddleheadedness.

Instead, I'll start wondering "Is this *really* the best way to proceed? Would it be better to devote this

**Figure 1**

The best way to tackle writer's block is to beat it before it beats you. At the top of your page, map out your intentions, including purpose and method to accomplish your goal.

#### WRITER'S BLOCK

##### PURPOSE:

To show people how to overcome it.

##### METHOD:

1. Describe writer's block.
2. Discuss reasons it occurs.
3. Give technique for overcoming it.
4. Illustrate with an example.

column to a description of writer's block and tackle the technique for overcoming it next time? Or . . . ?" The possibilities are endless; the result is always the same, an empty page.

The cure for sustained mud-headedness is perfectly simple. Refuse to consider your own ques-

tions! Just write strictly on each point you noted under METHOD. Of course you'll have some editing to do; you may throw out whole sections and add others. But at least you'll have something to edit! Happy writing.

*Cheryl Reimold is author of more than 100 articles and several*

*books, including How To Write a Million-Dollar Memo and Being a Boss. Her firm, PERC Communications (6A Dickel Rd., Scarsdale, NY 10583, telephone 914-725-1024), offers businesses in-house workshops and courses in communication, writing, negotiation, and creative problem solving.* ◀

## Remedial Help for Bad Grammarians

Business people make more than 10 million punctuation and grammar errors every day, which cost business and industry an estimated \$1 billion annually in wasted time, unnecessary revision and lost revenues, according to Gary Blake of the Communications Workshop in New York City. More managers make mistakes with subject/verb agreement than all other grammar problems combined. Most executives are aware that their use of language could use some fine-tuning. Of 1,000 business people polled, only 9 percent felt "fully confident" about their punctuation and grammar skills, according to Blake. The accompanying chart, adapted from guidelines produced by The Communication Workshop, will help clear up a few of the most common grammar mistakes.

*Reprinted from the Executive Female, July/August 1990.* ◀

Problem	Incorrect	Correct	Why
Subject and Verb Disagreement	The group of citizens are going to protest.	The group of citizens is going to protest.	The subject of the sentence is "group," not "citizens."
Noun and Possessive Pronoun Disagreement	Each supervisor must complete their personnel reviews by Friday.	Each supervisor must complete his or her personnel reviews by Friday. <i>or</i> Supervisors must complete their personnel reviews by Friday.	"Supervisor" is singular, so it takes a singular possessive pronoun.  A plural subject takes the plural possessive pronoun.
Problematic Pronoun	John, George, and me met to discuss the job.  The discussions between she and I were heated.	John, George, and I met to discuss the job.  The discussions between her and me were heated.	Remove the first subjects and read the sentence: "me met?" Obviously not.  Object pronouns follow prepositions.
Dangling Modifiers	After finding the missing report, the the search was ended by the secretary.	After finding the the missing report, the secretary ended the search.	Since the "search" didn't do any finding, the secretary had to find the report.
Misplaced Modifiers	The payroll teller recommended First Carrier over Federated, whose delivery service is very prompt.	The payroll teller recommended First Carrier, whose delivery service is very prompt, over Federated.	If First Carrier is recommended, it must be the prompt company, not Federated.

## Demand Grows for PCS Courses

by Nancy Corbin and Ron Blicq,  
PCS Education Committee

We have been pleasantly surprised by the number of requests we have received for PCS's two-day course, *Writing Technical Correspondence and Reports*, and also by the enthusiasm with which the course is being received wherever we present it. We are almost fully booked until the end of October (it's July, as we write this), and already have some bookings for 1991.

Additionally, the 90-minute mini-course on oral and written techniques, which we presented first to the IEEE Long Island Section in October 1989, will cross the Atlantic to be presented as part of IPCC 90 in Guildford, England. Its compactness makes it an ideal vehicle for presentation at IEEE Section and Chapter meetings.

To meet the increasing demand we have recruited Cheryl Reimold of Scarsdale, NY, as the third member of our instructional team. (Cheryl is the author of the articles on report writing that appear regularly in this *Newsletter*.) Cheryl and Ron recently co-taught two courses for Nynex Enterprises in New York City, and another session is scheduled for October.

The practical approach of both the two-day and the 90-minute courses particularly appeals to engineers, scientists, and computer specialists. Wherever we go, we adjust content and emphasis to suit the needs of the group we are facing, and insert fresh topics and address specific problems peculiar to the organization or that are faced by particular individuals.

Excerpts from recent course critiques demonstrate how course participants have reacted to this approach:

- "I will have more confidence in my writing."
- "Learning how to get started was especially helpful."
- "The assignments were a great learning tool."
- "Having my work critiqued, and being provided with a structure to follow, were particularly valuable."
- "The instructors were extremely flexible and worked *with* us: I am going to miss the team feeling that was created."
- "The course was interesting, relevant, professional, and cost effective."

It's gratifying to see that PCS's courses seem to be "doing the right thing!"

### Editor's Note:

For more information about PCS writing and speaking courses, write, fax, or call:

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## Welcome to England!

by Nancy C. Corbin

Excitement mounts as final plans take shape for this year's International Professional Communication Conference. Conference chairman John Moffett reports that his co-chairman, Dr. G. H. Byford, anxiously waits to welcome participants to England. Technical communicators will soon be arriving from Germany, Austria, Yugoslavia, Canada, the United Kingdom, France, Sweden, and the United States. What an opportunity for professionals to brainstorm, exchange ideas, and offer solutions in the technology of communicating!

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*What an opportunity to  
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communicating!*

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There's something on the program for everyone. The conference begins Tuesday evening at six o'clock sharp with a dynamic lecture on *Managing Interpersonal Conflict*. Throughout the conference, sessions address every aspect of professional communication. One of the early sessions on Wednesday focuses on *Technical Communication: Engineer's or Specialist's Job?* Proposal writers will not want to miss the session on *U.S. and European Approaches to Proposal Preparation*.

Presenters from Canada, France, Austria, Yugoslavia and the United States will present their views on

*Explaining Science and Engineering to the Lay Public.* The session titled *The Art of Criticism* has peaked my curiosity—generally, I do not associate *criticism* with *art*. The whens and hows of acquiring technical communication skills will be addressed by both industry and academia. Workshops on International English, technical writing, and oral communication round out the dynamic program in store for you.

Oh, yes—there's entertainment too! Jim Lufkin, PCS's very own playwright, has written and will direct *Shakespeare Gets A Computer*. Where does Jim get his actors and actresses? Well, I think we should save some of the suspense for our first-time participants. If you haven't experienced one of Jim's plays, you are in for a very special treat.

At this writing (July), we are still waiting to hear more about tour packages available. There is a full-day tour of London planned for the spouses. Of course, that is an option for conference participants as well. Most participants plan to stay on after the conference and do a little touring on their own.

President Rudy Joenk applauds this year's co-chairmen for their tireless efforts to make this the best IPCC ever. In addition to enjoying the camaraderie of professional communicators from all over the world, Rudy recommends that you seek answers to the publication problems that currently plague your business. One solution can pay back the investment your employer is making in you. Plan to make this conference worthwhile to you and your company.

See you in England! ◀

## Newsletter Schedule

The *Newsletter* publication and deadline schedule is as follows:

DEADLINE	ISSUE
September 28	November
November 24	January

Please send your contributions to me at the following address:

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