



**Take Rest Breaks, Exercise
To Prevent Computer Ailments
by Ken Fermoye**

Between us, my wife and I offer a catalog of physical ills caused by long hours of working on computers:

repetitive stress injury (RSI), neck pain, backaches and vision problems. Liz underwent surgery twice for carpal tunnel syndrome and still has frequent wrist and hand pain.

I have suffered from aggravated neck and back injuries. My vision has deteriorated from 20 years of staring at a monitor, although admittedly age-related macular degeneration (AMD) and cataracts have been more damaging.

The sad truth is that if we knew 15 years ago what we know now, these problems need not have occurred. Or if they had, they would have been less severe. Even sadder is that prevention of many computer-related ailments is neither difficult nor especially time-consuming.

Frequent rest breaks are vital, says my chiropractor, Kurt W. Rice, who is also my son-in-law, God bless him. (He has helped me more times in recent years with neck and back problems than I care to remember!)

The breaks needn't be lengthy. Dr. Kurt recommends that we get up from our chairs every half-hour or so, stretch our backs and walk for a minute or two. Other experts offer different opinions about frequency and duration of breaks but all agree that they are vital.

Sitting and working at a computer creates more tension and stress on muscles, nerves, tendons and joints than most of us realize. Our bodies fight gravity every minute that we're seated. Breaks alleviate this tension and stress.

To prevent the dread carpal tunnel syndrome, during your break let your hands go limp at the wrist and wiggle them vigorously in what some call "the clerk and typist exercise."

Some people use voice recognition programs to cut down on their need to use a keyboard and mouse. I find that difficult; after more than 50 years of banging away at typewriter and computer keys, dictation comes hard to me. Now that voice recognition is improving and more reliable, however, I've resolved to use it more often. A major benefit is that you can use a microphone or headset while standing or even lying down. I plan to try dictating drafts, then to rewrite and edit as necessary from the keyboard.

Vision experts warn that we should take "eye breaks" even more frequently. Every 10 or 12 minutes, look away from the monitor at objects 10 to 12 feet away. When I'm working with a word processor or any other program that allows me to increase type size easily and temporarily, I do it. Working with 14- instead of 10-point type prevents squinting and straining to see my work. It also allows me to sit up straight, not bent over the keyboard, and you can always reduce point size before printing or sending e-mail.

I mentioned my neck and back injuries earlier. The neck problems began about 17 years ago. I was riding my bicycle when a large tree limb broke off and fell on me. (Fortunately I was wearing a good helmet or the freak accident might have killed me.) That caused some damage, which increased with age and was aggravated by working on computers and long-distance cycling. The pain got so bad I could not turn my head to either side more than 12 or 15 degrees. Dr. Kurt came to the rescue, with manipulation, ultra-sound and heat packs. He also recommended several simple exercises I try to do regularly.

My back injuries were computer-related. The first came when I installed a second drive in one of our machines. I crawled under a desk to get at the computer case. After removing all the cables, I tried to lift the box and slide it out to where I could work on it, not waiting to shift to a position that would give me more leverage.

Bad move. I heard a pop and was in instant agony. It took several weeks of Dr. Kurt's ministrations to recover from that one. I injured it again in October 1999 after conducting my monthly desktop publishing/word processing SIG. I took a computer and 17-inch monitor out of a car trunk with a high lip that made it impossible to lift them properly. I had to bend and lift with my back – and *pop*, there it went again! This time, recovery took even longer.

I mention these details to make a point. The first instance was pure accident. No way could I foresee that a brittle, rotted pepper tree branch would break off and fall just as I pedaled under it. The second injury occurred because I didn't take time to position myself properly. The third case was avoidable too; I should never have tried to lift heavy objects out of that particular car trunk. Trouble is, I forget my hard-used back is more vulnerable now than it was even 20 years ago, and I think many of us who have reached senior citizen status do the same.

I just caught myself in a no-no a few minutes ago. I wanted a book from a built-in shelf high and to the right of my home office workstation. I started to reach up, twisting my back at an awkward angle. Various muscles prepared to scream in protest, so I did what I should have done in the first place. I moved my chair out of the way, got a step stool I keep folded behind the door, set it firmly in place and climbed up to find the desired book. It took a few extra minutes, but it kept me from aggravating my previously-injured back.

The book, by the way was *Zap! How your computer can hurt you – and what you can do about it*. Written by Don Sellers (edited by Stephen E. Roth), it was published by Peachpit Press in 1994. It's now out of print but Peachpit has a condensed version, *25 Steps to Safe Computing*, also by Sellers, that is still available for \$5.95. (Remember that Peachpit offers discounts to user group members.) Either would be a good addition to your library.

You can also check out my Website at <www.zyworld.com/wordsmithken>. I'll be adding links to several computing safety sites there.

Meanwhile give yourself, and your body, a break . . . at least once every half-hour!

Copyright 2000 by Ken Fermoye, Fermoye Publications. Ken Fermoye has written 2,500 articles for publications ranging from *Playboy* and *Popular Science* to *MacWeek*, *Microtimes* and *PC Laptop*. Ken's Korner, a syndicated monthly column, is free to User Groups.

**Mousing around
on the Campaign Trail
by Susan Ives**

I have a degree in political science. I spent four years as a politico in training and in those halcyon pre-Monica days was even an intern on Capitol Hill. Now that the 2000 presidential election is in full swing I can barely stand to open the newspaper, let alone campaign for a candidate. Either I've changed or politics has. Probably both. Although the political news in the paper is getting clucked straight into the recycle bin, I sneak a peek at the Internet every once in a while so don't I don't come across as a complete nitwit.

Start with the venerable Project Vote Smart <www.vote-smart.org> which was launched during the last presidential campaign. It tracks the performance of 9,852 leaders, from the president to state legislators. The amount of detail is awesome. First, get a list of all the candidates running in your area by typing in your zip+4. Don't know your zip+4? It will find it for you. Click on a candidate, and get details on campaign finance, voting records and scorecards by special interest groups.

Follow the money at the Center for Responsive Politics <www.opensecrets.org> Again, type in your zip+4 and get a list of your candidates for national office. Then rifle through their checkbooks. I got a by-name list of everyone in my zip code who donated at least \$200 to a candidate and enough charts to conduct a two hour briefing on campaign finance in the 78230 zip code. You can look up hard money, soft money, last names, recipients, PACs, lobbyists – if it has a dollar sign attached, it's here, searchable and incredibly interesting.

If the money is still burning a hole in your ballot, also look at the Campaign Finance Information Center <www.campaignfinance.org>. These guys actually sell data, but they have a marvelous archive of campaign finance news stories, organized by state. If you want to go straight to the original source, the Federal Elections Commission <www.fec.gov> has photocopies online of actual financial disclosure reports filed by house and presidential campaigns, parties and PACs from 1993 to the present. It's also an excellent educational resource for how elections work, the election financing laws and court cases. The National Institute on Money in State Politics <www.followthemoney.org> shows promise, Texas data is not yet searchable, is only for 1998, but the site will mature and be more useful soon.

Not registered yet? Although Rock The Vote <www.rockthevote.org> was set up to encourage young people to register to vote, old fogies can also fill out a simple form and have voter registration material mailed to them. Rock the Vote, funded by the recording industry, was one of the moving forces behind the motorvoter legislation passed in 1993. In 1996 they were the first web site to offer online voter registration. They have punchy issue guides on areas of special interest to young people (the environment, violence, health care) and links to sites that cover these issues.

One of the most intriguing election sites is the election toolkit at iVillage <www.iVillage.com/election>. Start using the candidate match-o-magic. This 20-question quiz poses multiple-choice questions about issues, from assisted suicide to the flat tax. Based on your answers, it tells you which candidate most closely endorses your views. You can review your answers, compare them to your candidate's one-by-one, and even review all of the other candidates' positions compared to yours. While there, also check out the C-Span video search. Type in an issue and it will pull up the video archives of candidates making statements to the news media about your chosen question. I asked for the death penalty and was offered 27 video clips. iVillage is designed for women, but guys shouldn't be put off.

Another good all-around site is Gavidae <www.govote.com>. They have a great search engine for political news stories and a friendly interface to help you learn more about the candidates and issues. I'm also impressed with the Primary Diner <www.primarydiner.com>. The staff credential will blow you away, and their dueling pundits are right on the mark. If you are looking for up-to-the-minute news about the campaign, digested so that you don't have to wade through a million pages of junk, this is the place to go. Sign up to have daily campaign e-mails delivered to your inbox.

Major media outlets have special campaign sections on the Internet. Some of my favorites are: C-Span: <www.c-span.org/guide/executive/rwh/>; Christian Science Monitor: <www.csmonitor.com/atcsmonitor/specials/wh2000/>; ABC News: <abcnews.go.com/sections/politics/>. Washington Post: <www.washingtonpost.com/wp-dyn/politics/>.

For a different prospective, check out the BBC's election coverage <news2.th1s.bbc.co.uk/hi/english/in_depth/americas/2000/us_elections/election_news/default.stn> and see how they view us on the other side of the big pond.

Sometimes you just gotta laugh. Dan Cagle's Pro Cartoonist Index, Campaign 2000 <www.cagle.com/2000/> is an archive of hundreds and hundreds of political cartoons from across the country. I bet those guys threw one heck of a party when Dan Quayle threw his hat in the ring – talk about job security!

If you want to check out the official home pages of the candidates, a good list is maintained at Yahoo! <fullcoverage.yahoo.com/Full_Coverage/US/Presidential_Election_2000/>. Most of the candidates are taking donations online through secure servers and you can use your Visa, Master-card or American Express.

If you're a gambler the Congressional Quarterly <www.campaignline.com/> will lay out the odds for you. In the 1998 general election, they got it right 98 percent of the time. It covers, the presidential, Senate, House and gubernatorial elections. In my district, Kay Bailey Hutchinson is 4-1 for the Senate, Charlie Gonzalez 3-1 for the House. They're predicting a Gore-Bush race for president. Duh. I knew that. Maybe that degree is good for something after all!

Susan Ives spent one entire summer watching the Watergate hearings. This article was written for the March 2000 issue of *PC Alamo*, the News Magazine of The Alamo PC Organization, Inc., in San Antonio, TX.

Printer Paper
What's the Difference?
by Terry Currier
NOCCC

You finally have a great color printer with 600 to 1400 dpi (dots per inch) capability for text and graphics and you can't wait to start printing. According to the manufacturer, it should be able to print photo quality graphics and crisp text files.

However, when you actually print something, it seems the print quality is no better than with your

old printer. Eventually, you look with envy at your friend's printouts and sigh "Someday I'll be able to afford a high quality printer like theirs." But wait, maybe the problem isn't the printer . . . perhaps it's the paper.

Let's look at the basics of different printers. An impact printer uses a mechanical hammering device to produce each character by forcing a metal or plastic form against an inked ribbon to produce an image on paper. The characters may be on a moving bar, a rapidly rotating chain, a rotating ball, or even a spoked wheel. A dot matrix printer uses a matrix of tiny pins that, when struck, impart a set of dots to form a wide variety of characters. Graphics may be created by using different dot combinations. Bubble-jet printers (or inkjet printers) squirt heated ink through a matrix of holes to form characters. These small ink droplets are electrostatically sprayed from a nozzle onto the paper. Laser printers form an image of the output on a selenium-coated drum, using laser light according to data from the computer. The image is then transferred to the output from the drum using photocopying techniques.

Thermal-wax-transfer printers and dye-sublimation printers use heat to transfer color pigment from a ribbon to a special paper to produce photographic-quality color images.

Inkjet (bubble jet) printers are very affordable for home use. In the store, the printouts may look incredible but when you get home, somehow the printer just doesn't seem to have the same print quality. Most of the time the problem is not the printer, it's the paper. Most people try out several different kinds of photocopy, laser printer, or inexpensive inkjet papers. When an inkjet printer sprays onto these papers, the ink is wicked by the fibers causing an effect known as bleeding. Some inks spread to the sides or the back of the paper making the image less sharp. When the ink bleeds, it isn't all on top of the paper, some has soaked in. This is easy to check by turning the sheet over. If the ink is starting to come through or the front appears lighter, grayed-out, or feathered, as though you were printing with diluted ink, you probably have the wrong paper.

To get good quality printouts with an inkjet printer you need to use coated paper stock. A single coated paper is not enough, as it is formulated to keep the ink from getting into the paper fiber but doesn't have the best ink adhesion or reflectivity. Quality printouts need a second coating on top of the ink barrier coating. The second coating optimizes viewing by reflecting light back to set off the colors. The second coat also provides a base to adhere the ink. To put it more simply you need a primer coat and a finish coat to generate a quality printout.

Two options controlled by most inkjet printers are configuration for the "Media Type" and "Print Quality." "Media Type" controls the amount of ink set down on the media. It does not control or affect the resolution. "Print Quality" controls the "Resolution" of the images printed.

Now you know what type of paper to use, let's see what some of the other manufacturing terms mean!

Basis Weight The weight of a ream of paper in the Basic Size for that grade (e.g. 500 sheets of Sub. 20 Bond paper in its basic size, 17x22 in., would weigh 20 lb.)

Bond Paper Paper manufactured usually for stationery, letterheads, or forms. Distinguishable in the more popular grades by a watermark and excellent writing surface.

Brightness The measurement of a paper's light-reflective qualities that affect contrast and halftone reproduction.

Coated Paper Paper with a coated surface that gives the paper a smooth finish.

Finish – the special characteristics of a paper's surface, which differ from grade to grade. High, low and textured finishes, for example, exhibit varying degrees of smoothness, ink receptivity and printability.

Ink Holdout the ability of the paper to keep ink on its surface rather than absorb it into the sheet (e.g., paper with good ink holdout would require less ink and exhibit less "feathering" than a highly absorbent paper).

Ink Receptivity the degree to which a paper resists or accepts ink penetration based on variations in its size and coating.

Laser Papers Papers suited for optimum performance on heat fused, high-resolution, laser printers used in desktop publishing. (Not recommended for inkjets)

Ream 500 sheets of paper, regardless of size.

What are some of the specialty papers available for inkjet printers?

High Resolution Coated 24 lb paper provides distinct crisp details and colors for graphics, text and photographic images. This paper has a non-resin coating and provides exceptional results at an economical cost.

Ultra Resolution Coated 27 lb paper provides a sturdier platform for intense graphics and color applications that would saturate lighter papers. It provides a thicker media while maintaining an economical cost.

Photo Glossy Photographic coated paper provides a heavy surface for “true” photo applications. Gives images a glossy photographic appearance. This paper may also be obtained with an extra coating that bonds with the ink to provide a waterproof image.

Opaque White Glossy Film Synthetic film providing a durable media for photo applications. A thin polyester material provides stability for hostile environments and also provides for exceptional color and detail.

Clear Transparency Film A clear polyester base coated with a specifically formulated quick dry emulsion for optimum performance. Produces bright colorful overlays and presentation foils.

T-shirt Transfer An iron-on product that utilizes a “cool-release” process to maximize image detail and color transfer. Look for an easy to use product with easy peel backings and machine washability.

Ultra-violet T-shirt Transfer This product provides a unique transfer. In addition to color transfers, the Ultra-Violet transfer actually changes color when exposed to sunlight! When sunlight is removed, the image returns to the natural state.

Silver Reflective Film A polyester- based silver film. The metalized film is excellent for monochrome as well as color graphics

Canvas An artist grade canvas that is pre-stretched and gives an elegant look to portraits and artist renderings. Provides excellent color reproduction.

Poly-silk Fabric, (adhesive backed) A woven polyester base that looks, feels and gives the appearance of real silk. An adhesive backing provides for transfer to fabric or textiles.

Watercolor Paper An artist grade paper that provides the feel and appearance of watercolor texture. Provides excellent format for reproduction of renderings and other artistic applications.

Backlit Reverse Printing Film A UV-resistant polyester film designed for most light box applications. Produces bright vibrant colors with a superb light diffusion quality. Reverse printing or viewing through the base allows for single-sided lamination.

Window Decal Film Polyester based transparent film with self-adhesive backing to allow mounting directly to windows or other substrates.

Some of these specialty papers are difficult to locate and prices vary considerably. For economy, print your images on inexpensive 20-24 lb paper until you are satisfied with the composition, then switch to the more expensive media. Try printing the same image on several types of media, you'll be amazed at how different they look.

To acquire various types of specialty papers go to the web sites of paper manufactures and distributors such as Hammermill, Mead, Hewlett-Packard, or Kodak and re-quest sample packets.

Most of all, have fun and experiment with different paper media, you'll be amazed at what your inkjet printer can do for you!

From the March 2000 issue of *Orange Bytes* the journal of the North Orange County (CA) Computer Club.

Ken's Korner Tip

**Add Professional Look
To Your Greeting Cards
by Ken Fermoye**

Many computer owners use various software programs and inkjet printers to create their own greeting cards. It's fun, and people who receive them seem to appreciate the effort made to produce customized cards made especially for them.

My wife Liz and I have been designing our own greeting cards for years and look constantly for new ways to make them even more attractive and professional-looking. We've tried various paper stocks, generally favoring card stocks in the 55- to 65-lb. range. Recently we found one from Wausau that is a real winner!

It is called Exact Bristol and it is a medium card stock (67-lb) with semi-smooth finish. It costs under \$10 for 250 sheets and comes in several colors, including blue, ivory, yellow, gray and more. Every store might not stock all colors but you're likely to find ivory, which makes very attractive cards. The semi-smooth stock works best with clipart. For cards that feature photos you should use Bristol smooth stock or a glossy photo paper.

So you're getting tired of getting complaints about the phone line tied up while you are surfing the 'Net? Of course, you could opt for a second phone line from your local phone provider, but at around \$20 plus installation other charges and tax, it's rather expensive. Now there is an alternative. Internet Call Manager is a dandy program allowing your callers to receive an answer rather than a busy signal. On your monitor, you receive a message alert notifying you someone has called. Not only that, but the name and phone number of the caller(s) are included as well. It's another bit of the magical stuff on the Internet.

ICM works no matter where you are or what you are doing while surfing the net. When someone calls, you get the message instantly on the screen even while downloading large files. You have options on how to manage the call with the handy .WAV answering files in the program, including the option of not answering at all. This for those annoying telemarketing calls. The cost of this deal? You need to have call forwarding, option "busy line forward calls to preselected number" available from your local telephone service provider. Bell Atlantic charges \$2.00 per month plus tax. Other local phone service providers may charge more or less. The charge from ICM is \$5 per month or \$25 for 6 months. The program is rather small and is a free download with a free trial period of 12 calls.

For all the details the URL is <<http://www.internetcallmanager.com>>. Callwave is another one <http://www.callwave.com> (free).

From the February issue of *Bit by Bit* the publication of the Lehigh Valley Computer Group of Allentown, PA.

Fibre Channel Technology
by O. T. Stoll
NOCCC

Along with a publicity release from ICP (Intelligent Computer Peripherals) was a booklet *An Introduction to Fibre Channel Technology*. After reading it, I realized I had a misunderstanding about Fibre Channel. I have abridged the booklet, and present it below because I believe others will also find it interesting.

The booklet is a guide to help understand Fibre Channel technology and was written by Dr. Andreas Koepf, Director of International Technical Support for ICP Vortex Corporation in Phoenix, Arizona, as well as an important contributor to the technical support team in Flein, Germany. He has more than six years of hands-on experience dealing with technical issues confronting users of RAID technology and has developed an industry-wide reputation for his clear, jargon-free explanations of technological issues. Dr. Koepf currently lives in Phoenix, AZ with his wife and two children.

If there are questions or further information is needed, call ICP Vortex in Phoenix, Arizona, at (602)333-0303 or e-mail them at sales@icp-vortex.com. See the ICP Disk Array Controllers at <<http://www.icp-vortex.com>>.

Preface

The traditional SCSI interface is hard-pressed these days to meet the continually growing requirements of high-end mass storage systems. Along with demands for ever higher data transfer rates come demands for ever longer cables, in order to increase the number of attached devices per cable.

These larger systems are not possible with standard SCSI. An alternative connection technology, Fibre Channel, has been developed in recent years, bringing many advantages over previous interface technologies.

Part 1 Theoretical Foundation

To understand how Fibre Channel functions, it is necessary to investigate the fundamentals of this new technology.

1.1 What is Fibre Channel? Fibre Channel (FC) is a serial, high-speed data transfer technology, which can be utilized by networks and mass storage. Fibre Channel is an open standard, defined by ANSI and OSI and which supports the most important higher protocols, such as Internet Protocol, ATM (Asynchronous Transfer Mode), IEEE802 (Institute of Electrical and Electronics Engineers Standard), HIPPI (High Performance Parallel Interface), SCSI (Small Computer System Interface), etc. Fibre Channel does not make use of its own command set, but merely facilitates the data transfer between the individual FC devices.

Fibre Channel is not limited to the transmission of optical signals through fibers, but can also utilize cost-effective copper cables (twisted pair or coaxial). The French spelling of "fibre" is used to indicate this latter transmission technology.

Fibre Channel is fast (with extremely high data transfer rates), flexible (supports several topologies), scalable (for small and large systems), simple (serial cable, no termination, automatically assigns ID), extremely dependable (built-in correction algorithms) and simple to integrate (supports the most important protocols). One of the major advantages of Fibre Channel is the great versatility of configuration possibilities. They range from simple structures connecting only two devices to complex networks with over 16 million attached devices.



1.2 Topologies

The Fibre Channel specification provides several topologies (connection methods), which are outlined below.

1.2.1 Point-To-Point Connection Point-to-point refers to the simple connection of two FC devices (either two servers or a server and a hard disk subsystem). The FC devices (FC controllers, for example) are designated as nodes. These nodes have one or more N-Ports, (the actual FC interface). Every N-Port has a Transmitter and Receiver. Transmitters and Receivers are cross-connected to each other through so-called links. These links can be either copper cables, for the transfer of electrical signals, or Fibres, for the transfer of optical data.

Point-to-point connections can access the entire IOOmb/sec bandwidth available with FC for communication between two nodes. This connection type is very easy to implement.

1.2.2 Arbitrated Loop Topology Arbitrated Loop (AL) allows up to 127 ports to be connected in a circular daisy chain. Data are transferred from one device to its neighbor in the chain. The other ports function as repeaters and simply pass the signal along. This means, of course, that the bandwidth of IOOmb/sec is shared among all devices. Just as in a token ring, each device on the Arbitrated Loop sees every message, keeps those that are meant for it, and passes all others along.

1.2.3 Switched Fabric Switched Fabric is a networked topology. FC devices are connected to the network via the F-Ports or FL Ports (depending on whether simple or loop ports are needed). The connection between the individual ports on the network functions similarly to a telephone system. The FC device (= the telephone) is connected via an F-Port or FL_Port (= telephone wall plug) to the Switched Fabric (= telephone system). If, for example, node A wants to speak to node B, the appropriate address (= telephone number) is sent to the Switched Fabric. The Switched Fabric creates the connection between the initiator and the target, neither knowing the actual route the signals take, because that is the job of the network itself. The connection is completely managed by the Switched Fabric, remaining invisible to the nodes. As in our telephone example, our network has various connection types, such as Point-to-Point, Rings, Hubs, Switches, etc. 24 bits are available for the address, (whereas AL only uses the lowest 8 bits), allowing 16 million devices to be addressed.

For our purposes here, we will focus on the use of Fibre Channel technology in the mass storage sector. Because a mass Storage system normally involves a limited number of connected devices (a controller and several hard disks) and FC Arbitrated Loop is the most commonly used topology for that situation, we will concentrate on FC-AL.

1.3 Service Classes FC topologies allow the structuring of different types of connections, which are designated as service classes. FC differentiates between five different service classes: 1. Connection Oriented; 2. Connectionless, With Confirmation; 3. Connectionless, Without Confirmation; 4. Parallel Transmission; and, 5. Parallel and Isochronous.

Service Class I creates a dedicated connection between transmitter and receiver. All sent packets are acknowledged by the receiver. No other devices can communicate with the connected devices for the duration of the connection (as is the case with a telephone connection).

Service Class 2 is a “connectionless” method, with confirmation of the data transfer. This means that the path the data packet takes is not defined. The available bandwidth is shared among several devices, and other devices can communicate via the same connections during pauses in the “conversation.”

Service Class 3 is similar to class 2, except there is no confirmation of the data transfer on the FC protocol level. This class is most often used for mass storage systems. The sharing of and width allows several FC devices to communicate simultaneously as, for example, when a RAID controller rapidly sends data packets sequentially to several hard drives, without having to wait for the confirmation of each data packet. The confirmation is communicated via the high-level SCSI protocol, so no confirmation is necessary on the lower FC protocol level.

Service Class 4 exchanges data packets between two devices in a network through utilization of multiple connection paths with a guaranteed bandwidth.

Service Class 5 is similar to class 4, but with isochronous data transmission.

1.4 Data Transfer Theory FC supports different packet sizes (in principle from 0 bytes to 2048 bytes per packet). FC is therefore optimal for small 10s, such as those found with databases, but is just as effective (without adding overhead) to transfers of large data blocks, such as those found in video applications.

Along with the Full-Speed Mode with data transfer rates of 100Mb/sec, there are also ½, 1/4 and 1/8 Modes, with 30Mb/sec, 25Mb/sec, and 12.5 Mb/sec transfer rates, respectively. These slower speeds were formerly used to build cost-effective systems, but are rarely used anymore. The trend is rather in the other direction, with ongoing efforts to establish data transfer rates of 400Mb/sec.

Because Fibre Channel is extremely versatile, allowing different types of cable, topologies and transmission methods, the FC protocol is divided into five levels. The physical connections, such as cables, connectors, transmitters and receivers, are defined in level FC-O.

Level FC-1 regulates the coupling of data bits in the transmission cycle, as well as the 8/10 bit coding/decoding. This process results in a signal balance of 50 percent, i.e., the same number of high signals as low signals are sent, which increases the quality of the bit data transfer rate. This process also increases the amount of data transferred by 25 percent, which must be compensated for by a proportionately faster transmission rate. In the specification of transmission rates, the net transmission rate, which is measured in Mbyte/sec, is differentiated from the rate the signals are actually transmitted, which is measured in Mbit/sec (100 Mbyte/sec net rate is equivalent to 125 Mbit/sec signal rate).

Level FC-2 controls the data flow and confirms data transmissions. In this level, the individual packets are assembled and assigned addresses, data blocks and CRC information.

In FC-3, the common functionalities of groups of network devices are defined, and in level FC-4, the support of higher protocols (IP, IEEE 802, HIPPI, SCSI, etc.) is controlled. Up to 255 higher protocols can be defined in level 4, so plenty of room is available for future protocols.

1.5 Why is one Cable better than several? – Many users will logically ask themselves how a single serial cable can support faster data transmissions than several parallel connections. Narrow SCSI, for example, uses 8 transmission wires in the cable, while Wide SCSI uses 16. Surely that provides a faster data transmission than one serial cable?

1.5.1 Parallel Transmission The problem with parallel data transmission is that sets of data signals sent simultaneously through 8,16, or even more wires need to be received simultaneously as well. In order for the receiver to correctly interpret these sets of signals sent over the wires, there must be a period of time (t) during which the received signals are guaranteed to be valid. However, with higher data transfer rates, or longer distances between transmitter and receiver, it is more likely that simultaneous transmission will be disrupted by inconsistencies in transmitter, receiver, wires, connectors, etc., causing individual signals within a data set to arrive at one set of signals at different times. This problem of non-synchronous arrival of signal set transmissions requires an additional period of time (dt) for the receiver to make sure each signal set is valid.

The period of time represented by t+dt determines the minimum duration (T) of the signals sent by the transmitter and therefore determines the maximum send frequency (i.e., the shorter the period of time, the higher the frequency can be). As an example, the frequency for Fast SCSI is 10 MHz (10 million signals per second), which corresponds to some given signal length T. If we go to Ultra SCSI, which has a data transfer rate of 20 MHz (20 million signals per second), the signal length is cut in half (T/2). This reduction of signal length means more signals are sent in a given amount of time. If we halve the signal length there must be a

corresponding reduction of the other side of the equation $T = t + dt$. If the receiver characteristics t are the same for Fast SCSI and Ultra SCSI the reduction must take place in dt .

Since dt is directly related to the cable length, the 3m cable length of Fast SCSI must be reduced to 1.5 m when Ultra SCSI is used.

1.5.2 Serial Transmission Serial data transfer utilizing only one signal wire avoids this problem. Since there is only one wire, all signals are delayed the same and arrive at the receiver in the same order in which they were sent. There are, however, other factors that limit the maximum data transfer rate. The electrical capacity of the cable "rounds off" the corners of the "square" binary signals, and this distortion of the signals increases the farther the transmitter and receiver are from each other. The signal distortion must be controlled so that the individual signals can still be identified by the receiver.

Multimode optical Fibres with a diameter of 50 or 62.3 μm ($1 \mu\text{m} = 1$ millionth of a meter) have a similar effect. Because of the relatively large diameter of these Fibres (compared to the wavelength of light) the light beams can travel via various paths. The more often the beams are reflected off the sides of the optical Fibre, the longer their route and the longer the length of the actual transmission. The effect of this is that the original light pulse is distorted (similar to the electrical signals discussed above). Just as with electrical signals, the distortion must be controlled before it affects the validity of the signal reception. Multimode optical Fibre accommodates distances of up to 500 meters between transmitter and receiver before signal distortion becomes a problem.

The markedly smaller diameter of single mode optical Fibre (9 μm) accommodates only one light beam at a time. The distortion effect found with multimode optical Fibres is therefore not a problem, so distances of up to 10 km are possible. The limiting factor with single mode is attenuation of the light due to the Fibre itself. Because of the relatively high costs of this connection technology, it is only implemented where extreme distances of several kilometers cannot be avoided.

Part 2 - FC Mass Storage Devices

2.1 FC Controller FC-AL controllers are available as simple host adapters or as intelligent RAID controllers. Host adapters simply control the data transfer between the host operating system and the individual hard disks. RAID controllers, on the other hand, can combine several hard drives into a single logical array, which can not only increase the data transfer rate but can also store redundancy information on the hard disks along with the data, so that all data can be recovered in the event of a disk failure.

FC hard disk systems are generally found in larger installations with multiple hard disks, where data security and availability are especially important. FC RAID controllers are therefore, a natural partner for Fibre Channel.

As an alternative to a hardware solution, it is also possible to have a software RAID solution with a host adapter and RAID driver, in which the driver is integrated into the operating system, such as Windows NT. In this case, the performance of the RAID system is completely dependent on the load of the host CPU, which can potentially pose a problem during the array reconstruction phase, which follows a disk failure.

When choosing a RAID controller, one should consider the ease of installation and maintenance, the capabilities of the management software and the manufacturer's experience in developing RAID components. An FC RAID controller should support the most important RAID Levels (0, 1, 4, 5 and 10), and should be capable of handling multiple arrays with different RAID levels simultaneously. Further, the controller should be able to handle online capacity expansion and online RAID level migration. An FC controller offers maximum flexibility if it includes an onboard SCSI interface to allow continued use of existing SCSI devices, such as CD-ROM, DAT DLT or SCSI hard drives.

FC-AL RAID controllers are available either as single port controllers, with one FC channel, or dual port controllers, with two independent channels.

Single channel systems cost less, but they have the disadvantage that if the cable itself, or some other connecting component fails, the controller can no longer communicate with the FC devices. A dual port controller allows a system to be constructed with each device attached to both cables, so that if one cable fails, the other takes over all IO operations.

2.2 FC Hard Drives FC hard drives are built with a 40 pin DCA connector (Single Connector Attachment), which provides all necessary signal connections and electricity to the hard drives. This SCA connector enables hard drives to be easily built into an external enclosure with an SCA backplane. The drawback of the SCA

connector, however, is that the hard drive can no longer be connected directly to the controller with a simple cable, but needs a specific FC-SCA to DB9 adapter. This adapter converts the SCA connection on the hard drive into one or, in the case of a dual port hard drive, into two DB9 female connectors, so the appropriate DB9 male connector can be attached. The adapter also has a connector for the electrical current to the hard disk. When using such adapters, a loop back connector must be used to complete the communication loop.

If the hard drives are used in a dual loop configuration, they must have two NL-Ports.

When choosing FC hard drives, those with the shortest seek times and the highest RPMs usually provide best performance. The seek time refers to the amount of time the drive read/write heads need to access specific data sectors on the disk. The shorter the seek time, the less time spent waiting during random reads/writes. Higher RPMs translate into better sequential data transfer rates and better read/ write times.

2.3 FC Hard Drive Enclosures An FC hard drive enclosure functions not only to physically house the drives, but must also control electrical current and temperature. In choosing an enclosure, important features to consider are redundant and hot-swappable power supplies and fans. These components have a relatively high failure rate and, if they are not redundant, their failure can lead to hard drive failures.

Enclosures for RAID systems must also support the interactive change-out of a hard disk during system operation (Hot-Plug). To achieve this, the enclosure must have Port Bypass Circuits (PBC), which are located on the back plane and redirect data paths while the failed hard drive is exchanged. This prevents disruption of the Arbitrated Loop.

While using a system with PBCs, one must take care that the allowable cable lengths between devices specified for FC-AL are not exceeded. In addition, be sure the enclosure can support a dual loop configuration.

To provide the highest level of fault tolerance, some FC enclosures have two completely independent, redundant loops. If the hard drives and controller also provide two FC ports, the system can be completely redundant, with redundant cabling. If one loop fails completely, the second can still carry all communications between the controller and the hard drives.

Another consideration is whether or not the enclosure supports Media Interface Adapters (MIA). These adapters transform the electrical signals from hard drives into optical signals. For these adapters to function, however, the DB9 connectors must provide the necessary electrical support. MIAs allow a controller with copper cabling to be used with a Fibre optic system.

A modern enclosure should also provide a management interface through which a RAID controller can communicate information regarding the status of the system. For example, the enclosure would communicate information about fan or power supply failure to the controller, which would then notify the system administrator. Similarly, the controller communicates with the enclosure, indicating which hard disk has failed, so that the system administrator can see on the enclosure display (Fault LEDs or LCDs) which disk needs to be swapped.

2.4 FC Connectors and Cables A net data transfer rate of 100 Mb/sec corresponds to a signal frequency on the FC cable of 1 GHz. This extremely high frequency necessitates the highest quality connectors and cables. This means only those from reputable manufacturers should be used.

Because the distances between individual FC devices (RAID controllers and hard drives) in mass storage systems are not great, the less expensive copper cabling is most often used. Three different kinds of copper cabling with DB9 connectors (similar to serial PC interface) are defined for FC: Video Coaxial, Miniature Coaxial and Shielded Twisted Pair. This cabling enables the 100 Mb/sec transfer rate for distances up to 15 meters.

If the FC devices or device groups (such as a complete FC enclosure) have to be farther than 25 meters apart, the signal transmission can be carried via optical Fibre. The 50 um multimode optical Fibres with short-wave lasers can handle cable lengths up to 500 meters, and the 62.5 um multimode optical Fibres up to 173 meters. SC duplex connectors should be used in these situations. 9 um single mode optical Fibre with long-wave lasers can travel up to 10 km. (The distances discussed here refer to the distance between devices, not the length of the entire cable, as is the case with SCSI.)

Because the laser power necessary for the extremely long distances poses a threat to the human eye, a protective system called Open Fibre Control (OFC) has been defined. The receiver normally sends continual acknowledgments of receipt of the laser signals. If the transmitter does not receive this acknowledgment, the laser signals are immediately stopped. With two Fibre Channel Arbitrated Loops with multimode optical Fibre

cables, up to 500 meters and 100Mb/sec., one loop can fail and the system continues to operate. There is also a non-OFC system, used when the power of the laser is not dangerous to the eye, so no receipt acknowledgments are sent. OFC and non-OFC systems are not compatible.

2.5 Media Interface Adapter (MIA) MIA adapters transform the electrical signals used by copper cables into optical signals transmitted by optical Fibres. One end of the adapter has an FC DB 9 male connector and the other end has an SC duplex female connector for the optical Fibre.

The adapter uses a laser diode to transform electrical signals into light signals and an optical sensor to perform the reverse function. The necessary electricity for the adapter must be delivered by the DB 9 connector. Compatibility with MIAs is an important point to consider when choosing FC devices.

These adapters provide a very cost-effective method to connect FC devices, which are located far from one another.

From the March issue of *Orange Bytes* journal of the North Orange County (CA) Computer Club. O. T. Stoll can be reached at <otstoll@otstoll.com>.

**Digital Products for the
New Millennium
by George Margolin
NOCCC**

In the still digitals Epson, Kodak and the Nikon Cool 90, seemed to be the top of the heap. I fell in love with the new Epson 850Z, which was the follow-on product to the 750Z that I have written about.

While the earlier one took great pictures (check out the web site) the new one has many more features and is much more “refined” in its handling characteristics. Added to the visible and available controls for everything from resolution, exposure, flash ON and OFF the camera and brightness controls for the LCD display, it worked very well.

It still needs some work on the optical viewfinder since it lacks (as do all the rest of the digital cameras I’ve had a chance to work with) correction for parallax. That means that when you are photographing a person or object close to you, the finder and the cameras have a somewhat different viewpoint. You have to be careful to avoid cutting body parts off. Unless, of course, you are a licensed surgeon.

One can always use the available LCD for such close-up and must use it for Macros (real, real, real close-ups that these cameras offer. But in bright sunlight that may not be possible because the sun will overpower the LCD display.

This parallax problem is the main reason behind the development and continued popularity of single lens reflexes. And I did have a chance to play with a new Digital SLR from Minolta. But true to its type – it is much bigger than the regular zoom digitals.

It is a very good alternative for a professional who needs the ability to use the many lenses he or she might already own.

Digital Video was hot. A friend of mine who writes for *Digital Photo* and *Camcorder* magazines drove me nuts with the goodies he kept pulling out of his briefcase. The first one was a tiny, little, small, cute, clever video camcorder from Sony. Not only was it all of the above – but – it recorded on a Mini-Disk which gave it instant and random retrieval. It could also do very good quality (for a camcorder) for still pictures of 640x480 resolution.

Its only handicap was that it would only film (ok – tape – okay – record) for 10 or 20 minutes due to the small size of the mini-disk. But since these disks are instantly replaceable, it would be a great note taker for a reporter like my friend. This hurts me because when I was a beginning photo and print journalist, I had to carry a 4x5 Speed Graphic – humongous by today’s standards. Okay, we did have 35mm Leicas, but they were considered toys by the publications. That was except, of course, for *The National Geographic*, which was and is a showcase for miniature cameras.

And Hitachi showed me a prototype DVD camcorder that would record one full hour of video on a DVD-size optical disk. And this disk would also play on a regular DVD player! Once they get the size of the unit down, it should be a winner.

DVD RAM recorders are beginning to happen. Philips showed us prototypes of a new standard for DVD RAM recorders. The nicest thing about this new standard is that it is really the old standard of 4.7 Gig on one side of a recordable disk. This means that they will be playable on any DVD player, unlike the double-sided 2.6x2.6 gig disks from most of the other companies. Philips expects to market these before the end of 2000. (The year, guys, not the Millennium!)

Castlewood's ORB finally got rolling, but not without a major change in their marketing plans. For starters, they have dropped the parallel port models. No longer in production but available for those that really, really want to have the problems this system produces.

The new units are SCSI, both internal and external, and they should be introducing a USB model early next year.

They also showed a prototype of a 5.7 gig unit, designed for OEMs of Video recorders like TIVO and others who are using hard disks to instantly record and playback all or parts of TV broadcasts. If this market turns out to be as big as Castlewood's VP of marketing told me he thought it would be, computer units of that size at a very reasonable price should be the fallout for us Nerds and Nerdettes.

USB Goodies By The Bucket Full – Our friend Keith Renty, who had shown us his bag of USB goodies a few months ago, was a presenter and showed us lots more of what is happening in the USB world. Though I am told that the name USB means "Universal Serial Bus," I believe it really means "Ubiquitous Signal Blaster" since it is now built into everything including my Epson Camera.

The current version (1) is soon going bye bye – since it only can work at about 1.5 Mbs per second. The new improved Version (2) will zap along at well over 20 or even 100 Mbs and will be even more ubiquitous and universal than it now is.

And another USB manufacturer pre-sented this reporter with a pair of really small but great USB devices for my laptop. The company, Shark Electronics, is producing a whole passel of clever USB devices. One is a three-outlet USB mini-bus. It is translucent and colorful and no bigger than a Zippo lighter (if any of you non-smokers can remember that far back). Also colorful and the same size, but a different color, is a V90 USB modem. Both are reasonable in cost and very useful for the load bearing road warrior.

IBM showed us their new Micro Drive. About the size of a quarter. It will fit into a Flash Memory II slot. And holds 340 Mb of stuff. Any kind of digital stuff, from pictures to files. It is a little beauty. Pricy at \$499, but it's just the beginning of this kind of miniaturized technology. And it bodes well for the future of magnetic storage. This same technology has let

IBM introduce 76Gb 3.5 inch drives. Within the next few years, a drive this small will hold many gigs of information.

And from Sharp – one of the most interesting products of the COMDEX show. When I walked up to their booth, I asked if they had any new digital cameras. The booth person said, "We have none," but told me they were showing a Web camera that was "pretty small." Well, guys – web cameras are as common as fleas on a dingo. But, I decided to look at what this "Web Camera" was.

Surprise, surprise – although it seems that they don't know what they have – when I tell you, you will know what they have. They have got one of the cleverest devices at this *big* Comdex.

1. It's small enough to fit into your shirt pocket.
2. It weighs just a few ounces
3. It is a video camera – with pretty poor resolution (120x90 pixels) *but*
4. It takes a full hour of video with sound that is good enough for putting on the web.
5. It does all this on 32 Mb Smart card
6. It doesn't have Zoom yet
7. It is absolutely simple to use and has its own built-in screen to play and hear your video.
8. It lists for about \$650 – not bad for a one hour color video dictating machine.
9. *I want one* – and you will too, when you have a chance to play with it.

The really important thing about this little beauty is that everything about it will be getting better each year. The Smart card will grow in capability. Zoom lenses are now small enough but will be getting even smaller and better over the next few years. And as this improves it will become "The Ultimate Shirt Pocket Camcorder." This is truly going to be a "Don't leave home without it" kind of product. No doubt about it.

From the February issue of *Orange Bytes*, the news magazine of the North Orange County (CA) computer club. George Margolin can be reached at <inventor@pobox.com>.

Merely a Member?

The following can help to illustrate what an important function each member plays in an organization. Though this typewriter is an old model, it works quite well except for one of the keys. It is true that there are 41 keys that function well enough, but just one key not working makes the difference. Sometimes it seems that our organization is somewhat like this typewriter – not all the keys are working properly.

You may say to yourself, "Well, I am only one person. I won't make or break a program." But it does make a difference because any program, to be effective, needs the active participation of every member.

So the next time you think you are only one person and that your efforts are not needed, remember this typewriter and say to yourself, "I am a key person in our organization and I am needed very much!"

From <<http://www.globalonline.net/tech/humor.htm>>.



The Dealsguy
by Bob Click
Greater Orlando Computer
User Group

If you've switched to the high speed of DSL or cable Internet service and love it, you may not know that your hard drive is wide open to prying eyes (with computers). No protection is built-in for keeping others from entering your computer for various reasons. A friend told me just how easy it is for anybody to take a look at every hard drive on your line. What you need is a firewall to prevent that and here is where you can get it free.

Steve Gibson, developer of the famous "Spinrite" software has a Web site offering such, and will even shock you when he tries to enter your computer. Try <<http://www.grc.com>> and his other sub site at <<http://www.grc.com/x/ne.dll?bh0bkyd2>> devoted to testing systems for possible security holes. It provides information as to why these exist and offers suggestions for better security implementation.

I read in a Central Pennsylvania PC Association message to members of that author's computer being probed five times within two hours according to a utility that logs such things, not to mention the other times listed in his log. He also offered the following sites for more information on probes; <<http://www.robertgraham.com/pubs/firewall-seen.html>> or <<http://www.robertgraham.com/pubs/index.html>>.

Something Free From Adobe.

Sharing photos is as easy as drag and drop with this free download from <<http://ActiveShare.com>> from Adobe. Their ActiveShare desktop software integrates with that companion Web site to present a complex solution that makes it easy for everyone from kids to grandparents to join in photo fun by offering a central posting site.

Free Photo-sharing Web Sites.

A review of these sites can be found at: <<http://www.shortcourses.com/specialtopics/sharing/sharing.htm>>

Visit <<http://www.shortcourses.com/>> for a free short course that includes explanations of photo file formats, digital cameras and photo printers.

High Speed Data Connection Information

Are you wondering if it would be possible to get a DSL or cable connection in your area, and how about the cost of these services? Thanks to the Macon User Group newsletter I have the answer for you. Go to <<http://www.getspeed.com>>, enter your address, and GetSpeed will show you what is available, and the pricing. *Do Yourself a Favor and Check*

That Battery

I read this very important tip from Phyllis Evans in the Southeastern Michigan Computer Organization Data Bus. You can download PRAM Battery Checker (free-ware) at <<http://www.polar-orbit.com>>. Installation will place it in your startup folder where it will check your battery each time you start up. If it detects a problem, you'll see a message about replacing the battery. Don't keep track of your battery and you may pay the consequences.

This column is written to make user group members aware of special offers I have found or arranged, and my comments should not be interpreted to encourage, or discourage, the purchase of products, no matter how enthused I sound. Bob (The Cheapskate) Click <dealsguy@mindspring.com>. Visit my Web site at <<http://www.dealsguy.com>> for past columns.



President's Message by Joe Pia

The records show that in April we get very little snow here in Rochester. If we get any at all, it usually melts quickly. In our first spring here, 1987, it snowed like the dickens on May first. But it was pretty well gone by noon. Some dinner guests had been going to march for some cause or other in the morning, but the event was cancelled because of the foot of new, and very wet, snow. It's showers now that capture our attention in April. And thunderstorms. We all know what thunderstorms mean for computers. Off they go when the storms start their banging and booming.

As the springtime warmth begins in earnest, certain of us are looking forward to the end of the Society's year and an end to our terms of office. But there are some things to do and to report on before the June meeting is upon us. Let's look at some of those items.

1. Not-for-Profit Status

As I noted at the March general meeting, we have received the letter from the IRS designating us as a 501(c)(3) corporation. That means that we are now officially non-profit in every state, even though we're under twenty-one.

It is hard to limit the possibilities that are now ours as a result of the new not-for-profit status. We can work with anyone now. Schools and other charitable organizations, for instance. No one need fear that our being involved with them will jeopardize their own non-profit status. The implications of our new status will get clarified over the next year, no doubt. And the range of possible new work with others will begin to come into view.

We owe John Heveron, our accountant, and John Bulger, our attorney, for getting us to this state. To say that we are grateful to them is to understate the case considerably. Of course, we want also to thank all of the people in the Society for sitting through all the tedium associated with getting ourselves incorporated and exempt from tax. That probably means you – if you were present while we waded through all the changes in our bylaws. Give yourself a round of applause.

2. The Catch

The IRS tells us that our 501(c)(3) status is dependent on our changing our Certificate of Incorporation. The change is the addition of a single sentence as the first item in our purposes. It should read something like this: The Rochester Computer Society, Inc. will operate within the guidelines of section 501(c)(3) of the Internal Revenue Code.

We needed to vote to make this change, using the exact language specified by the IRS, in our Certificate of Incorporation. The motion was made and passed without objection at our last meeting. Now all that remains is doing it.

It can be done at minimal cost, and there is no deadline date by which it must be done. In order to show our good faith we must start the process more or less immediately. Thanks to everyone for casting an affirmative vote.

3. Free Software. We need a software committee.

You may remember that we had arranged with Justin Ziemniack, who publishes *ComputerLink Magazine*, to take off his hands software that has accumulated over the past months. We had planned to “raffle off” the software. That is, if you won a package, you would be required to prepare a review. If Justin liked it, he would grab it for *ComputerLink*. The others would appear in the *Monitor*.

Things have changed. Justin has decided to work with a relatively small stable of writers. Part of the enticement was having access to the software he has accumulated. Consequently, there will be little or no software for us from his organization.

We have delayed appointing our own software committee because we thought we would be working closely with Justin. Now it's clear that we need to return to our original idea and appoint someone who will head up a group of people who will obtain the software from the manufacturers. We need a volunteer. Please contact me or Joe Varga.

4. Elections are coming up.

This is a bad time of the year for our nominating committee. Larilyn, the chair person, is in the midst of tax season, and everyone else is busy. So, the committee hasn't met yet. As a consequence, the Board has functioned like a nominating committee. We have most of the nominees now but not all of them. The list will be made available in the May issue of the *Monitor*. At that meeting we will elect. Please plan to be there and to cast your ballot.

Some Final Thoughts

This has been quite a two and half year period in my life. We have moved from being a voluntary organization with no official status to a real not-for-profit corporation. It is now time to start the process of bringing in new members. In large quantities. We can do that now, with it being clear to everyone that the Society is here to stay. It is also time to recognize that the Society needs a lot more from us than our dues and our filling up a chair at the meetings. We can all look forward to some new challenges and some new exciting prospects to come down the pike. Let's be ready for them. And let's raise our hands when the request is made for help here or there.

See you at the April meeting.

Program Meeting

March 14, 2000

by Frank Howden, Secretary pro tem

President Joseph Pia called the meeting to order at 7:10p.m.

The first item was Joe's report that we have our 501(c)(3) status from the Internal Revenue Service. The IRS is requiring us to add to our bylaws a statement to the effect that the Society will operate within the limits of Section 501(c)(3) of the Internal Revenue Code.

At Joe's request Louis DiJane moved that the bylaws be amended to add the requested language. Frank Howden, Vice President, seconded. The motion was carried unanimously.

Joe reported that the nominating committee had so far been unable to meet. Fortunately, he reported, Joseph Varga had agreed to run for President. Then he reminded the group of the offices that would become vacant for which there were as yet no nominees.

Finally, Joe Pia turned to Joe Varga and asked him to make a statement.

Joe Varga stated that he was willing to run and serve because he didn't want the Society that he had put so much effort into to fold. He reminded all of his extended commitments both on his job and for the Society. He stated that he simply could not continue to do all of the things he was currently doing for the Society and be President as well. He called for one and all to pitch in and help him should he be elected.

The meeting adjourned at 7:25 p.m.

Planning Meeting
March 21, 2000

by Sally Springett, Secretary pro tem

Joe Pia called the meeting to order at 7:10 p.m. The first item on the agenda was the bill received from John Heveron for his efforts on our behalf in getting the Section 501(c)3 designation. Frank Howden moved and Steve Staub seconded the motion to pay this bill.

The negotiations for the use of a Toshiba printer (to be shared with John Heveron) for printing the *Monitor* are complete and we should be seeing the result in the next issue.

We are negotiating a visit from a Microsoft user group representative in October. It may require us to change our meeting date to a different Tuesday. The change must be discussed with the membership.

Treasurer's Report
by Steve Staub

Income

Membership dues \$600.00

Expenses

Special projector rental \$25.00

St. Stephens copier rental 100.00

Paper supplies 38.53

Pizza 16.47

Total Expenses \$180.00

Balance as of 03/26/2000 \$2,833.26

The Lighter Side

If Restaurants Functioned
Like Microsoft. . .

Patron: Waiter!

Waiter: Hi, my name is Bill, and I'll be your Support Waiter. What seems to be the problem?

Patron: There's a fly in my soup!

Waiter: Try again, maybe the fly won't be there this time.

Patron: No, it's still there.

Waiter: Maybe it's the way you're using the soup; try eating it with a fork instead.

Patron: Even when I use the fork, the fly is still there.

Waiter: Maybe the soup is incompatible with the bowl; what kind of bowl are you using?

Patron: A *soup* bowl!

Waiter: Hmm, that should work. Maybe it's a configuration problem; how was the bowl set up?

Patron: You brought it to me on a saucer; what has that to do with the fly in my soup?

Waiter: Can you remember everything you did before you noticed the fly in your soup?

Patron: I sat down and ordered the Soup of the Day!

Waiter: Have you considered upgrading to the latest Soup of the Day?

Patron: You have more than one Soup of the Day?

Waiter: Yes, the Soup of the Day is changed every hour.

Patron: Well, what is the Soup of the Day now?

Waiter: The current Soup of the Day is tomato.

Patron: Fine. Bring me the tomato soup, and the check. I'm running late now.

Waiter leaves and returns with another bowl of soup and the check.

Waiter: Here you are, Sir. The soup and your check.

Patron: This is potato soup.

Waiter: Yes, the tomato soup wasn't ready yet.
Patron: Well, I'm so hungry now, I'll eat anything.
Waiter leaves.
Patron: Waiter! There's a gnat in my soup!

The check:

Soup of the Day \$5.00

Upgrade to newer Soup of the Day \$2.50

Access to support \$1.00