WindoWatch

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Blue Ribbon Campaign

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WHAT'S INSIDE

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WindoWatch **The Electronic Windows Magazine of the Internet**
Volume 2 No. 2 **February 1996**

Ramifications of the Telecommunications Legislation are one of the major themes in this issue of WindoWatch. The Electronic Freedom Foundation with the American Civil Liberties Union (and other groups) filed and won a temporary restraining order which postpones adverse action against ISPs, BBSs and WEB page owners. We offer the Electronic Freedom Foundation's analysis of the bill itself, a gem of a statement by John Perry Barlow, and my meager efforts at political analysis: - what happened and why.

In spite of all this, we haven't forgotten the needs of our readers and are publishing another splendid VRML-JAVA article from Herb Chong. This cutting edge technology is in the process of changing the definition of online graphics. As an aside, Herb has been contributing his computer art to the WindoWatch Art Gallery available from the WindoWatch homepage. His creations become ever more as we watch his expertise with VRML tools increase.

Ken Prevo is a proponent of OS/2. He is a very accomplished operating systems professional, as well. His is a well balanced comparison between OS/2 and Windows95. Some of us are thinking aloud that '95 is a transitional product or an on-your-way-to WindowsNT v.4 operating system! Microsoft suggested some years back that Window95 was being developed for individual and small business users while WindowsNT was going after the enterprise market. Read Prevo and get some insight into this ongoing debate.

Our readers tell us that the Gregg Hommel's ASPECT tutorial series is one of their favorite features. I'm hoping that Gregg will publish this as a work book and allow *WW* to publish it. In any case his next lesson is ready for your enjoyment.

Peter Neuendorffer's Hunting Bugs was published on the home-page some months back but this is the first time it is included in the magazine for those of you who missed it. Phil Leonard has meticulously dissected Symantec's Norton Navigator using his pithy and thorough approach. Frank McGowan continues his "Suites Series" while John M. Campbell talks about our perennial preoccupation with questing for the *best.*

Another Alice, Bob Miller's Idiots, a Derek Buchler spoof from his magnificent collection of humor, Stan Kanner's latest ex-periences in Israel, our regulars, the ModemJunkie (Leonard Grossman) and Ben Schorr with his Last Word. Come visit us at the home page http://www.windowatch.com. Our Webmaster, Paul Kinnaly has made it an interesting and useful place to be.

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Comments, letters, and requests can be sent to us at various locations. Postlink to Lois Laulicht ->15 tagging the message "receiver only" and on the Internet
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Is the Internet Under Siege?

WindoWatch **joined in the Internet-wide blackout protesting the *indecency* portions of the newly enacted telecommunications bill. We are offended and outraged because the objectionable sections are blatantly unconstitutional !**

This newly acquired morality from the Congress relating to the care and feeding of America's young is a joke, in the face of impending threats to America's youngest, poorest and most vulnerable. I must wonder aloud at who got what from whom, and why? It's a strange day when so many with basic ideological differences can agree upon targeting the Internet, hell-bent on a morality mission.

As this article was being written, federal Judge Ronald W. Buckwalter of Philadelphia had issued a temporary restraining order, ruling that the term *indecent* was unconstitutionally vague and not defined under the new Communications Decency Act. His ruling effectively blocks enforcement of the legislation until a three man judicial panel reviews the entire package. However, it is widely expected that final judgment will have to be determined by the Supreme Court.

Even though obscenity issues have repeatedly been considered and rejected by the high Court, the broader and less precise umbrella called *indecency* represents a full blown and deliberately vague constitutional attack. Setting aside questions of suitability for children and/or social acceptability, one is forced to take the next intellectual steps and ask a number of fundamental questions. Why would the Congress and the President knowingly present to the

country legislation that is going to be appealed and in all likelihood be reversed? Why is the newest and most exciting electronic and media innovation a target for legal intervention? Can we really accept Washington assertions that the motivation for this legislation is to protect the young ? These are fair questions that Americans should demand answers to. If they ever listen, perhaps now, in an election year!

The controversial parts of the law ostensibly deal with questions of indecency. Regulars on the Internet view the consequence of enactment of this law as far broader than limiting the freedom of adults to view sexually explicit, gender preference, and abortion rights information online. It is to many of us a frontal attack upon freedom of speech. Further, it appears to be simple folly for the federal establishment to attempt to make illegal that which is commonly accessible . Many of the same, and in some respects, even more repugnant materials are readily accessible at newsstands, through the post office as private mail, in films and television, and easily obtainable using 900 telephone numbers.

In legal terms, we have traveled beyond the point of stifling explicit adult materials with sexual themes. The social merit of such information is quite beside the point. The fact remains that the Internet and other electronic networks must be governed by the same statutes as is the rest of the society. For the Congress and the Administration to single out cybernauts and their virtual neighborhoods for a potential vice raid reinforces concerns about the nature of the compromise. Why here and why now? But even more importantly, who are the winners and who are losers? And finally, what is the purpose for taking aim at this maturing goose with its widely anticipated golden eggs?

The Internet is in some respects is a sitting duck because of its vulnerability as a fixed and unprotected target. Its small and

fractionated constituency is, in political terms, much like the rest of America. However, there are important differences. The primary one is that there is no authority which protects it from the onslaught of anyone determined to exploit its participants for money, power, or votes. It is a cheap and efficient way to disseminate information. And that's exactly what makes it a valuable prize.

The issue at hand however, is the ability of a small and noisy bunch of people with a burning political and social agenda. They effectively lobby, financially underwrite and ultimately mobilize support for candidates and issues to their liking. In numeric terms a political minority but in fact a very effective group of people attempting to foist their values upon the rest of the society. In the middle of the social debate are the well heeled telecommunications companies who changed their role as simply carriers of data and voice when they decided to enter the cable business. They now have the right under the new legislation for becoming mega-corporations or cartels. The NY Times in an editorial on Feb 14 said, "A few days after the bill was signed , AT&T and MCI Communications - until now, bitter rivals in long distance service - confirmed that they planned to jointly build networks to provide local service." Judge Harold Green's work has been made irrelevant!

It is now very evident that the telcos want deregulation of their industry and complete control of their turf. That turf is about to become the Internet with its unlimited potential as a money maker.

It seems to me that the telecommunications lobby temporarily gave up two small items, in order to gain full deregulation of the industry. One was the three year open rate provision where competition would find the market price. The other was a throw away to those who want the broad federal decency laws upheld as written. The cost to the telcos was nothing, - except words!

Think of the Telco dilemma in these terms. Hundreds of millions of dollars of revenue are being sacrificed daily in ever increasing amounts as new folks go online. When calling my local access provider at $25 per month for unlimited time, I can use a direct or PPP connection to access CIS, AOL, the *WindoWatch* homepage, and any other computer where telnet and ftp are spoken. We're talking about very serious money and even more profound shortfalls of revenue as the Internet increases in numbers. No one can really believe that this hemorrhage of dollars would be allowed to go unabated. Indeed, the Telcos protected their revenues with cheap lobbying costs and political contributions for all.

Both sides had been alerted by opponents of the bill of their intention to appeal immediately after the signing primarily because of the too broad indecency clauses. Was the decency rhetoric of the bill simply public pandering by lawmakers to the social conservatives in order to get the votes to pass the bill? If so, a whole bunch of folks got suckered in what I believe is an almost beside the point political two step. It seems to me that the primary purpose of the legislation was protection of the vast resources of the telcos while throwing a rhetorical bone to the right.

There is little question that it was the telcos who picked up the important marbles in this high stakes game. Or is it surprising that the Internet has been sacrificed to the various Gods in the best tradition of making a deal! In spite of the recent news stories to the contrary, does anyone really expect cable, television and the movie industries to roll over and play dead because a group of citizens object to sleeze. They haven't yet and their track record is one of promises with insignificant change. If and when the high court overturns the indecency sections of the bill much of the important telecommunications changes will have already occurred and will be cast in concrete.

Such blatantly sanctimonious hypocrisy from all parts of the government is in the best tradition of getting power and keeping power!

Whatever the deal, and be assured there was one in spite of the broad range of conflicting political agendas, it was enabled at the expense of the most important tenet of the American constitution. There is no doubt that freedom of speech would be severely compromised should this bill with its odious precedent, stand as written.

Perhaps a better way of thinking about this latest Washington posturing is to view the indecency clauses and the expected reaction as a diversion from the main event. It seems to me, that justification for this cheap and dangerous deal is to trade off reasonable and legal protection of kids viewing explicit sex in exchange for muzzling free speech .... while insuring the telco bottom line!

This debate is not about good and evil but about who stands to profit and who stands to pay. It would not be the first time that ordinary citizens paid huge economic costs in the name of a lofty value and found themselves schnookered in the process. I think this is one of those times!

Lois Laulicht is the Publisher Editor of WindoWatch.

EFF Fights Back!

EFF Statement on 1996 Telecommunications Regulation Bill
http://www.eff.org/pub/Alerts/cda_020296_eff.statement

YOUR CONSTITUTIONAL RIGHTS HAVE BEEN SACRIFICED FOR POLITICAL EXPEDIENCY

EFF Statement on 1996 Telecommunications Regulation Bill

Feb. 1, 1996 **Electronic Frontier Foundation Contacts:**

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The Electronic Freedom Foundation (EFF) has provided an in depth analysis of the 1996 Telecommunications Regulation Bill. The following paper covers all the important parts of the legislation. For those who disagree with the focus of this issue we invite your criticism and comments. However, we remind our readers that this attempt to control the Internet is not going to go away in spite of the federal restraining order handed down after this piece was written. This legislation is but the first attempt... lbl

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The Electronic Frontier Foundation (EFF), decries the forfeiture of free speech prescribed by the sweeping censorship provisions of the telecommunications "reform" legislation passed overwhelmingly by the House and Senate Feb. 1, 1996, almost immediately after being reported out of committee, before the public was able to read, much less comment upon this bill.

Congress demonstrates once more their willingness to abandon their most sacred responsibilities - the protection of the US Constitution and Bill of Rights - in order to expedite legislation that sacrifices individual, family and community rights in its rush to win the support of telecom industry giants as well as the religious right, during an election year.

The consolation offered by our elected officials to those concerned about abridging free speech, is that there is a high probability that the censorship provisions in this bill would not stand up to court challenges based on constitutional grounds.

Consider this a wake-up call. Our elected officials have spoken, and with the passage of the most sweeping US telecommunications legislation in over 60 years, our Constitutional rights in the new medium of computer networking have been usurped. As the 21st century draws near, our elected representatives have chosen to take us back to the close of the 19th.

EFF is dismayed by the process and substance of this legislation, as well as by the immediate and far-reaching negative impact it will have on individuals, society and commerce.

Impact

This latest version of the "Communication Decency Act", originally proposed by Sen. James Exon (D-NB), contains a deadly combination of a vague and overly broad definition of what speech is unacceptable online, criminal prosecution, and large monetary fines, which will set off a tidal wave of censorship to avoid real and perceived liability.

Although the bill provides for some protection for service providers, this shelter only exists if the provider takes an active role in censoring public and private messages. We have already felt the industry foreshocks when AOL and CompuServe responded to recent government censorship requests. The censorship wave will begin with the largest online services, and flow rapidly through the whole U.S. community of service and content providers.

The result will be a crippling of free society and commerce in the U.S., and damage to the global Internet.

Individual participants in this medium stand to lose the freedom that has characterized the Internet since its beginning.

Providers of online content, such as authors of World Wide Web documents, or hosts of AOL forums, will find themselves forced to "dumb down" all information and entertainment that they provide into little more than a cleansed, thin collection of "G-rated" material suitable for children. If the Internet is one vast, global library of information, this legislation will have reduced the public spaces of the Net to the "children's room" of that library.

System operators and access providers will divert resources to censorship mechanisms and programs to avoid exposure to felony-level criminal liability for the actions and posts of users over whom they can exercise no control.

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New multi-billion dollar industries currently based in the U.S., such as Internet service, online publishing, and digital commerce, face economic uncertainty just as they begin to hit their stride, as investors, stockholders, and customers evaluate the negative impact of censorship on the value of their product and their company.

The telecom bill unwisely encourages states to follow suit, defining and legislating online censorship and liability their own ways. These aftershocks, already working their way through state legislatures all over the country, will subject individuals and companies to legal mayhem as they run into contradictory local regulations enforced from afar against providers and users in other jurisdictions.

The long-term effects could reach other media as well. As traditional content providers such as publishers, newspapers, television shows and talk radio, increasingly merge with online communications, it will become prohibitively expensive to produce two versions of the content, one for the Net, and one for everywhere else - a single, censored, version for all formats would be produced, chilling express-ion in print and other currently freer media.

Process

A quick review of the political process which produced this bill demonstrates how bad legislation occurs when the content of a bill is kept from public scrutiny, allowing only staffers and lobbyists to participate.

***There have been no public hearings on this legislation. Neither the CDA, nor the larger Telecom Bill have been presented openly to the public. As a result, Congress has neither heard expert testimony**

about the medium and industry, nor allowed constituents to review and comment on what their "representatives" are doing.

***No conference committee report or final bill text was made available for review, except to committee staffers and innermost lobbyists until after passage. Despite repeated promises from House Speaker Newt Gingrich, Congress has failed to provide online public access to committee reports and "live" bills.**

***Congresspersons voted for passage of this regulation without even having time to read, much less consider the impact of, the bill - less than one day after it is voted out of conference.**

***The sponsors of the bill and its fundamentalist supporters have, with no public participation or oversight, thrown away more rational proposals, including the Cox/Wyden bill, which would have actually helped parents and teachers control the online access of their children and students.**

***The fundamentalist lobby and the CDA sponsors have "spun" this legislation as "protecting children from pornography", when in fact it does not address pornography at all, and actually removes the incentives to develop improved filtering and labeling services. EFF continues to support empowering parents and the education community with tools and services that ensure children only have access to appropriate material online.**

Support for free speech does not equate to support for pornography (obscenity), harassment, or the sexual abuse of children, which are already illegal, online or offline. Even the Justice Department itself has stated - and demonstrated - that it already has all the authority it needs to enforce these laws.

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EFF, along with Taxpayer Assets Project and several other public interest organizations, have repeatedly asked that current Congressional information be immediately provided to the public, not just to lobbyists, and that that the Telecom Bill be put on hold, pending full public participation in this debate. Voters may wish to express to Congress how they feel about being denied the right to read or have a say in legislation that threatens their freedom of expression.

Substance

A brief summary of the problems inherent in the Telecom Bill's censorship provisions illuminates the magnitude of the issues. The CDA would:

*** subject all online content to the interpretation of ill-defined "indecency" law;**

*** irrationally equate Internet communications with radio and TV broadcasting, and unconstitutionally impose on computer networks indecency restrictions that are more severe than those applied to any other medium;**

*** actively hinder the on-going development and refinement of real solutions to problems such as online harassment and parents' needs to supervise their own children's online access;**

*** in all probability will establish broad FCC regulation of the Internet, with all of the attendant problems that will entail;**

*** create a new "access crime", equating the posting of material on a web site, or even the provision of basic Internet access, with willful transmission of indecent material directly to minors - harming the**

online service industry, and retarding the development of the electronic press;

*** afford no effective legal protection for system operators, creating a speech-chilling liability no more sensible than holding librarians and postmasters responsible for the content on bookshelves and in parcels.**

*** weaken the privacy of all Internet users by turning system operators into snoops and censors.**

*** would criminalize even classic works of literature and art, or medical and educational materials on breast cancer or sexually transmitted disease. Obscenity law, not the indecency law used in the Telecom Bill, considers literary, artistic or scientific value. Indecency law makes no such exceptions.**

Many reasonable adults might be surprised to find that the Telecom Bill's indecency restrictions could ban:

*** the online distribution of the King James Bible, which quite prominently features the word "piss" (in II Kings) - a word already specifically defined by the Supreme Court to be indecent;**

*** the text (or video, for that matter) of a PG movie that any child may attend without parental supervision, not to mention the R-rated content available on any of a number of cable TV stations;**

*** a _Schindler's_List_ WWW site, which could earn an Internet service provider prison time;**

*** anything featuring nudity, in any context, including breast cancer**

information or photos of Michelangelo's Sistine Chapel paintings, which could result in the poster having to pay hundreds of thousands of dollars in fines, if the material happened to seem "patently offensive" to an excitable prosecutor.

This is the grim reality of censorship through indecency regulation: It makes no allowances for artistic merit, social value, or medical necessity.

It is without reason, and without conscience.

Court Challenge

Fortunately, there is a very good chance that the courts will refuse outright to uphold the Communications Decency provisions of the Telecom Bill. EFF, along with other civil-liberties groups, will be mounting a legal challenge to the bill's censorship provisions, on First Amendment and other Constitutional grounds. Among the bases for challenging the act:

*** Unconstitutional expansion of federal authority. It is inappropriate for the Federal Communications Commission or any other federal agency to dictate standards for content in a medium where there is no independent Constitutional justification for federal regulation, as there has been in the broadcast arena and in certain narrow areas of basic telephone service. Like newspapers and bookstores, the Internet is fully protected by the First Amendment.**

*** Vagueness and overbreadth. The terms the act relies on *indecency* and *patently offensive* -- have never been positively defined by the courts or the Congress, and so create uncertainty as to the scope of**

the restriction, necessarily resulting in a "chilling effect" on protected speech. Moreover, these terms criminalize broad classes of speech that are understood to be protected by the First Amendment, including material that has serious literary, artistic, political or scientific value.

*** Failure to use the "least restrictive means" to regulate speech. The First Amendment requires that speech regulation laws must pass the "least restrictive means" test. That is, if government censorship is not the least restrictive possible means of ensuring the goal (protecting an unwitting or under-age audience from unsolicited indecency), then the restriction is unconstitutional. In the case of the Internet, government control is demonstrably not the least restrictive means, as filtration, ratings, and labeling technology and services are already available and operational - from software tools to help parents shield their children from inappropriate material, to special filtered Usenet service for entire schools, in which all information has been checked for indecent content.**

An indecency restriction must pass all of these tests to be constitutional. The Communications Decency Amendment fails every one of them.

EFF, together with a wide range of civil-liberties groups and organizations that would be affected by the legislation, has already joined preparations for a massive legal challenge to the CDA should it pass - an effort that should enjoin enforcement of this legislation, and, we hope, prevent the darker scenarios outlined above. The entire process will be very costly in time, human resources and money, but is necessary to protect what remains of our rights to free speech, press, and association.

Launching of the Blue Ribbon Campaign

A blue ribbon is chosen as the symbol for the preservation of basic civil rights in the electronic world.

EFF asks that a blue ribbon be worn or displayed to show support for the essential human right of free speech. This fundamental building block of free society, affirmed by the U.S. Bill of Rights in 1791, and by the U.N. Declaration of Human Rights in 1948, has been sacrificed in the 1996 Telecom Bill.

The blue ribbon will be a way to raise awareness of these issues, and for the quiet voice of reason to be heard.

The voice of reason knows that free speech doesn't equate to abuse of women and children, or the breeding of hatred or intolerance.

For more information on the Blue Ribbon Campaign, including blue ribbon graphics we encourage Net users to prominently display on their WWW pages with links to the URL below, please see:

http://www.eff.org/blueribbon.html
gopher.eff.org, 1/Activism/BlueRibbon
ftp.eff.org, /pub/Activism/BlueRibbon/

For more information on the Communications Decency legislation and other Internet censorship bills, see:

http://www.eff.org/pub/Alerts/
gopher.eff.org, 1/Alerts
ftp.eff.org, /pub/Alerts/

An Anti-Establishment View:

Editorial Note: When I saw the Barlow article reproduced below, I thought to myself....What extraordinary and brilliant writing! We are reprinting his entire statement without the usual "expletive deleted" statement primarily because his graphic words speak directly to the point. lbl

A Cyberspace Independence Declaration
Written and Distributed by John Perry Barlow

Yesterday, that great invertebrate in the White House signed into the law the Telecom "Reform" Act of 1996, while Tipper Gore took digital photographs of the proceedings to be included in a book called "24 Hours in Cyberspace."

I had also been asked to participate in the creation of this book by writing something appropriate to the moment. Given the atrocity that this legislation would seek to inflict on the Net, I decided it was as good a time as any to dump some tea in the virtual harbor.

After all, the Telecom "Reform" Act, passed in the Senate with only five dissenting votes, makes it unlawful, and punishable by a $250,000 to say "shit" online. Or, for that matter, to say any of the other seven dirty words prohibited in broadcast media. Or to discuss abortion openly. Or to talk about any bodily function in any but the most clinical terms.

It attempts to place more restrictive constraints on the conversation in

Cyberspace than presently exist in the Senate cafeteria, where I have dined and heard colorful indecencies spoken by United States senators on every occasion I did.

This bill was enacted upon us by people who haven't the slightest idea who we are or where our conversation is being conducted. It is, as my good friend and Wired Editor Louis Rossetto put it, as though "the illiterate could tell you what to read."

Well, fuck them.

Or, more to the point, let us now take our leave of them. They have declared war on Cyberspace. Let us show them how cunning, baffling, and powerful we can be in our own defense.

I have written something (with characteristic grandiosity) that I hope will become one of many means to this end. If you find it useful, I hope you will pass it on as widely as possible. You can leave my name off it if you like, because I don't care about the credit. I really don't.

But I do hope this cry will echo across Cyberspace, changing and growing and self-replicating, until it becomes a great shout equal to the idiocy they have just inflicted upon us.

I give you...

A Declaration of the Independence of Cyberspace

Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather.

We have no elected government, nor are we likely to have one, so I address you with no greater authority than that with which liberty itself always speaks. I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us. You have no moral right to rule us nor do you possess any methods of enforcement we have true reason to fear.

Governments derive their just powers from the consent of the governed. You have neither solicited nor received ours. We did not invite you. You do not know us, nor do you know our world. Cyber-space does not lie within your borders. Do not think that you can build it, as though it were a public construction project. You cannot. It is an act of nature and it grows itself through our collective actions.

You have not engaged in our great and gathering conversation, nor did you create the wealth of our marketplaces. You do not know our culture, our ethics, or the unwritten codes that already provide our society more order than could be obtained by any of your impositions.

You claim there are problems among us that you need to solve. You use this claim as an excuse to invade our precincts. Many of these problems don't exist. Where there are real conflicts, where there are wrongs, we will identify them and address them by our means. We are forming our own Social Contract . This governance will arise according to the conditions of our world, not yours. Our world is different.

Cyberspace consists of transactions, relationships, and thought itself, arrayed like a standing wave in the web of our communications. Ours is a world that is both everywhere and nowhere, but it is not where bodies live.

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We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth.

We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity.

Your legal concepts of property, expression, identity, movement, and context do not apply to us. They are based on matter, There is no matter here.

Our identities have no bodies, so, unlike you, we cannot obtain order by physical coercion. We believe that from ethics, enlightened self-interest, and the commonweal, our governance will emerge . Our identities may be distributed across many of your jurisdictions. The only law that all our constituent cultures would generally recognize is the Golden Rule. We hope we will be able to build our particular solutions on that basis. But we cannot accept the solutions you are attempting to impose.

In the United States, you have today created a law, the Tele-communications Reform Act, which repudiates your own Constitution and insults the dreams of Jefferson, Washington, Mill, Madison, DeToqueville, and Brandeis. These dreams must now be born anew in us.

You are terrified of your own children, since they are natives in a world where you will always be immigrants. Because you fear them, you entrust your bureaucracies with the parental responsibilities you are too cowardly to confront yourselves. In our world, all the

sentiments and expressions of humanity, from the debasing to the angelic, are parts of a seamless whole, the global conversation of bits. We cannot separate the air that chokes from the air upon which wings beat.

In China, Germany, France, Russia, Singapore, Italy and the United States, you are trying to ward off the virus of liberty by erecting guard posts at the frontiers of Cyberspace. These may keep out the contagion for a small time, but they will not work in a world that will soon be blanketed in bit-bearing media.

Your increasingly obsolete information industries would perpetuate themselves by proposing laws, in America and elsewhere, that claim to own speech itself throughout the world. These laws would declare ideas to be another industrial product, no more noble than pig iron. In our world, whatever the human mind may create can be repro-duced and distributed infinitely at no cost. The global conveyance of thought no longer requires your factories to accomplish.

These increasingly hostile and colonial measures place us in the same position as those previous lovers of freedom and self-determination who had to reject the authorities of distant, uninformed powers. We must declare our virtual selves immune to your sovereignty, even as we continue to consent to your rule over our bodies. We will spread ourselves across the Planet so that no one can arrest our thoughts.

We will create a civilization of the Mind in Cyberspace. May it be more humane and fair than the world your governments have made before.

Davos, Switzerland
February 8, 1996

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John Perry Barlow, Cognitive Dissident
Co-Founder, Electronic Frontier Foundation

Home(stead) Page: http://www.eff.com/

It is error alone which needs the support of government. Truth can stand by itself.

--Thomas Jefferson, Notes on Virginia

Signposts on the Information Superhighway

If you've been following technology for a while, you'll know that the Internet, billed as the Information Superhighway by both the government and by the media, has really taken off. There are now enough people using various parts of the Internet so that it's not a complete mystery anymore. In fact, it, along with the growth of home personal computer usage, has made technology very clearly an important and visible part of our lives. I like to think of it as respectability for the computer nerds of my time. The fast pace of Internet developments foments new technology, new acronyms, and fortunes seemingly overnight. Two of the hottest new things to come along are Java and VRML.

Technology doesn't develop in a vacuum. Yes, there are itinerant inventors who create just for the sake of creation, but most inventions that we hear about have passed beyond the state of inventing and are well into marketing. These inventions fill either a perceived or a real need. Java and VRML didn't come about by accident. They came about because there was something deficient about Internet access using the Web that made people want more. First, I'll look at what Java and VRML are and what they can do for Web browsers. Then, I'll look at the underlying needs that these and other similar tools are meant to address. Next, I'll look at trends in Internet and hardware technology and see if it's reasonable to expect the trends to continue. Finally, I'll put on my wizard's hat and look into my crystal ball and see where some of this might lead, and what might happen in the future.

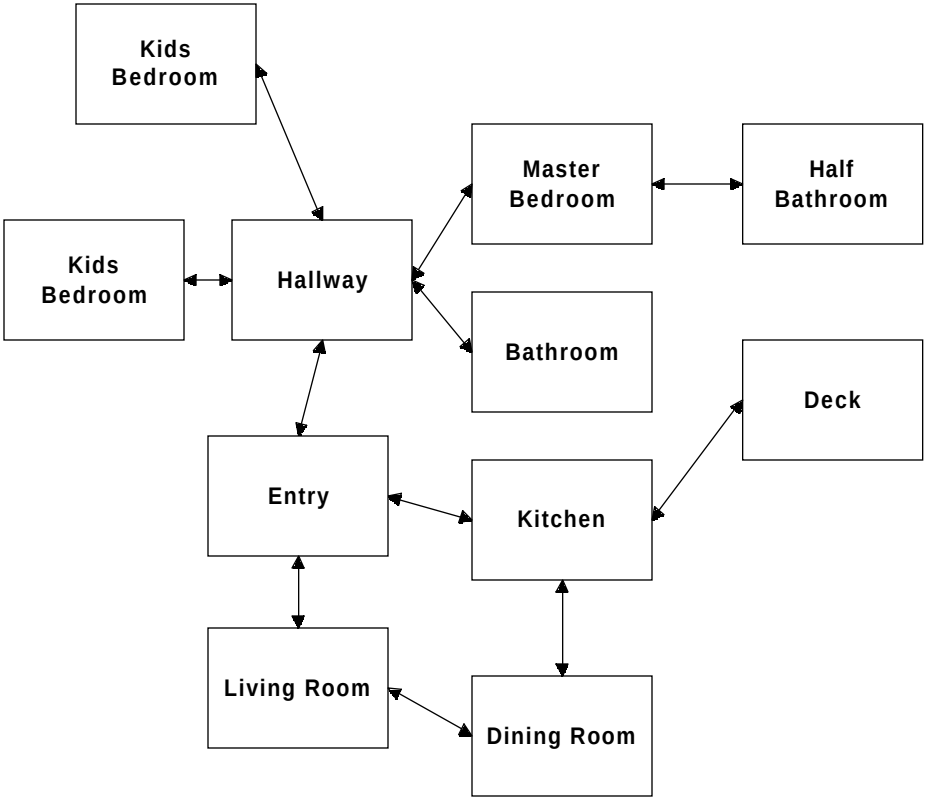
Java

What can Java do for you? To answer this question, you need to first know a little bit about how Web browsers work. All Web browsers like Mosaic-variants and Netscape Navigator work with and display documents that contain HyperText Markup Language (HTML). They communicate to Web servers across the Internet using something called HyperText Transfer Protocol (HTTP) and via a mechanism called TCP/IP. -See, there's no escaping acronyms!

If you've ever looked at the source to one of the Web pages that the browsers show on the screen, you'll see that they are plain ASCII text, but full of strange symbols like <TEXT> </TEXT>. These are HTML tags. They tell how a Web browser should format text and how to jump around on the Web. Some of them contain references to images and pictures. They also can describe simple things like listboxes, check boxes, and edit fields. These *controls* are what programmers call dumb interface elements. They work one way and only one way. As a user, this makes things easy because once you know how to use any one listbox, you know how to work all listboxes. The main disadvantage to a Web browser without Java is that there are only so many different types of controls and if what you need is a little more complicated, you are you of luck. As a Web page designer, you either have to make things work as an image, or make an existing control do well enough.

Java changes all this. It's a programming language that people designing Web pages can use to enhance a Web page's interactions with users. With a Java-enhanced Web browser, a Web page designer can create objects on a Web page that interacts with the user in a different way depending on the data it has to work with. It can do more processing of your clicking of regular controls and entering data before making requests back to a Web server. An example is a "graph" control built in Java. I'm not talking about graphs of the kind that are straight bar charts and lines, but of what mathema-ticians

and computer scientists call graphs. For example, here is a graph of all the ways you can move around on the floor of a house.



Suppose that you wanted to be able to have people design house layouts using the Web. You need to be able to show Web pages with house layouts and let people add and delete rooms and connections without having your server do all the work. Java lets you program much of the work into a Java script that runs on the computer with the Web browser. This means that the server isn't so busy, and also it means that you can afford to do more complex things with the data that you couldn't do with plain graphics and existing HTML controls.

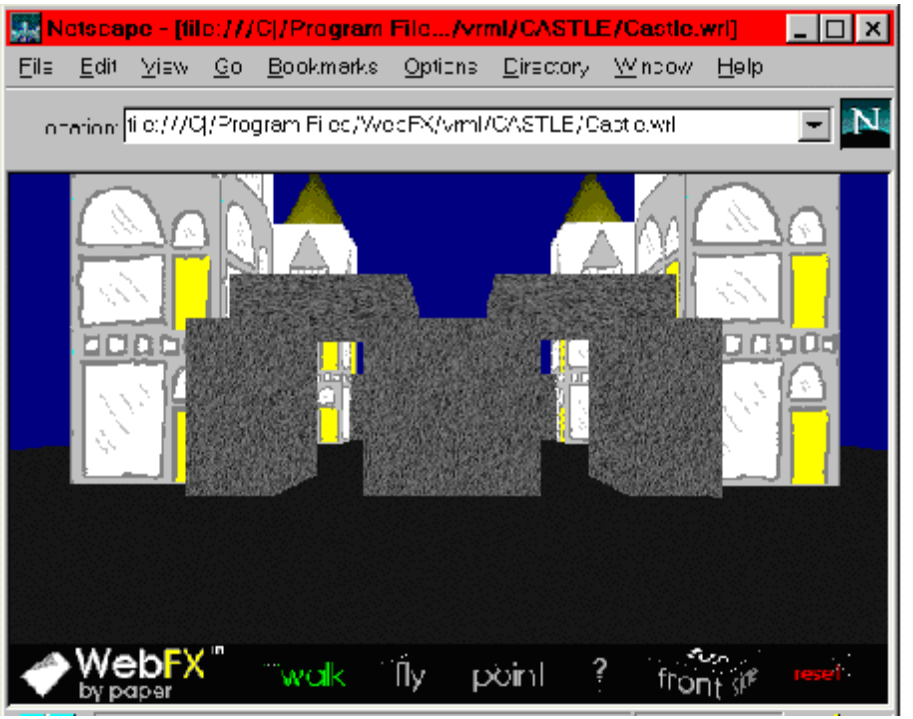
To do what it does, Java is a full-blown programming language that looks much like C++. It's got all the things that you expect from a full featured general purpose programming language with some features that make it particularly useful for Web and Internet programming. Another interesting property of Java is that, because it is a full featured programming language, it is also available for ordinary environments like Windows. Borland and Symantec have Java addins for their C++ compilers to compile Java and generate code that will run in Windows. Sun Microsystems invented Java and has made its specifications available to all that ask for it. On top of that, Java is machine and operating system independent. This means that a Web designer can design something for a page and know that it will work on any Java-enabled browser.

As a side note to all this, Microsoft is pushing Visual Basic Script as its alternative to Java. Microsoft is afraid of anything like Java be-cause what is the use of controlling an operating system standard when no-one cares about it. Java runs on any system that has a Java interpreter. There are dozens out there already, and more each day. I think that Microsoft's campaign is hopelessly doomed to failure. Why? Well for one thing, not all, and maybe even not most of Internet access is via Windows. For another, most of the people who invent these things aren't interested in using Windows of any form as their day to day work environment. Most Internet technology is today still determined by its UNIX roots and everything else falls in line from that. So long as academic computing's preferred Internet network connections are managed by UNIX systems, as they are today, Microsoft isn't going play much of a role in its technology leadership. This may change some day, but not soon that I can see.

VRML

VRML is the latest hot thing for the Internet, unless something has happened between the time I wrote this article and the time you read

it. Virtual Reality Modeling Language isn't a programming language like Java, but it is nonetheless a language of sorts. It's purpose in life is the building and real-time navigation of complex three dimensional scenes with realistic appearance. Here's an example from the WebFX plugin for Netscape Navigator 2.0.



This castle is a full three dimensional object that you can navigate with the mouse much like you would when playing Doom. Certain objects on the screen have HTML links attached to them, so if you click on them, something happens. If you go to http://www.intel.com with your favorite VRML enabled Web browser, you can see a simple

interactive graphics adventure game created and done entirely in VRML and HTML. Those of you who use the Microsoft Network and have Internet Browser 2.0 have a VRML plugin supplied. WebFX is a plugin for Netscape that handles VRML. There are others out there.

What VRML does for Web browsers is open the user interface up to be three dimensional. It allows users to interact with scenes and navigate them to find things. Imagine exploring a library scene with different aisles and sections of the building containing different classifications of material by subject matter. More intriguing, imagine VRML scenes built on the fly by the Web server in response to something that the user had done, such as searching for some text. You might have different buildings representing different Web sites that have documents found in the search. This way, you could not only search for documents but also for interesting sites that contain many related documents that satisfy the search

Web browsers that are VRML enabled have modules that know how to read a scene description, how to show it on the screen with varying degrees of realism, and how to let the user navigate through the scenes. The Web server hands out the worlds on demand, but then usually just waits until the user has found something interesting and makes another request to the server.

The Underlying Needs and Requirements

What do the invention of Java and VRML have in common? Aside from enhancing and opening possibilities for interactions of people using Web browsers, they also implicitly recognize the fact that people who use the Web generally are using computers which are a substantial fraction of the power of the Web server itself. Also, they assume that that most of that computing power is available on demand for applications like Java and VRML. Another assumption is that the network bandwidth is not high enough to support directly providing

data on demand as needed by Java and VRML for access by the Web browsers.

In the old days of computing, having a terminal meant having a dumb terminal. About all it understood how to do was to put characters on the screen. They basically emulated a typewriter that didn't know how to go backwards. For all intents and purposes, the host computer had infinite computing resources compared to the terminal. When the IBM PC came along, things had changed. Personal computers like the original IBM PC were slow and limited, but they had independent computing power that was just beginning to make a difference. A host computer could send a bunch of graphics toward the terminal and assume there was enough power to display it reasonably well. The host computer still did almost all of the work because there simply wasn't enough to do anything useful except display things.

Well, things are quite a bit different today. It's not unusual for a power user to have on their desktop a system that has as much or more raw computing power than the mainframe they are connected to. Most of the time, that computing power just sits around being wasted, but when a user wants something done, they want it done right now. There's no time to wake up the host computer and ask for a bit of help displaying something.

Although much less true with Java than with VRML, you will not believe the computing requirements to do half-decent VRML. Indeed, the requirements to do VRML well are mind boggling. A fast Pentium 133 system with a very good accelerated video card and not memory limited (have 64MB handy), can't keep up with 1024x768x256 3D graphics of the kind needed by real-time VRML navigation. Older CPU designs like a 486 need not bother. If you cut back to 640x480, you have a fighting chance, but then you depend on the designer of the VRML scene taking into account that you have a slow and limited system that's powered only by a Pentium. Those who are lucky enough

to have a fast 3D graphics accelerator can manage the 1024x768 display well enough, but since those types of video cards start in the $2000 range, you'd better have a better use for it than just viewing VRML scenes in your favorite Web browser.

Java was invented because to do truly sophisticated and helpful interactions with Web servers, Web page designers needed the ability to build smart components that could run on the local machine and do some of the special work needed to manage that interaction without the help of the server. Smart components can do most of the work and call on the Web server only when it needs something only the server can provide. It's another step toward client-server computing that people in mainframe IS organizations have discovered, but struggled with as each corporation struggled to build its own version. It's almost as if each organization was reinventing and rebuilding its own version of Java for itself.

In a nutshell, both VRML and Java assume that there is plenty of computing power locally, that it's much cheaper to get it locally than across the network, and that there is enough data locally to do the job. The interaction can be swifter and more sophisticated. After all, the earlier you can detect an error or figure out what the user really wants, the less work you have to do to find out. Incidentally, this frees up the Web server to handle more users.

Is This All There Is?

So where are we headed? IBM and other corporations are sure that "network-centric computing" is where it's going to be. Some people are even making the prediction that in the next several years, network bandwidth is going to grow so high and be so ubiquitous that you no longer need a powerful workstation with plenty of attached disk and graphics to get work done. I doubt that this is going to be so any time soon. For the time being, disk drives and computer speeds are going to be much cheaper and faster than any network any of us can afford. The return of the day of the dumb terminal which is going to get everything from the network instead of from local copies is not going to happen without major discoveries in technology. What we know today about how to do anything isn't going to improve enough in the next decade or so to make a difference. We need something completely new.

I think that the day of the portable computer, more or less in its present form, although much more powerful and much more network connected, will continue easily into the next decade. It will still be easier and cheaper to connect only when you need something special than to be continuously connected and getting everything from the net. Yes, we will eventually get usage-based application charging, so you don't have to buy an application, just "rent" it for the time you need it, but frankly, it's still much easier to have your own copy and make it work just the way you like. Perhaps in twenty or thirty years, but not much sooner than that.

Summary

Java and VRML represent the next evolution of technology for the Internet that is coming our way. They take advantage of, and are designed to work around, the limitation of the ratio of computing power to network bandwidth that mainframe IS organizations have lived with for years. This technology is making its way into ubiquitous and public use. The twist that Java and VRML add is that they are

designed from the beginning to not care what environment or operating system that they run on. In many ways, this, along with the Web, are the first signs of a truly universal system of computing.

Microsoft and other companies that have made their fortunes protecting a proprietary technology and taking advantage of their inside knowledge or control of that technology have to adapt to the new ways to survive. How can you set the standard when no-one cares?

***Herb Chong** is a very respected computer research and programming professional. He is the Contributing Editor of **WindoWatch** and continues to provide our readership with cutting edge food for thought. Additionally, Herb guest edited the recent Anniversary Issue of **WindoWatch**.*

A Reasonable Operating System Discussion

I am amazed at the fuss going around concerning "operating system" issues. Few if any address the real issues and most are strewn with bias.

The Myths:

Windows 95 is a 32-bit multi-session improvement on an outstanding Windows predecessor.

OS/2 is the obvious choice for the power user and friends. It beats everything out there.

Both are "hot" because they are GUI and GUIness is good.

MS is evil; IBM is good.
IBM is good; MS is evil.

Q & A:

Why do people use Windows? What made it so popular?

Today people have a hard time seeing beyond the screen. For users the GUI environment seems the reason for Windows. There was only one original reason to use Windows--fancy printing. The use of GUI was secondary support for that. DOS applications needed extensive programming to provide formatted printing. DOS systems of the day lacked the power to support full-GUI. Mixing of text and GUI views

were mutually exclusive options and only from within that application.

The watershed product that demonstrated all this didn't even run under the Windows product of that day. It was a publishing package that ran under GEM. It and it alone created the movement toward integrated environment being the choice for designing applications.

Isn't Windows a great product that sprang to prominence because it has superior technology, concept, programming, etc.?

Windows birth was almost still-born. It made a huge splash and sank like a rock. Most of the design concepts used for earlier product stank. It took MS 3.1 tries to get it close to right. Along the way it developed a dependence on its mediocre past that remains with it today.

In defense of MS, I'll point out that they were ambitious and pressed the envelope along the way. The original Windows first ran on XT class machines. To get that to happen, MS used every cheat and kludge in their formidable programming arsenal. Each subsequent version required additional processor power but continued to build on the kludges and tricks of the previous version. Those lacked partial (and often full) compatibility with previous version--this was deemed acceptable to advance the envelope. It wasn't until the 386 came along that MS had a processor that could meet its needs; unfortun-ately, it kept using the base code to build subsequent versions.

Win95 is a 32-bit operating, multi-tasking system that maintains the Windows ideal.

Well, it is only a partial success at being 32-bit. 32-bit features were a part of Windows before 95 came along. And 95 has to maintain 16-bit portions to be compatible with 3.x product and DOS sessions. This is

done using the least hardware technology possible--a homage to Windows past rather than an valid design concept. It maintains this to maintain compatibility with the only reason people buy/use Windows--a huge collection of Windows applications.

Windows 3.x and 95 are built on compromise and unclear (for whatever reason) application interfacing. Not only was Windows not compatible across versions it has proven itself incompatible within versions. MS "slipstreams" upgrades. The easy-to-use SETUP programs not only install the new applications, they replace DLLs that have enhancements need for that program to run. In doing so they have often broken other applications that depended on the "quirks" in the earlier version.

As a multi-tasker, it continues to improve. But, it is still very dependent on it past and will shift to earlier, mediocre solutions at the drop of a hat. This is done to maintain compatibility—which was Win95's primary design goal--it succeeds at that.

Ok, but why isn't that OK? It sure seems to give me what I want... Too true. It is what many folks want. And for many it gives them just what they thought they needed. It is often faster doing things and often provides fewer GPF's in the process.

For the above to happen, we pay a huge price. Reliability is improved based on Win3x. Win3x was not designed to be stable--it was designed to work with 286 and 386 processors and that necessitated that it run in 8086 mode. This fails to take advantage of the processor improvements that are part of 386 and up processors. Each memory access comes with processor overhead that isn't necessary. Memory is also manage by the application and not done by the processor--which it is capable of doing.

Software solutions of this type are always compromises and always add overhead. This overhead is not present in real 32-bit operating systems --namely OS/2 and WinNT. Both of those systems get a knock for being "slow" and less compatible. That is true when you insist on maintaining the past. Both systems set up virtual system that run DOS (and Win3/95 remains a DOS based environment. Either is quite capable of running rings around Win3/95 when they are allowed to run their native applications. Neither is anything like slow; they are slow running in compatibility mode.

But, I need to be "compatible" it is the only way I can do the things I need to do.

At the movement that is true. It was once true that Windows applications were few and far between and people had no reason to want to be compatible with Win. The flood of vendors who wanted to print what the user saw on his screen was the reason for that change. To take advantage of the "enhanced" environment in Win95, users must again upgrade and change. There are few Windows95 applications that do that. Most that call themselves Windows95 applications are shallow upgrades using the new compiler and old code--just like Win itself. If we are going to have to spend money on upgrades it makes no sense to again buy half a loaf for full loaf(upgrade) prices.

One can maintain compatibility using OS/2. It is a poor solution for most users. It requires the upgrading that Win95 provides and doesn't support the new features that Win95 provides. It does do a fine job of Win3x support and adds stability and, contrary to opinion, can improve the speed of serious Windows application. And, there is no possible argument that it provides added system stability. OS/2 is technologically superior to the old DOS/Win system but doesn't totally ignore it. If you have the hardware (memory really) you can do more than you ever could with a predecessor product with all the DOS

kludges like Desqview, fancy memory (8086-mode) mangers and the like.

WinNT also provides much the same with a similar hardware requirement.

It is less compatible than OS/2 and is slower because it emulates a Win3x setup rather than just virtualizing a DOS session that appears and functions very much like regular DOS. It too will never be 100% compatible with Win95 features. Because of the problems that things like VxD's introduce, that should be considered a feature. To use WinNT is a valid choice for very few; it may be a valid choice when a later version (often called NT Lite) ships late this year—assuming MS can meet a scheduled release date for the first time.

All your info is interesting (almost...) but where does that leave me? I feel more confused now than when I started.

Sadly, confusion is the state of things at present. There is no clear, single solution. And, nobody can predict where things will fall out. Even MS tells customers that Win95 isn't the single solution. Gates has stated (and then withdrawn) the remark that Win95 wasn't to be considered a "corporate solution" and that their path was WinNT.

This is because Win95 isn't what it claims and never can be while it maintains full compatibility. Many need more than Win95 can provide; everyone needs more than Win95 can provide--they are just unwilling to fully abandon the past.
The smart thing to do is "hunker down" and wait. If you need more in solutions than you have in your current setup, try to find a temporary solution that is the least costly way to go. OS/2 does seem the best one available when you consider compatibility and have the

hardware. If there is a Win95 solution that comes along that you can't live without and you have the hardware--you obviously need to install it. If you don't have the hardware for the above solutions then avoid doing anything for as long as you can. Hardware is in one of its rapid growth phases and it is going to be less compatible with one's old system than ever before. Rather than piecemeal one's way to their next hardware platform, we are at a point where it will require junking some very expensive old hardware. Memory, video, peripherals in general are transitioning from the old platform. PCI or something new, SIMM or EDO or Burst EDO, serial or enhanced serial, accelerated video or that with video compression and 3-D technology are part and parcel of the future. Each of the earlier pieces of hardware provides one with nothing or temporary solution.

Tomorrow should be a great new day. What we have today will have to be junked. Hunker down and make use of the solution you have. Upgrade for need. Upgrading for "fun" carries a big price-tag. State-of-the-Art is going to change and change dramatically. Spending now only makes sense if your needs are dramatic and totally unresolvable in your current solutions.

To close let me address the last points at the top of the page:

MS is good/bad; IBM is good/bad. All are right. MS is in the enviable position of controlling a market. Back in the robber baron era at the start of this century, people admired the Goulds and the Rockefellers and their ilk. Much that they did advanced the times; much that they did was for personal motivation and their own success.

Given the chance any corporation is going to do the same things. They "owe it to their stockholders" to maximize profits. All other reasons for being are secondary. Both have exhibited a predatory era that was every bit as despicable and the various trust that existed at the start of the century. MS is only now reaching a level that brings

their activity to light. Maybe The Department of Justice will move swiftly--for lawyers anyway--to curtail this. It doesn't look likely in the short term.

The thing about predatory activity is that it stifles competition. Predition is costly. Predation continues the status quo. Predation limits our options in every area!

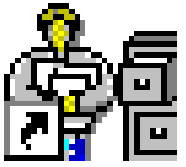
Ken Prevo writes about operating systems with great authority. Love him or hate him, his views are always interesting and well thought out. Whatever his biases, he makes his points with great effort at objectivity.

A Product Review

Norton Navigator for Windows 95

Norton Navigator provides Windows 95 with many additional functions. It is centered around Norton File Manager and it's many file management applets. Most of these applets are enhancements or replacements for the functions within Win 95's Explorer. Unlike Explorer, all of these applets can be run from an icon without loading File Manager. Navigator adds right mouse click menus to just about every file management function in Windows 95, adding Most Recently Used Documents, shortcut start menus, and Explorer menus. Multiple Desktops, Quick Launch toolbar, Long File Name support, File Indexing and FTP connectivity round out the list of features in Norton Navigator for Windows 95.

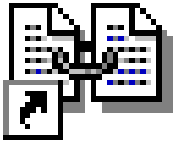
The feature list is long, but not without a performance cost. The Norton Navigator recommended minimum system is a 486/33 PC with 8 MB of memory. Having tested Norton Navigator on a DX2/66 with 8 MB RAM, I would recommend against running Norton Navigator with 8 MB RAM but rather 16 MB of RAM and a 486/100. Even with this system, there is some degradation of system performance and one must decide which features are most important. The feature list is configurable and totally optional. I will begin by reviewing each applets in this month's column.



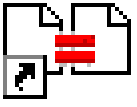
File Archive Wizard

File Archive Wizard - You can specify drives and folders where you want to clean up old files. You decide the file specifications, including wild cards, and how old the files must be before being moved. They can be compressed, deleted, or moved to a removable drive cartridge.

Associating Files - Similar in functionality to Explorer's Registered File Names. Allows you to change the program that opens with a particular DOS file extension.

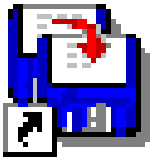


Associate Files



Compare Files

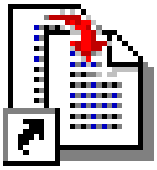
Using Compare Files - You can choose from a binary compare, byte by byte, Match Case both upper and lowercase, Ignore Whitespace, Differential Display, Autoscroll Display, and Horizontal Display. For text compar-isons, line by line is the default. Norton File Manager includes a Folder Compare as well.



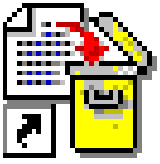
Copy Disk

Copy Disk - You can copy a disk to another disk of the same size or as an *image file*, which is a single file that contains the entire contents of a disk. You can also make multiple copies of a disk or an image file.

Copying Files - Dialogue box for copying files without the need to open explorer or File Manager.



Copy Files

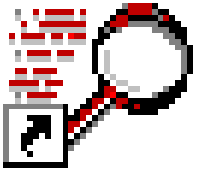


Delete Files

Deleting Files - Dialogue box for deleting files. You can Wipe Delete or Quick Delete. The latter allowing you to recover deleted files with Norton Undelete.

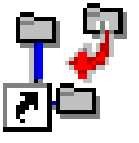
Encrypting Files - Encrypt and decrypt files for use with other Norton Navigator users. Requires each party to have a key code to share information.

Encrypyt-Dec... Files



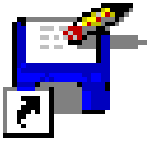
Norton FastFind

Norton Fast Find - Uses indexes of file contents for super-fast searches. You specify certain indexes to be prepared and indexed. The index can be updated on a scheduled basis. This method significantly increases the speed of a file search over Explorer.



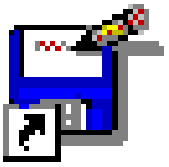
Create Folder

Creating a Folder - Create a new folder with a dialogue box.



Format Disk

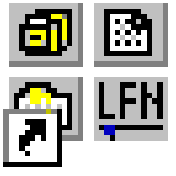
Formatting Disks - Formats disks with a dialogue box. Select Quick or Full Erase.



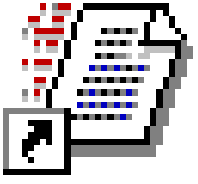
Label Disk

Labeling Disks - Label disks with a dialogue box. Disk Labels can contain any combination of eleven characters, including special characters.

File Assist Configure - Utility available from Symantec which allows the user to configure individual applications with certain file manager functions independently. facfg.zip at http://www.symantec.com or GO SYMNEW on Compuserve



LFN Adjust



Move Files

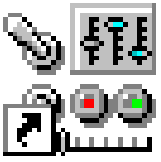
Moving Files - Move files with a dialogue box.

ww

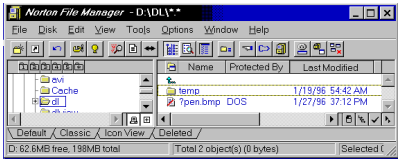
Norton File Manager

Norton File Manager - Replaces Microsoft Explorer. Similar to WFWG 3.11's File Manager with all the features you could ever want including Internet FTP. The menus and right mouse options are totally customizable. Norton File manager will work with the Recycle bin or independently by recovering deleted files from DOS.

Norton Navigator Control Center
The heart of the program. Navigator programs can be customized to suit your work style. You use a single program to start and configure all of the Navigator programs that work behind the scenes with Windows, Explorer, and other Windows 95 programs.



Norton Navigator Control Center



Norton Taskbar - Let's you add Quicklaunch shortcuts and multiple desktops

Norton Quickmenus, FolderMenus, Folder Navigator and Explorer Extensions -

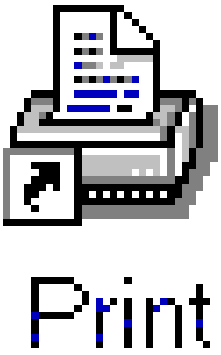
Norton SmartFolders - Create folders that collect and maintain shortcuts to specified working files for quick and easy access.

Norton File Assist - Add file management commands to other Windows programs, and provide history lists of documents and folders recently opened by the program.

Norton LFN Enabler - Use Windows 95 Long File Names in the Open, Save, and Save As dialog boxes of Windows 3.1 programs.

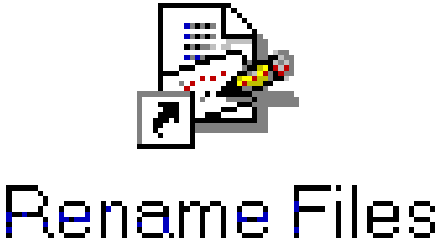
Norton Indexing - Index files for faster searches when you specify a text string in the FastFind dialog box.

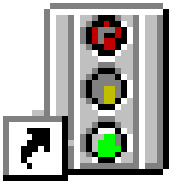
Norton Undo - Specify whether you want to use Undo to reverse all Windows 95 actions, or only actions performed in Norton File Manager.



Printing a File - The Print Dialog box can print any text file, or any non-text file associated with a program, such as a spreadsheet or Windows Bitmap file.

Renaming Files - You can rename files with a dialog box.

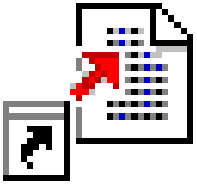




Run File

Running a Program - To run a program and specify command-line options, use the Run dialogue box.

Creating Shortcuts to Programs, files and folders - Launching the dialogue box allows the search for the file links to programs, files and folders.

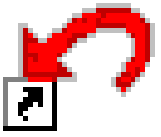


Create Shortcut

Synchronize Folders

Using Synchronize Folders - keeps a folder and folder branch on one system synchronized with a folder or folder branch on another system. It can be custom tailored by clicking on details.

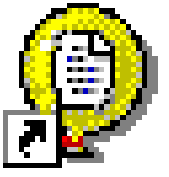
ww



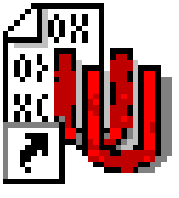
Norton Undo

Undoing Actions - Reverse actions you performed earlier. For example, you can put moved files back in their original folders and remove copied files from their new locations.

Using the UnZip dialog box - You can assign a different name to an expanded file, delete the compressed file after it is expanded, only expand if the file is newer, and retain the original directory structure.



Norton UnZip



UUEncode Files

UUEncode and UUDecode files - Converts standard binary files to ASCII format for transmission over the Internet. This applet allows you to create UUEncoded files and decode UUDecoded files.

Using the Norton Zip dialog box - You specify compression options such as deleting the source files, compression type, encrypting, short file names or long file names. Compression will span multiple disks.

In summary, Norton Navigator is a feature rich enhancement to Windows 95. There are enough configurable options to satisfy just about anyone. One needs to weigh the usefulness of the additional applications against the use of system memory resources. Symantec has released a patch which is supposed to help increase the performance of Norton Navigator for Windows 95. You can download it from http://www.symantec.com/servsupp/techsupp/resource/nn/nnpatch.html or from Compuserve GO SYMNEW file name nn95-0-a.zip.

Symantec Corporation
http://www.symantec.com
1-800-441-7234 or 541-334-6054
Street Price $39/$89 US

Phil Leonard is a WindoWatch regular contributor. An active Internetter, he has developed a talent for communicating often obtuse software instructions into understandable English. He is an comptroller in his spare time.

Hunting Bugs

"Twas mimsy and the slithey tove did gyre and gimbel in the Wabe" began a poem in Lewis Caroll's Alice. It made a lot of prefect sense on it's own terms. In the programming world, a program can also make grand sense, although having unintended results. As a system is updated over the years, this sense becomes increasingly hard to follow, and so the usefulness of the system diminishes to zero.

Alice soon discovered that the animals she had to deal with had logic all their own. But this is not a post deconstructive analysis of Carroll, thank God. It is a discussion of a condition dreaded by programmers:

The Bug(s)

"A well designed system works the first time" The author of those words has probably never used version 1.0 of a program. Software is often written in a dense fashion, Lots of choices being activated by a single user keystroke cause the program flow to be dynamic. The programmer tries to anticipate all possible paths and organizes his data by the overall shape of the program. But sometimes the programmer does not bother to check for *impossible* errors.

It turns out that an impossible error is just one waiting to happen. The first time I showed my father -a somewhat unbiased checker - a program of mine, he idly started pressing to space bar before entering in an item. It was then that I recognized that this was some-

thing I would always have to check for. All data must be validated with all the enthusiasm of the bouncer who cards patrons based on the missing "21 year old."

Suppose we have an accounting program that assumes no one has a salary of $0.00. By failing to take that impossible situation into account, Murphy's law guarantees that someone will show up with a salary of $0.00. Not only that, they may through the error end up being paid $1000,000.00. This error of boundary could have been caught by validation the data, perhaps producing a printed exception report for further study.

Syntax Errors

Some errors, syntax errors, are simply misspellings of the language I'm writing in. When the program is compiled from my English-like code to machine language. the compiler complains about them, highlighting the offending line, maybe saying "unknown identifier" or "illegal function call."

Other errors are due to improper paragraphing of the code, and the line the compiler hits on as wrong "error in statement" was the first line that went awry. The missing punctuation may be much further back in the code. This "off the cliff" effect can sometimes be fixed by a shot in the dark adding "begin" or removing an extra "end."

Also caught by the compiler - although not in a plain vanilla C compiler- is trying to store data of the wrong kind in a variable. This produces a "type mismatch" response, which is not terribly informative. Other data errors such as trying to store too big a number in for a variable's size, may make it past the compiler, but cause devilish problems when the program is run. Pascal is called strongly typed, because the type of contents stored in a variable is closely guarded.

Thus we may not be able to store a number 4 in the variable my_number, because the variable is of the "string" type. It must be stored as "4" which is different from the number. Take my word for it!

Data is "stored" in variables. While debugging the program, I look for duplicate words in the data, and data that is stored in a variable that is too small. If I use a variable "y" in one place, and further in-side use "y" again, I will have to be aware which one is which.

Some kinds of data is "dynamic" meaning the memory for it is setup only when the program is finally run. If I forget to set up the data, I may be pointing to a "wild" address, affectionately called "reaching for the power switch." That can cause catastrophic effects on the program.

Logical Errors

Unlike Syntax errors, Logical errors are very hard to detect and fix. The program runs, but acts in a peculiar fashion, perhaps freezing, perhaps giving silly or garbage (qw15#*$(&%) results. One likely culprit is that the variables are not set, or initialized, before they are used. If you open a new bank account, it should start with $0.00, not just any old value.

A complicated branch statement may execute differently than intended.

```
If before lunch then
    if hungry then eat
else say good afternoon.
```

This statement has you saying "good afternoon" before lunch and you are not hungry. The if's and else's do not match up properly.

Logical errors are exacerbated -now there's a word!- when the program contains point-to-point instructions linking up one section to another in willy nilly fashion. Lines of code like

"If special_fix2 then p:=r*5-end_run"

are not terribly easy for the next hapless programmer whose job it is to update the program.

The Endless Loop:

```
for x:=1 to 10 do
   for x:=1 to 100 do
      write(x);
```

This is a double loop, but because we are keeping track of both parts with the same variable "x" it will quickly freeze when running. Actually the end of each inside loop leaves x with a value of "undefined" in the Pascal language, as it goes into the second outside loop, all hell breaks loose, usually stopping the program dead in an endless loop.

Another endless loop is as simple as

```
While true do
   writeln('hello');
```

True is always true. There should have been a condition to test leaving the loop, like "x=100". This exit condition must be reasonably common to cause the routine to exit during our lifetimes. After debugging the code twenty or so times, having to reboot the machine because of freeze, it dawns on the tester that there may be one of these endless loops. Murphy's law says that the freeze will always be

disclosed in the field, not during testing. Such obvious gaffes are reserved for when you are showing the program to the important client, or at 3A.M. somewhere out in the suburbs.

Once I had a police station as a client, and was somewhat put off when I got calls from "Sgt.Jones of the xxxx police department."

The unintended effect:

```
if revenue<$10.00 then
    pay_out
else
   file_bankrupcy
```

This one statement has reversed the intended condition's effect. Instead of paying out when there is revenue, it files bankruptcy. Behind this statement there may be 3,000,000 lines of code, but this one statement causes the catastrophic, perhaps leading to the programmer's termination of employment. For some unknown reason, programmers and manual writers have a unique knack for saying exactly the opposite of what is intended. But good intentions to not debug a program, and sometimes a walkthrough is helpful. A walkthrough is where you think about each line of code as to "what I would do here if I was the computer running this program." A myth I've heard is that a group will divvy up a program into modules and shout aloud their portion as it comes up in the dynamic running of the program. This kind of theatric run-through I have never seen, as my product teams mostly involve myself alone.

Various techniques can be used to disclose where a bug appears in the program's code. By narrowing down the field -it must be between point a and point b- successively you can narrow down the section of code containing the bug. By judicious use of test data, you can try to

figure out in what scenario the bug appears. Random-number games aside, the same set of data should produce the same results every time.

The computer is a deterministic machine. Unless programmed to emulate intuition the output state is entirely dependent on the input and processing. Sometimes displaying the results of calculations on the screen (tracing) can be helpful. Program compilers come with debugging tools that allow you to inspect the values of variables while the program is running.

With all of this, there are unexpected output- what the user sees is being done. For no apparent reason, odd text may appear on the screen. The source of it could be a failed condition in the program - an if test of a situation does not function as desired. The cause of this can be hard to find, and going over and over the program's code may not disclose it.

Only a bit of intuition will crack the problem, and this, thank be, is the province of us humans, not the machine. The machine does exactly as instructed, but these instructions can be ill-conceived.

When all else fails, if I am unhappy with my current coding, I roll back the code to where it was first thing this morning. My assumption is if the day's code was all that hot, I can write it from scratch again.

This article first appeared on the WindoWatch home page in September of 1995. Peter Neuendorffer is a Windows programmer. His recent Windows programs may be downloaded from the WEB http://www.channel1.com/users/petern. Peter is a regular WindoWatch contributor.

Idiot's Redux
Copyright 1996 by Bob Miller ...with help from Stanley!

Recently, a participant in one of the conferences accused me of picking on InfoWorld in these Idiots Redux columns. You know, he's right. They publish so much garbage that I decided to do an entire Idiots Redux article just from that one magazine.

11/27 - page 137

"A bright, 13-inch color display that showed true color at 1280 by 1024 pixels blew me away."

I'll bet it did. Now tell me something, how can any human being see anything in 1280x1024 on a 13" monitor? Huh? Do you use a magnifying glass or a microscope when computing?

12/4

"Micro Express is promoting the MicroFlex 686/133 as the equivalent of a 133Mz Pentium-based desktop, although the 6x86-P133 processor runs at 100Mz."

Gee, that sounds like fraud to me.

Same article: " Cyrix's processor is called the 6x86-P133 - indicating Cyrix's belief that the chip....matches the 133 Mz Pentium in performance - although the microcode is based on the 486 instruction set."

Maybe they do it with mirrors? Smoke? Magic?

12/11 - Page 29

[Interview with Philippe Kahn] "Any regrets about decisions made while you were with Borland? [this is followed by his self serving answer on how proud he was to have fought with Lotus over "look and feel"]

Excuse me? This is the man who paid hundreds of millions of dollars too much to buy dBase - and then destroyed it; produced the best spreadsheet (with Quattro Pro in its earliest incarnation) and then ran it into the ground; led the company through four years of increasing losses, sold parts at fire sale prices to keep out of bankruptcy; reduced the stock price to 12% of what it had been and THIS is the answer they let him get away with? This is journalism? This is garbage.

1/8 - page 62

"The system's [Compaq] $3,365 price was the highest of any in this comparison."
... same article, next page: "IBM's street price as tested was $3,275, the highest price in the comparison."

BOTH were the highest price? And the prices were different? Strange arithmetic you use.

page 38

“Microcom sells modems with a parallel port interface.....considering the boost this would give to modem performance, I do not know why other manufacturers have not produced similar offerings.”

I do. When was the last time you saw a computer with TWO parallel ports, Mr. Glass? Perhaps the other manufacturers aren't interested in producing a product that 99.998% of the computing public couldn't use? Ever think of that?

1/22 - Page 25

“32bit application sales have not met the optimistic projections of several companies. One of the most high profile examples is Corel....sales came in $9 million short.....”

Maybe if they hadn't tried to rip off their customer base with an insanely high price for the upgrade, their sales wouldn't have fallen short? Ever think of that?

Page 30
“Other things that are great to have in your Send To list are the Desktop, the Start Menu and the StartUp Folder.”

They are? Just how often do you want to send something to your startup folder? I don't. Putting that on your Send To list is ludicrous. And I have the same four items (although newer versions) on my Start Menu today that I had when I first installed a beta version over a year ago.

1/29 - Page 34

“Then, make the new drive bootable (Norton Utilities work best for this).”

SYS C: works best, Mr. Glass. You need Norton to do this simple thing like Mr. Clinton needs more Republicans in Congress.

I was going to stop here with, as I said at the beginning, a pure InfoWorld Idiots article but this insane bit from the December issue of Windows Magazine is too unbelievable to leave out.

From the review of the HP Vectra Pentium Pro (page 151).

“We needed a boot floppy to install BIOS patches to get the system up, and several components weren't fully functional. Password protection and other functions of the custom BIOS were inoperable, and even with the help of an engineer we couldn't get the 10BaseT adapter to work.....This Pentium Pro makes most of they systems that preceded it seem amateurish by comparison.”

Why? Because they booted from the hard drive? Using a boot floppy is an advance in computing? Because you can't, even with the help of an engineer, install a network card, you have a more advanced system? Which way are you advancing?

Bob Miller is a very busy man! He’s traded in his “host of many conferences” hat to become the newest (and in our biased view - we think best) Conference Administrator of the Ilink network. Bob is the Business administrator of a non-profit and the owner of Stanley. Stanley defines the relationship differently. He is the owner of the human...Bob!

The Quest for *The Best*

We all want the best - of everything! Among other *bests*, we demand the best health care and the best education for our children. And, if we are serious computer users, we are always seeking the best hardware and software. But, what is this *best* we are after? Is there really a best - anything?

The Deluxe American Heritage Dictionary, third edition, defines the noun *best* as "Surpassing all others in excellence, achievement, or quality...the best performer...the most satisfactory, suitable or useful..." So, how do we measure, or define, that which meets this definition? Specifically, how do we determine the best computer, modem, web browser, mouse pad or operating system?

Most of us try to identify the best hardware or software by reading computer magazines, checking online conferences, and/or asking the advice of computer-literate friends. I think that while all of these methods can be useful, they must be used with extreme caution. Let's examine these resources, one at a time, and I will try to point out their benefits and shortcomings.

Computer Magazines: I subscribe to three computer-related publications; PC Magazine, PC Computing and PC World. Each of these purports to tell us what is the best in hardware and software.

But do they always, or even often agree as to the best in any given category? No, they don't, and the reasons are not always obvious. To understand why these magazines tout different products as the *best*, or *editor's choice*, we must look at a number of factors that influence their judgments. These are:

1. What group or profession is the magazine directed at? A magazine whose readership is heavily slanted toward corporate types can be expected to rate products with the corporate environment in mind. Products well suited to the large office are not necessarily the best for home-based businesses or hobbyists.

2. Who did the testing, and what facilities were used? A freelance writer using one or two machines is likely to reach different conclusions than a group of magazine professionals who have an elaborate lab at their disposal.

3. What were the criteria used to rate competing products and who establishes them? This is an important consideration, and one that often is over-looked by readers. Sometimes a magazine will explain its rating criteria, other times not. Many factors may be considered, and then weighed, to produce rankings. If you don't know or overlook what the testers consider important, how can you be sure that their priorities match your own?

4. How many competing products were compared? If only a sampling of the marketplace was examined, there is the possibility that better products than those chosen for review might be available.

Let's look at some recent magazine evaluations of computers, with particular attention to the four factors I've already mentioned. Some

of the new high speed machines were featured in the March, 1996 issue of PC Computing, the February 20, 1996 issue of PC Magazine and the February, 1996 issue of PC World. PC Computing rated the Dell Dimension XPS P166C the best of the eight 150mhz and 166 mhz systems tested. This is a five-star machine, despite its limited drive expansion capability and awkward case design. PC Magazine gave the *Editors Choice* nod to the Gateway P5-166 XL, and two systems from SAG.

PC Magazine examined thirty-one systems for their report. PC World didn't choose a *best* from among the eight machines the editors looked at (including the Dell and Gateway models tested by the other publications), but they considered the Maximus P-166 (a model not included in the other reviews) the *speed champ*, followed by the Dell. PC Computing considered the Gateway a *run for the money*. In the editor's opinion, much of the hardware in Gateway's offering was second-rate, and the case design flawed. Nonetheless, the Gateway was awarded four stars! PC Computing did not test the SAG computers. On the other hand, PC Magazine found the Dell machine to be *an average to above average performer*, and considered it worthy of honorable mention. Price-wise, the Dell and Gateway offerings were only $50 apart, so relative cost, apparently, was not a factor in either case. Never mentioned in any price comparison is a fact that you may want to consider. The last time I checked, Dell collected state sales tax, while Gateway did not. PC World was not overly impressed by the Gateway.

So, what led the three publications to come to differing conclusions concerning supposedly identical computers? Upon careful reading, it becomes clear that the testing criteria were different. PC Computing preferred what they termed "real-world" tests, presumably using

some unidentified combination of Windows 95 applications. PC Magazine depended heavily on benchmark results.

Surprisingly, neither magazine mentioned the quality of a manufacturer's technical support as a rating factor. Both publications were impressed by the Number 9 Imagine 128 graphics card used in some tested models, including the Dell, but PC Computing appears to have given that product's fast video performance more weight. Both also were impressed by the extremely powerful SCSI-2 hard drives installed in the Dell and some other models . But again, PC Magazine did not weigh drive speed as heavily as did PC Computing. PC World did not furnish sufficient information about their testing procedures, or their priorities, to enable one to reach any meaningful conclusions, so I will not give further consideration to their article.

How then does one decide, based on these reviews, which 166mhz computer is best? All of these publications are business oriented, all have extensive testing facilities available, and the tests were conducted by teams of technicians. PC Magazine published far more exhaustive data for each machine tested, but failed to comment on case design and internal component layout. These are hardly trivial considerations, as anyone who has had to tear into a machine to replace components or add ram chips can attest.

Look as the test results with your own needs and priorities in mind, and apply your own knowledge of component quality. Are the WD Caviar hard drive and the Ensoniq Soundscape sound card really "second-rate," as PC Computing claims as justification for down rating the Gateway machine? Are the Dell's faster drive and video performance offset by its single free full-height drive bay, which limits future expansion? Are PC Magazine's more extensive battery of test results more telling than PC Computing's more limited reporting that

seemed to stress video and hard drive performance? What about the factors that neither review looked at, such as technical support and guarantees?

In fact, neither the Dell nor the Gateway may be the best 166mhz computer for you. Your criteria for performance and manufacturer support may dictate some other model. The magazine ratings should only be a guide. They may steer you toward, or away from, particular machines, but they should never be taken as absolutes.

Apply the same reasoning to magazine reviews of modems, graphics cards, online services and anything else you may consider purchasing or using. Put yourself in the reviewer's shoes. Ask whether the criteria that made up that person's (or team's) definition of *best* fits your own computing needs.

In the above examples the recommendations of the magazines were at least in the same ball park. Looking through back issues, I found recommendations that differed widely when different publications tested the same computers, word processors, etc. Again, it all depended on the testers' perspective. The most misleading articles I found purported to gauge competing operating systems' merits by assembling a group of "typical" users, who then were told to run a series of operations on a system they hadn't used before. Yes, this does tell one something about learning curves. But does such an exercise test the real worth of an OS?

So, what about other sources of advice? I mentioned online services and friends who have (hopefully) extensive computer experience. By all means, tap these resources, but beware of the pitfalls, especially

those of the online services, which include AOL, Compuserve and the Internet newsgroups.

It is all too common for a "newbie" to post a message asking, "What is the best (fill in the blank)?" What follows is a torrent of replies that would confuse King Solomon himself. Typically, the respondents divide into two camps - those who are certain that "Brand X" is the greatest invention since the wheel; and those who proceed to damn "Brand X" and proclaim loudly that anyone with even marginal intelligence is using "Brand Z." Of course, Brands X and Z cover every imaginable component developed since Digital Research developed the CP/M operating system.

Some of these people are really trying to help. But, too often, they are speaking from limited experience, and they are assuming that everyone's needs and computing style are the same as their own. Others who jump into the fray are "flamers," whose goal in life is to provoke controversy and upset everyone else. And finally there are a minority who are paid to shill a product by the developer and is compensated either in cash, goods, or other coin of the realm like prestige and/or product information. I feel it is best to steer clear of advice seeking in online conferences unless you have a specific question about a specific topic. Never ask "what's the best?"

This leaves friends and associates who are considered to be computer literate. Can they steer you to the *best*? Probably not, and for the same reasons that magazine reviews and online conferences fail. No matter how knowledgeable these folks may be, they will usually recommend what they are using. Computing is a very personal experience. No two people approach it in exactly the same way. A software program that fits me like a glove may not suit you at all. I used

WordStar 7.0 for DOS to prepare this article. Should I recommend it as *your* word processor? Probably not. I don't like internal modems. Should I discourage *you* from purchasing one? No, but unless I am able to step out of my own computer world and into yours, the temptation to sell you on my own bias and preference will be strong.

In the final analysis, only you can determine the *best* of anything. Read the reviews, hang out in the online discussions, and talk to friends. But sift all advice carefully, judging every recommendation against your own needs. Remember, the *best* computer, or software, is like the best politics or religion. It doesn't exist. There is only what may be right for you. And when you find it, you will have your *best.*

By the way, I've been dying to get the answer to this question: What IS the best baseball team? Anyone care to advise me?

John Campbell is a regular WindoWatch contributor. He is the Manager of Elkins Office of the West Virginia Unemployment Compensation Board.

Alice's North American Atlas

I bumped into my old friend, and cartographer, Alice. She was currently mapping my neighborhood, and had an Omni camera attached to her head. Nothing escaped her viewfinder's notice, even if it was tied, nailed, or cemented down.

I asked her if this was one of her made for TV movies. She said no, it was for the giant online atlas of North America. She said this had been done a number of years ago in Aspen, Colorado, where photos were pasted on to wire-frame buildings.

She said her current effort would be much more realistic than Aspen. With zoom and optional monsters to fight. Something like the old Twilight Zone episode *The Monsters on Maple Street* where the lights started going on and off in the neighborhood, and everyone freaked out and went to their fallout shelter. The sky was the limit for the finished interactive atlas. All sorts of disasters could be simulated.

The effect of an introduced skyscraper could be assessed, without having to wait for the actual building to be built.

She said her in-depth images could be manipulated based upon referenced satellite photos from space, and adjusted to reflect the current weather at view time - like snow, turning leaves, hurricanes, etc. Every inch of North America would be recorded and cataloged on film using a special numbering system. All film would be digitized at some future time.

I asked her if this included sound, and she said yes. One could get a better feel for where one was with sound bytes. Unfortunately, she could only work a couple hours each afternoon, so the light would be consistent from one place to another. She wielded a clapboard that read "Allston 1300-1399 Commonwealth Ave", and began filming the neighborhood.

She had a full Hollywood crew, some of whom were holding booms and pushing equipment on dollies. And a best boy with a walkie-talkie was holding the crowd of onlookers at bay behind the current police line. One man was very upset that he could not enter his house, as Alice was filming it at the time, and in the end, he had to be carted away by the police. Across the street, the commissary was set up with picnic tables and coffee urns.

From the films, Alice said they could determine the exact distance of any fire hydrant from the corner of the block, the average height of buildings, the content of the asphalt, the population density, counts of stoplights and potholes, and a myriad of other relevant data.

"What will you do with all this data once you are done?" I asked. "Well," she said, "I have to edit out all the dogs and pigeons, the

occasional passersby, and any offensive views that might trip an R rating. And then it would all go into storage."

What then, I wondered. She told me there is no funding for anything new, so they will have to sit on the library for a while. At some point in the future, perhaps for the millennium, they will take out all the films from storage, and produce the new North American Atlas.

Now Alice waved to me breezily, as she and her crew skateboarded on to the next block to record: Allston 1400-1499 Commonwealth Ave. Then the sun went behind a cloud, the crew drifted to the picnic area, and Alice changed film canisters. I decided to sign a few autographs for the fans, who seemed to think I was someone important.

Peter Neuendorffer is a Windows programmer and an exciting satirist who regularly contributes his considerable wit to WindoWatch. Alice is his creation and she provides our readers with the tales of her unusual adventures. Peter and Alice are regular WindoWatch contributors.

Window Aspect: A Scripting Language

A Tutorial: Part Ten Ghost BBS v3.20

Last month's column was ended with the notion that on most of the larger BBS', you could use a single WHEN TARGET script command for the entire login. Continuing with this theme, it is obvious, the just WHEN TARGET command isn't enough.

If you recall, the script command we needed to watch for basically all prompts during a login was...

```
when target 0 "?" call get_prompt
```

This watches for any "? "coming in the comm port, and almost every prompt on a PCBoard or WildCat BBS contain that symbol.

As mentioned in the last column, we can use the Wasp TERMGETWS command in the procedure called by the WHEN TARGET, in order to determine which prompt of the many possibilities during a PCBoard or WildCat login was received. If you recall, when a prompt arrives from a BBS, it is expecting a response from the user either you or your script. After the prompt is written to the terminal screen everything stops until there is a response.

Therefore, the text of the prompt we need to respond to is displayed in

our terminal window on the current row ($ROW). Counting from the left, most character (position 0, since screen columns, like rows, are 0 indexed) to the current cursor position ($COL), or

termgets $ROW 0 prompt_str $COL

where *prompt_str* is a string variable which will hold the text of the prompt.

So, now that we have the prompt that we want to respond to, how do we determine which one it is, and thus, how to respond??

One thing most of us old timer types are always pointing out to new script writers on the nets, is that, when waiting for a prompt, you do *not* have to watch for (or WHEN TARGET) the full text of the prompt. Indeed, the best way to watch for a prompt is to look for the shortest bit of text which is unique enough to identify the prompt in question. The logical extension of this idea is using a WHEN TARGET to watch for a "?" - but now we need more. However, as noted above, we only want as much more as is necessary to identify the prompt.

There are two reasons for this..

1) Errors - The more text you check for, the more chance of an error occurring. The error may result from a typo on your part, or it may result from something on the remote end. Nonetheless, the more characters being looked for, the more chance of such an error happening.

2) Speed - In order to find one string in another, Wasp must look for the first character and then check to see if the next character follows

it, and so on down the line. This takes time. Therefore the fewer characters we have to check for, the faster the checking will be.

Obviously, the command we want to use to locate our text is the straightforward STRFIND command. Basically, it checks one string for the occurrence of a second, target string. If found, it returns success... if not, failure. Just what we want !

So, let's outline the basic procedure of get_prompt...

```
proc get_prompt
  termgets $ROW 0 prompt_str $COL
  if strfind prompt_str "name?"
    transmit $USERID
    transmit "^M"
  elseif strfind prompt_str "Password (Dots"
    transmit $PASSWORD
    transmit "^M"
  elseif strfind prompt_str "Command"
    exit
  endif
endproc
```

I know that this is neither complete nor very elegant, but it gives the general idea of how the procedure should work. For example, you have to write the "sub" set of code to handle each possible prompt from the remote system. In another example, on a lot of systems, when you log on, the system will send one of several prompts, for *scan for new mail*, continue at the end of bulletin displays, or in other on-line areas, all of which we want to respond to with the say, a NO ("N^M").

If we add these to our code sample, it looks like this...

```
proc get_prompt
  termgets $ROW 0 prompt_str $COL
  if strfind prompt_str "name?"
    transmit $USERID
    transmit "^M"
  elseif strfind prompt_str "Password (Dots"
    transmit $PASSWORD
    transmit "^M"
  elseif strfind prompt_str "Enter)=yes?"
    transmit "N^M"
  elseif strfind prompt_str "More?"
    transmit "N^M"
  elseif strfind prompt_str "Enter = Yes?"
    transmit "N^M"
  elseif strfind prompt_str "Command"
    exit
  endif
endproc
```

The problem with this, of course, is that there can be *many* of these prompts on a system which require different responses, but also multiples of them requiring the same response. And these prompts can vary from system to system, or indeed, from login to login on the same system. In our script, we would have to account for each of these possibilities, which could result in an *awful* and big pile of code to use

STRFIND for each of them. And each of those "elseif" sets introduces additional chances of errors in typing, etc. which could, in the end, render the script useless.

And those typing errors, especially in the same basic code repeated

over and over, can be quite difficult to locate. Your eyes tend to see what should be there, not what *is* there.

Obviously, it would be much easier to handle all the multiple and possible prompts requiring the same answer if we could use a single "elseif" to check for all of them. But "elseif" does not allow using OR (||) commands when you are using a STRFIND.

As noted earlier, Wasp is a quite powerful language, and even has ways around this problem. The one I use in a situation like this, is called a *function*.

Let's look at this for a moment. A function and a procedure are basically quite similar in nature. When you write a sub-procedure, it takes information already defined elsewhere in the script, (or obtains the information itself and then does something with that) and then returns control to the calling area of the script. During this, it may change the value of GLOBAL variables used within the sub-procedure, and in the process, will *return* those values to the calling part of the script, wherever it uses those global variables.

A function is not much different, but the differences are something we can here use to our advantage. Basically, a function is a subprocedure which returns a pre-defined value or values to the calling portion of the script. These values are not necessarily returned as global

variables, but independent of them. Do you remember back in your math class in school. I do, but barely.. although the records are still there, since we wrote on stone tablets back in *them thar days* ! Your teacher would give you problems that involved an equation with variables. He/she would give you the equation, then give you a value(s)

for the variable(s) involved, and tell you to solve the equation, and give him/her the result.

That's the basic idea behind a function. You give it certain information, it does something with that information, and then returns a result to you. How that works for us here is actually simple. To avoid having to write multiple lines of code to check for multiple possible strings, all of which expect the same response, we want to be able to check for *this string* OR *that string* OR *another string*. We can't do that with the STRFIND command, but we can do that with the results of the STRFIND command, i.e. the 0 for failure, or the 1 for success.

Take a look at this *function*...

```
func CheckPrompt : integer
  param string dummy
  strfind prompt_str dummy
  return success
endfunc
```

First thing you will notice is that the very first line is different in two basic ways from a *procedure*.

1) The thing starts with the keyword FUNC rather than the more common PROC, and ends with ENDFUNC instead of ENDPROC.
2) After the name of the *procedure*, there is a colon followed by a word, in this case, *integer*, but it could be any Wasp variable type. This tells the function, and the calling procedure, what result is expected of it.

Dissecting the rest of it is simple enough. The second line - param

string dummy- tells the procedure that the calling area of the script will be calling this function with a string parameter, which the function is going to call *dummy* for its use. ... No comments now!

The third line applies STRFIND to the global variable already set up, prompt_str (look familiar?), and that the passed parameter is used to check if the passed parameter is included in the global variable.

The fourth line tells Wasp to RETURN the resulting value of SUCCESS (the pre-defined Wasp variable set to 0 if a failure, and 1 if a success), or was the target string found in the global string, to the calling area of our script.

In other words, the function will return to the calling area, a value of either 0 or 1, which values can then be tested in multiple IF commands.

You call a function much as you call a procedure, except that Wasp sees that *call* as if it were the value returned to it. And this is exactly what we want, - a series of values which Wasp can evaluate using the logical OR operator (||) to determine if one of a multiple of possible targets is in a given string.

For those of you who don't know the logical OR command. I do know that most of you do know this command, but bear with us for those who don't. It checks a series of values, separated by the OR operator (||) to determine the truth or falsity of the OR statement. If any *ONE* of the variables compared is TRUE (or a 1), then the OR statement is TRUE also. This contrasts with the logical AND, which requires that *ALL* the variables be TRUE before the AND statement is TRUE.

Therefore, if any one of our target strings is found in the prompt_str variable, the logical OR tests TRUE, and the response is sent to the remote. If none of them are found, the logical OR tests FALSE, and no response is sent. So, let's rewrite our earlier procedure to include the use of this function...

```
proc get_prompt
  termgets $ROW 0 prompt_str $COL
  if CheckPrompt("name?")
    transmit $USERID
    transmit "^M"
  elseif CheckPrompt("Password (Dots")
    transmit $PASSWORD
    transmit "^M"
  elseif CheckPrompt("Enter)=yes?")
    transmit "N^M"
  elseif CheckPrompt("More?")
    transmit "N^M"
  elseif CheckPrompt("Enter = Yes?")
    transmit "N^M"
  elseif CheckPrompt("Command")
    exit
  endif
endproc
```

Not a great benefit - yet, but as noted above, Wasp sees the function calls as if they were a single variable (the one *returned* from the function call), and we can use the logical OR operator to test these, as in...

```
proc get_prompt
  termgets $ROW 0 prompt_str $COL
  if CheckPrompt("name?")
```

```
    transmit $USERID
    transmit "^M"
  elseif CheckPrompt("Password (Dots")
    transmit $PASSWORD
    transmit "^M"
  elseif CheckPrompt("Enter)=yes?") || CheckPrompt("More?") || /
CheckPrompt("Enter = Yes?")
    transmit "N^M"
  elseif CheckPrompt("Command")
    exit
  endif
endproc
```

Because of space limits, I would ask you to please remember that, in Wasp, a "/" marks a point where a line of code continues to the next line of "display", as if it were all one line. An example of this is above in the multiple prompt checking line, and will continue to be used throughout these columns when necessary because of eighty character lines of text.

That one line above the big one does the job of three six lines in the original sample, and this can be applied through out the procedure.

Wherever we want to check for multiple possible target strings, yet send the same response or even a variation of the same response, we can use our function to check for the occurrence of any one of the possible target strings, and send the appropriate response.

Indeed, using this function, we continue to hold the value of the global string, prompt_Str, and thus, can check it for combinations of targets, as in this example, from my old PCBMail script. This script is using this technique to log on to a PCBoard system, using a QMail door,and

to upload a REP if there is one, and download a QWK packet. I won't explain each of these right now, but will leave it as an exercise for you to study until next month, when I will explain some of the more obtuse lines of code and what they do. This is sort of like the old cliff hanger movies. Don't give them all the answers so that they come back to read the column next month!

Also, next month, we will look at the same code as it appears in PCB Freedom. PCB Freedom is a shareware script which I wrote and can be used to log onto multiple systems, of either PCBoard or WildCat types that have multiple mail doors in use. It was written to manage QWK packets and we will show how it can be extended and applied to differing BBS types, with their different prompts set ups.

So, until next month, here is the PCBMail sample code for you to puzzle over

```
proc get_prompt
  termgets $ROW 0 prompt_str $COL
  if CheckPrompt("Command")
    if CheckPrompt("Qmail")
      send_cmd()
    else
      taska=1
      if taskb
        watchfor=0
      endif
    endif
  elseif CheckPrompt("Enter)=yes?") || CheckPrompt("More?") || /
CheckPrompt ("Enter = Yes?")
    transmit "N^M"
```

```
  elseif CheckPrompt("=no change?") && lang==0
      transmit "^M"
      lang++
  elseif CheckPrompt("Enter)=no?") || CheckPrompt("continue?") || /
CheckPrompt("=none?") || CheckPrompt("Enter = No?")
    if CheckPrompt("graphics") || CheckPrompt("Color?") &&
graph==0
      transmit "N Q NS^M"
      graph++
    else
      transmit "^M"
    endif
  elseif CheckPrompt("Password (Dots")
    transmit pword
    transmit "^M"
  elseif CheckPrompt("name?")
    transmit userid
    transmit "^M"
  elseif CheckPrompt("new user?") || CheckPrompt("new caller?")
    transmit "r^M"
  endif
endproc
```

Have fun!

***Gregg Hommel** is a much respected Aspect script writer and programmer. He is well known on the various nets hosting any number of conferences including the new ILink Windows 95 conference. He is applying his considerable programming talents to the construct of his own homepage and ours. Gregg sits on our Editorial Board and is a regular **WindoWatch** contributor. Gregg can be reached at gregghom@ophelia.waterloo.net.*

Undocumented Windows Errors

Recently the following undocumented Windows 95 error-codes were found. Microsoft forgot to explain them in the manuals, so they will be spread via the Internet:

WinErr: 001 Windows loaded - System in danger
WinErr: 002 No Error - Yet
WinErr: 003 Dynamic linking error - Your mistake is now in every file
WinErr: 004 Erroneous error - Nothing is wrong
WinErr: 005 Multitasking attempted - System confused
WinErr: 006 Malicious error - Desqview found on drive
WinErr: 007 System price error - Inadequate money spent on hardware
WinErr: 008 Broken window - Watch out for glass fragments
WinErr: 009 Horrible bug encountered - God knows what has happened
WinErr: 00A Promotional literature overflow - Mailbox full
WinErr: 00B Inadequate disk space - Free at least 50MB
WinErr: 00C Memory hog error - More Ram needed. More! More! More!
WinErr: 00D Window closed - Do not look outside
WinErr: 00E Window open - Do not look inside
WinErr: 00F Unexplained error - Please tell us how this happened
WinErr: 010 Reserved for future mistakes by our developers
WinErr: 011 Window open - Do not look outside
WinErr: 012 Window closed - Do not look inside
WinErr: 013 Unexpected error - Huh ?
WinErr: 014 Keyboard locked - Try anything you can think of.

WinErr: 018 Unrecoverable error - System has been destroyed. Buy a new one. Old Windows license is not valid anymore.

WinErr: 019 User error - Not our fault. Is Not! Is Not!

WinErr: 01A Operating system overwritten - Please reinstall all your software. We are terribly sorry.

WinErr: 01B Illegal error - You are not allowed to get this error. Next time you will get a penalty for that.

WinErr: 01C Uncertainty error - Uncertainty may be inadequate.

WinErr: 01D System crash - We are unable to figure out our own code.

WinErr: 01E Timing error - Please wait. And wait. And wait. And wait.

WinErr: 01F Reserved for future mistakes of our developers.

WinErr: 020 Error recording error codes - Additional errors will be lost.

WinErr: 042 Virus error - A virus has been activated in a dos-box. The virus, however, requires Windows. All tasks will automatically be closed and the virus will be activated again.

WinErr: 079 Mouse not found - A mouse driver has not been installed. Please click the left mouse button to continue.

WinErr: 103 Error buffer overflow - Too many errors encountered. Additional errors may not be displayed or recorded.

WinErr: 678 This will end your Windows session. Do you want to play another game?

WinErr: 683 Time out error - Operator fell asleep while waiting for the system to complete boot procedure.

WinErr: 815 Insufficient Memory - Only 50.312.583 Bytes available

COMPARING THE SUITES
MICROSOFT ACCESS 2.0 AND LOTUS APPROACH 3.0

Comparing Access and Approach is like comparing an orange to a tangerine. The first thought was *lemon* or *lime* but that is too loaded with negative connotations. Each is a member of the same general species and are so much alike as to be almost indistinguishable at first bite. After chewing a little longer, you start to sense the subtle differences.

To belabor the *citrus fruit* metaphor a little more, let's just say that each provides much the same kind of satisfaction with a pleasant aftertaste. Their nutritional value is also quite comparable. But sometimes peeling off the skin can be a little more difficult with one as compared to the other.

Approach seems a bit more accessible for the tyro (please pardon the pun). My congratulations to the designers and implementers for the excellent animated tutorial. Something like it would have been very helpful to this ex-tyro when I was beginning to learn Access (V1.1). Of course, V2 of Access includes the Wizards, which provide some comfort, but to the beginner data management is akin to nuclear physics, where records are the atoms and fields the nuclei. That should tell you how much I know about nuclear physics. I mean, this is scary territory you're venturing into!

The user's guides for each program each start off with a totally unnecessary sales blurb, telling you how great the software is, and by implication, how smart you were to buy it. I think it's safe to assume that at this point, the sale has been closed and this last is to make you feel better.

Anyway, once you skip over that bit of fluff you begin to appreciate how far we've come in presenting hard copy information, i.e., user's guides on paper. For one thing, both books avoid calling their prefaces a *preface*. Microsoft opts for *Introduction*, while Lotus chooses *Welcome to Approach 3.0*. When I was in the technical writing game, I was often tempted to quote liberally from Jabberwocky in my Prefaces, just to find out if anyone ever read them even though I always chickened out! As it happens, both prefaces contain useful information well worth your time.

Unless I'm greatly mistaken, Approach's user guide was formatted according to the tenets of Information Mapping, with liberal use of subtitles and italicized paragraphs in the margins. If I'm wrong about this, someone from Lotus or Information Mapping will surely let me know. In any case, I found the italicized paragraphs a little distracting, especially since they usually contained information that could just as well have been in the main text flow. The Access guide is much more traditional. Both are easy on the eyes, and, as far as I can tell, are accurate and as comprehensive as they need to be. Sometimes giving the reader too much information can be worse than not enough.

The books are also well indexed, though neither seems to recognize that it might be used by someone from the other culture. Thus, the Approach index makes no mention of a toolbar, preferring instead to

refer to SmartIcons; while the Access index is also blissfully ignorant of Approach's existence. Still, this is a minor point.

As to the software itself, if you've learned one, you'll have little trouble adapting to the other. Not surprisingly, the features of one closely resemble its counterpart's. However, there are marked differences when you launch them. I really like Approach's *approach* to its start-up. Rather than the starkness of an almost bare screen, Approach presents a dialog box from which you can choose to open an existing database, or create a new one. If your choice is *new*, you can select from an extensive list of database templates, including music catalogs, weight training forms, catalogs of various kinds of collections, etc. Access simply presents its title bar, menu bar, toolbar and a blank page. There are sample databases, but you have to know where to find them, in this case the sub-directory SAMPAPPS. It seems to me that Lotus has gone the extra mile to achieve user-friendliness.

Nevertheless, there's nothing especially intuitive about either program. There's no getting around it: you just have to work at learning how to use them, though someone who's used other Windows applications will be able to correctly guess at what to do in certain situations. For instance, double clicking in a field will select the field, and typing in new text will replace what's selected in almost every case. Strangely, double clicking the name of an existing Approach file does not open it at least from the initial dialog box. You have to click the name, then OK. If you double click, you move from Open Existing File to Create a New File.

As noted above, the list of templates Approach offers is truly impressive. One of them, FRIENDS AND FAMILY, sounds like a long-distance telephone company slogan, and is remarkably up-to-date.

Besides the usual data (name, address, etc.), it also includes fields for cellular phone number and e-mail address. For oenophiles, there's also a WINE LIST template. Fields include VINEYARD, WINE NAME, WINE ID, VARIETY, VINTAGE, COUNTRY OF ORIGIN, REGION and NOTES which I guess is where you'd put in *unpresumptuous*, *good nose*, *finishes well*, *better than Ripple*, or whatever else seems appropriate.

Coming from an Access orientation, as I do, it was disconcerting to look for help on queries, and find that Approach refers to queries as "stored find requests," and that you have to use a (gasp!) macro to create them. I'm sure that someone who comes to Access from Approach would be equally disconcerted on discovering that a find request is called a query. When in Rome however ...

One annoyance I found in Approach was how tedious it is to copy the contents of a field to the corresponding field of the next record. Access lets you do this with the Ctrl+apostrophe key combination. In Approach, you have to resort to Copy and Paste.

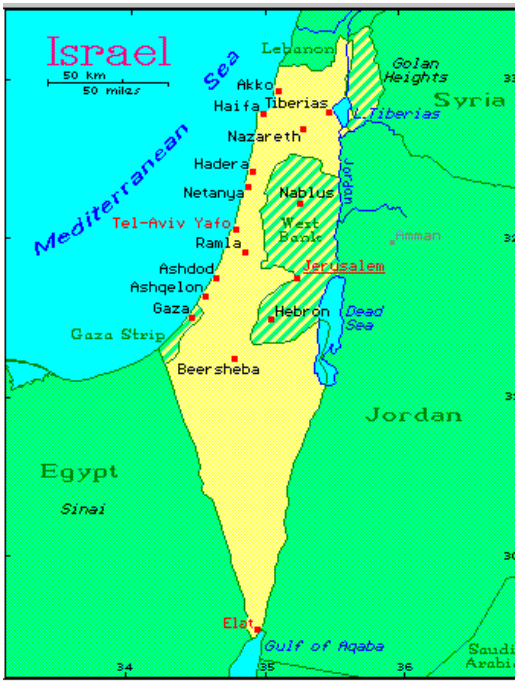
Another thing that bothered me in Approach was the Help screen, which shows a set of icons. I guess I'm not graphically-oriented enough to see the beauty of this, not having seen television until I was in my teens. I also have to carp about the wild goose chase you're sent on when you try to invoke the "Send Mail" function, and don't have a mail capability installed. Pressing F1 takes you to the general help screen, rather than bringing up a message specific to what you're trying to do. Well, I suppose if you're silly enough to try this, that's what you deserve.

Finally, what really bugged me about Approach was that the fields in my Class List database didn't match when I switched between Worksheet and Form views. After painstakingly putting in the information about required texts in the Notes field in Worksheet view, I was quite annoyed when the Maximum Enrollment value showed up in Form view. When I switched back to Worksheet, all was well, so at least the field didn't get blown away. Even so, it's enough to make you wonder. The connection between Form view and Worksheet view seems tenuous, at best.

Another Suites installment next time.

Frank McGowan is a technical writer, teacher and computer consultant. He is a regular WindoWatch contributor.

The Emerging Middle East Internet Connection



Earlier today I spoke by telephone to someone who lives about an hour and a half away from me by car. The phone connection was clear and I dialed the number without operator assistance. This does not seem like a very remarkable thing to the computer community I'm writing for, but to me it had an almost astounding feel. You see, I was making the call from Jerusalem, and I was calling Aman Jordan. Not too long ago, this call would have not been possible. The world in general is a changing place, and in this world in particular, peace between Israel and Jordan is now a reality.

There are other realities as well! Although it has always held an aura of mystery to Westerners, the Arab world is beginning to open its doors by using the technology of the Internet.
The person on the other side of the Jordan River with whom I was

speaking in this unremarkable, yet extraordinary way was Khaldoon Tabaza. Khaldoon is the publisher of Arabia On Line, a new Internet site that is developing into a central online link for Arab culture, business, education, and entertainment (http://www.Arabia.com). Khaldoon was very candid in his assessment of Arab computer technology and Internet use. He spoke with none of the political rhetoric so common in this part of the world. Here are some snippets of information that he gave me.

Presently in the Arab world, there are six to eight thousand Internet users. Egypt and Kuwait went on line about two years ago and are considerably ahead of other Arab countries in terms of Internet use. In Jordan, Internet access became available for the first time in October. Its use is still limited and is centered within the educational and governmental communities.

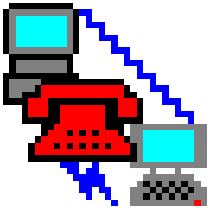
There are plans for the Internet to go public in March using a partnership of Sprint phone lines and several private Arab companies. Unfortunately, it is not likely to attract large number of users at first, given the price for services will be quite high. Other Arab countries are still cautious about the Internet. Pornography and readily available political information has stopped access into Saudi Arabia and the UAE. Khaldoon's personal philosophy is that censorship is a family responsibility and will not work at the governmental level. Obviously, this issue is not just restricted to Arab countries. He went on to say that the situation is being examined from the wrong perspective. The Internet is not a one way street. The Arab world can use the Internet as a forum for their own ideals and values. It can be used to help the rest of the world learn about Arabs and make available information for download. It also opens up opportunities for Arab business and generally can present to the world, the Arab point of view.
As far as Israeli technology is concerned, it was pointed out that Israeli technology has been available in Arab countries for a long time

as a result of existing partnerships between Israeli and American companies. Khaldoon believes that the use of Israeli technology in Arab countries will be based upon pragmatism. If a business needs something that is produced in Israel they will buy it. If they have a choice between a product produced in the U.S. or one in Israel, all other things being equal, they would use the American product. He points out, however , that the first choice would be an Arab made product if available.

Khaldoon sees opportunities for joint ventures between Israeli and Arab business. This is in sharp contrast to the common belief in Israel that Jordanians would not enter into partnerships with Israeli companies. He also believes that there are opportunities between Israeli and Palestinian business.

Having now spoken to people on both sides of the Jordan river, my own view is that the prospect of joint business ventures are unknown and uncertain. In spite of that, as long as I can make a direct call from Jerusalem to Amman, the future seems more promising for both individuals willing to dialogue and countries engaged in establishing peaceful and economic ties.

Stan Kanner is spending the year in Israel. He is the creator of Compuhigh an accredited online high school. He is a regular WindoWatch contributor!



Reflections of a ModemJunkie

Oh wad some power the giftie gie us
To see oursel's as others see us!
It wad frae monie a blunder free us,
And foolish notion.

Ah yes ! From way back in the recesses of my mind these words of Robert Burns have come back to haunt me in recent weeks. Actually, the exact words didn't come to mind, but I wanted to get it right. So, I logged on to the Internet and checked out Bartletts Quotations. In a few seconds I had the exact quote.

Cut and paste—point and click-- and here they are!

But the power of the Internet as a search tool isn't my topic, today. Today's subject is rather more personal. For several years I have written columns under the title, *Reflections of a ModemJunkie*, without giving the full implications much thought. I have joked about

my online addiction. But never _really_ understood what I was saying.

Then, the other day, there was a post in a general chat newsgroup on the Internet asking if there were any Internet hobbyists out there, individuals who spend significant time on the net, who would be interested in discussing the Internet with a reporter from Channel 7, the local ABC outlet.

I responded and shortly later was given a number to call at the station. I spoke for quite some time to reporter, Sylvia Jones, who seemed genuinely interested in the Internet. I talked at some length about many of the things I have already discussed here - E-mail, news groups, and the Web. I talked about its use as a research tool and as entertainment and about my daughter's use of the Net as well. It seemed that the station was planning a feature on the Internet. When could they come out and do an interview? Would my daughter be available? Whose ego can say, no?

The following Monday was a holiday. At the appointed hour a beat up Chevy arrived with a camera man and the reporter. They squeezed into my study and for the next hour they interviewed me and, in turn, my daughter.

I waxed eloquent about the glories of the net. I didn't catch on when they asked if I were addicted. I joked about the name of this column and about a twelve step program for modem junkies that doesn't work because you have to log on. This discussion was two or three sentences in more than twenty minutes of tape.

My daughter isn't as slow as her dad. When they asked her if she were addicted she replied with a forthright, "NO!" Asked if she

would feel bad if I wouldn't let her use the computer, she said, "Yes. But I'd feel bad if they closed the library, too. They are both tools I use." She talked about her chat line and about how the Internet helps her with her homework.

We learned that the feature was to appear a week later on the 10:00PM news. I eagerly awaited the news and turned on the set a few minutes early. I put a blank tape in the machine and got ready to start recording. But before I could even start, before the end of the previous show, there was a promo-- I recognized myself and then a great shot of my daughter typing away. As the voice over said, "Stay tuned for our Special Segment, `Terminal Addiction!'"

My heart sank... Was I going to look like some helpless nerd, with no social skills, stuck at this keyboard with no other life. After all, the Special Segment often deals with terminal illnesses of another kind. Were we just another piece of fodder for news soap opera as it seems to be, lately.

Of course, the only quotes they used were the two sentences about addiction, and they left out my daughter's spirited defense. But although I thought I looked quite old and tired, the program did put its negativism in some context and compared modem addiction to TV watching couch potatoes quite favorably.

And my daughter looked great!

Still, it was a lesson in ego and perception. Over the next few weeks, many friends mentioned having seen me. Only a few razzed me about my addiction. I even heard from a student from my teaching days in the 70's. Most told me how good I looked. Old ladies told me they were proud of me. I wondered how much they had understood. Being

on TV creates a minor thrill of celebrity. Some people actually acted a little shy around me for a day or so, as they approached to say the saw me.

The congratulations amazed me. This was a show about confessed addiction, even if it was good natured. Would some people still have congratulated me if it was about wife beating or cheating on my income tax or alcoholism?

The strangest thing was all of those who told me how good I looked. I saw this old tired, somewhat overweight, guy. (The twenty pounds I lost since last summer seemed to have been restored by the camera). But then I realized something. I don't see myself as others see me.

In my mind's eye I still see a younger man. I see the kid who was so skinny he thought he'd get sand kicked in his face at the beach. But my friends see me as I am. They were not shocked by what they saw. They were not comparing me to some ideal but to the guy they know. That test I can pass. And for that I am grateful.

Perhaps it would be a great gift to see ourselves as others see us...or not.

***Leonard Grossman** in an attorney who works for the government. He is also a **WindoWatch** regular and has been contributing "Reflections" for some time. Comments can be sent to grossman@mcs.com or leonard.grossman@syslink.mcs.com*

The In-Touch Sampler for WindoWatch

Name: Cool Edit 95
Version: Beta 1
File Date: 12/22/95
Size: 1.2 Mb
Developed By: Syntrillium Software Corp.
Registration: Free Beta Evaluation (Final Version Shareware $50. US)
File Location: ftp://earth.netzone.com/pub/syntril/cool95.zip

Description: Cool Edit was probably the best sound processing shareware that I had ever tried. The 16-bit version has now given way to Cool Edit for Windows 95, and the 32-bit version is even more amazing. This free evaluation provides all of the features of the regular version, but you can only use certain features at the same time. If you're looking for a utility to play and record basic sounds (i.e. your voice), stick to the Win95 Media Player. If, on the other hand, you're in need of a flexible, robust sound editing and synthesizing application, give Cool Edit 95 a try. Some features include the ability to synthesize just about any sound using the noise and tone generation functions, sample rate conversion, the ability to use any sample as an "instrument" and set it to music (like a dog barking Jingle Bells, or Tarzan yelling a national anthem), no restrictions on the size of the wave sample other than your hard drive limitations, support for PCM, Microsoft .WAV, Sound Blaster .VOC, raw PCM, ASCII Text, AU, and Apple AIFF, continuous echo of all or part of a sample, a built-in CD player when the [MCI] CD Audio driver is loaded, and the ability spatially locate sound sources to appear as if they are coming from

different directions. The Help file is user-friendly and explains all of the functions of Cool Edit in wonderful detail.

Name: MilkTruck Delivery
Version: 1.0 Beta 1
File Date: 02/05/96
Size: 533 Kb
Developed By: MilkTruck, LLC.
Registration: Free Beta Evaluation
File Location: http://www.milktruck.com/beta/win32/setup.exe

Description: Milktruck Delivery is essentially a Web browser enhancement, enabling you to browse websites anywhere offline and keep track and update your favorite ones with the click of a button. Milktruck Delivery can be configured to download entire sites, including graphics, videos, sounds, Shockwave objects, server pushes and even Java applets. For those of us who pay by the hour for Internet access, this application is extremely valuable, since we can now quickly download Web page information first, disconnect and then browse the entire site at our leisure. Upon launch, the program configures itself to work alongside your favorite browser, and then it brings you to Milktruck's website, whether you are online or offline. The application actually uses your browser as a "platform", allowing access to all of the features and delivered sites through Web pages and Web forms.

Name: More Than Words For Windows 95
Version: 1.2
File Date: 02/02/96

Size: 5.8 Mb
Developed By: Krepec Multimedia Corp.
Registration: Trialware $19.95 US
File Location: ftp://kmmc.harvard.net/pub/mtw95-12.exe
More Info URL: http://kmmc.harvard.net/

Description: More Than Words is sure to impress! It's a unique application which allows you to easily create personalized multimedia greeting cards for any occasion. The sizable file includes an Interactive Multimedia Tutorial, which explains step-by-step how to create the cards, and several catalogs of multimedia material: images, verses, music, background watermark images, sound effects and color styles. There is also a catalog of 35 pre-designed cards to choose from. An intuitive text editor allows you to personalize any verse, type your own verse or type a personal text message to the recipient. You can then very easily record a personal voice message and proceed to deliver the card via E-mail. The "Send" function automatically packages and compresses your card together with the auto-playback code into a single *.exe file, allowing immediate playback with the click of a button.

Name: PC Sweep 32
Version: 3.54
File Date: 01/20/96
Size: 2.45 Mb
Developed By: Shane Stump, StumpWare Consulting
Registration: Shareware $40.00 US
File Location: http://web2.airmail.net/sstump/pcswp32.exe
Description:PC Sweep is a versatile, 32-bit multi-window file manager with a nice assortment of disk, directory, and file management functions. The primary goal of the program is to make disk cleaning chores simple and fast. PC Sweep supports Windows 95/NT, and its interface includes "Bubble" help, speed menus, tool bars and tab dia-

logs. The application allows you to log disk drives incrementally or entirely, easily maintain ZIP files by displaying and treating them as DOS directories, create self-extracting ZIP files without the need for an unzipping utility, and drag-and-drop files between logged drives (both move and copy). Very nice app!

Name: Ponger 32
Version: 1.6
File Date: 02/04/96
Size: 133 Kb
Developed By: Savant Software
Registration: Shareware $10.00 US
File Location: http://www.cris.com/~randybrg/win95/ponger32.zip

Description: Ponger is ideal for people whose Internet Provider will drop a connection after a certain time period of no activity. This practice can be extremely aggravating, especially when you're simply reading a lengthy Web page or online document. The application was designed to keep dial-up network connections alive by tagging the host system at regular intervals, in one of several configurable ways. This keeps the host from timing out and dropping the client connect-ion. By running Ponger once you're online, you'll be able to keep your connection alive without any activity on your part for as long as you like.

Name: Quick View Plus
Version: Demo
File Date: 02/08/96
Size: 2.4 Mb
Developed By: Inso Corp.
Registration: Trialware $49.00 US
File Location: http://www.inso.com/pub/qvptrw32.exe

Description: **Quick View Plus is an excellent 32-bit add-on utility that greatly enhances the viewing features built into Windows 95. It places a menu item called "Quick View Plus" on the context menu (when you right-click) of every file in Explorer, Exchange, Find as well as the Open and Save dialogs in your programs. The application gives you a fast, high quality view of the file, allows you to print the file, and enables you to copy all or part of the file to the clipboard for use in other applications. It does this for over two-hundred types of files (document formats, spreadsheet formats, database formats, graphic formats, presentation formats, compressed formats, DOS EXE, Windows 16-bit EXE or DLL, and Windows 32-bit EXE or DLL), without requiring you to own the original application that created the file. It makes the chore of passing files, memos and worksheets from one system to another very easy.**

Lance Jones is the owner/creator of the In-Touch Newsletter. He provides the best and most up to date information on the newest Windows 32bit shareware. His descriptions of new shareware takes the barebones lists and links to a very useful place. To receive his list on a regular basis sign up on his home page at sword@islandnet.com and this very useful newsletter will be Emailed to you directly.

Technological Innovations:

AN ANNOUNCEMENT: BRAIN DOUBLER 1.0
From the developers of Conflict Doubler
Contributed by Derek Buchler

You've doubled your RAM, you've doubled your speed, you've even doubled your CPU. You're still hungry for more. What to do next?

DOUBLE YOUR BRAIN!

Since the introduction of the Altair in the mid-1970s, the power of the average personal computer has grown at an exponential rate. Today's notebook computer possesses orders of magnitude more processing power than the Apollo astronauts took with them to the moon. You and I wouldn't think of booting up with less than a PowerPC or Pentium; Neil Armstrong cruised a half-million miles and made One Giant Leap(tm) with TTL circuitry!

Despite the explosion in processing power and the accompanying plunge in costs for RAM and hard disk storage, many computer users are still disappointed with the performance of their personal computer systems.

"In 1985, when I bought my Mac 512K and an ImageWriter II," says Roy Cardiff, an early Mac adopter, "it took me about a day to write and edit a ten page memo. Now that I have a Mac 8500 32/1080MB and a color laser printer, it takes me... about a day to type and edit a ten page memo."

Indeed, our detailed analyses show that over the course of a twenty-four hour period, 99.94% of all processor cycles are spent waiting for

you, the computer user, to do something. In other words, the bottleneck today is not in your computer--it is in your head.

The lesson is plain. If you want to get more out of your computer, you're going to have to improve *your* performance. To help you along, we've developed BrainDoubler.

In our beta testing, we have found that BrainDoubler significantly increases the rate at which experienced users are able to get work done with their computers:

Good Ideas per hour:

w/o BrainDoubler **********

w/ BrainDoubler **********

Bad Ideas per hour:

w/o BrainDoubler **********

w/ BrainDoubler **********

Coherent Sentences per hour:

w/o BrainDoubler **********

w/ BrainDoubler **********

Your results may vary. We've noticed that people with a general propensity for bad ideas produce a majority of bad ideas with BrainDoubler. We're working on a fix. In the meantime, we do not recommend BrainDoubler for idiots, MBAs or government employees.

Look for BrainDoubler at your local retailer/mail order house.

Available soon!

Editorial Warning: REMEMBER THE VARIOUS SCHEMES TO DOUBLE RAM ?
They didn't work either! lbl

Derek Buchler has been finding and/or creating wild tales of unbridled imagination for WindoWatch from Issue One and onward. Do you believe he's a serious Systems Administrator?

A CHALLENGING SUITE OF GAMES

This is an entertainment set for adults and big kids which comes from the imaginative computer game creator, John Moraff. It contains twelve major games which are *not* simple little diversions put together quickly. Almost all of them are major mind teasers and complex entertainment. They are games which call for strategy and planning rather than arcade finesse and skills. All are Windows games and fully compatible with versions 3.1 and 3.11, Win'95 and NT. The total set of program files weighs in at 14.7MB , partly because there are so many graphics files. An the graphics are great! You have lots of choices, and you can choose between 16 million or 64,000 or 32,000 colors.

Music and voices abound. You have a variety of choices and can change music easily. Voices greet you and say goodbye, apologize or congratulate you, and pop up at other odd times. I almost have the impression that the speakers and what they say keep changing endlessly but I am probably wrong. It must be a case of sensory overload or an overactive imagination. As an aside, my new invention is going to be highly customized software built around a recording of your voice with snippets of music of your choice. You send the music tapes! In any case, there are times the sounds are a bit unnerving, especially for someone who shares your work space and is not prepared for them.
Many of these games can be played with an opponent on the Internet or at home, but you can play almost all of them alone or against the

computer. If you have a pair of networked computers, you can put the games on one machine but play them from both. We have tried this in a limited way with Win'95 for most of the games, even playing the same game simultaneously on both, and have encountered no difficulties. I expect the same thing could be done with Windows for Work Groups and NT. The only trick is to find the right files to call up the program. The key file is MWNET.EXE but note that a few of the games have independent application files. Proceed with a bit of caution since no information is provided on this option. To top it all off, this is shareware so you can try before you buy.

John Moraff has been creating computer games for some time and has now provided a set of games written for Windows which really works well with Windows. We have here a small independent share-ware entrepreneur and programmer who employs but one other programmer. He has his own interests and views about computers as a human being and does not hesitate to tell you about some of them. The programmers take the phone calls so it is they who cope with criticisms and suggestions, promote their products, fill orders, and provide tech support.

For example, there are few memory or resource problems or (GPFs) a computer crashing general protection faults encountered when doing complex DOS games under a Windows shell. He accomplishes this while using sophisticated graphics, music and voice. Usually you easily escape from the minor errors and even GPF's with nothing more than closing the game and calling it up again. I had only one serious or repetitive breakdown which I only solved by deleting and then replacing that game--very quickly done with the relevant command icons. Both of these icons are part of the interface. One caution--be sure you heed the advice and establish a program group when installing the program. Otherwise you will get an unwelcome

surprise when you discover where the program files were placed, have to delete them, and redo it all. Obviously this happened to me. It happened when for reasons I won't even try to explain, I deleted and reinstalled the entire game set. One of those five minute minor panics and twelve more gray hairs before I figured it out.

Even though the graphics are heavily compressed and the program motivates you to make frequent changes in graphics, the games come up very quickly. This is true even when the games are on the other computer. However, this will likely not be the case for everyone. I am using Win95 on a 486, 100mhz computer, with 8 MB of memory, adequate hard disk space so the dynamic swap file can be large, and a graphics card with 1MB of memory.

The games are varied enough so that most people are likely to find enough challenge and diversity here, especially if more than one person is using the computer. Many will find extra value in this package because several of the games are aimed partly at kids . Four of them are games with varying difficulty level options in which adults and kids can hassle each other as foes—good old family fun where the kids can give you a break by choosing the easier option. These games can also be played with opponents on the Internet but more about this later.

I will not make any systematic effort here to describe or evaluate each game. There is no point in doing this for you and it would make for too long an article. Instead, I will indicate highlights of many of them and make some comments and evaluations.

<u>A Common Interface for the Games</u>
Lets look first at some of the overall and common program elements. The Desktop icon brings up one of many welcome voices and an open-

ing screen with twenty-four large icons. There are twelve icons which do exactly what you expect: --open a game and give you access to some strategy hints and rules for play. The rest call up a variety of commands, some of which will likely surprise you. You are dealing with a linked set of programs using and often sharing the many graphics, music and sound files. There is a Help icon which gives you access to general information, to specific help on games, clear instructions on how to play a game via modem, and help on how to use the image editor and image viewer programs. Other icons make it much easier to set up and play a game with a modem opponent. Still others make it simple to install and integrate a few additional games from Moraff and not part of the original WorldNet package.

There are some features common to all of the games. The command menu is only on screen when you want it there reducing clutter. You usually have a choice of screen sizes, colors, backgrounds, etc. You return to the opening screen upon exiting a game. One desktop icon gets you to all the games. There is a standard hot key combo to exit all games. The package is very complex and the documentation is very terse, a common feature of game programs.

<u>Use and Choice of Colors</u>
A trademark of Moraff's games is his use of color even without CD-ROM's. WorldNet is the "first widely distributed 16 million color Windows gaming system," he claims, and says Moraffware was also first with a high-resolution VGA game and support for Super-VGA graphics. Certainly, he was among the earliest.

Every game provides a choice of backgrounds and colors and a choice ranging from 32k to 16 million colors. You should take full advantage of your hardware, he suggests, in choosing color resolution but not necessarily in the choice of number of colors. Instead, he suggests a

maximum of 65K colors, even if your equipment supports more, and using 800 by 600 resolution. His experience has been that the difference is negligible, and that using 65k colors means the computer runs much faster, loading images more quickly, and requires 1/3 less memory.

Do not make my initial error of thinking that you must have a Super VGA to use 16 million colors. Instead, be ready to test out the possibilities with both a game and high geared graphics programs. Let me outline my experience. My monitor is a plain old VGA, but quite good and large, with a good VGA card. The fact is that with enough memory (at least 8 megs) the 16 million color images load quite fast. For one game, it took 32 seconds with no memory crunch at all. Best of all, the games look and feel much better with these much more satisfying graphics. So go for the best you can get with what you have until or unless you run smack into one of the walls Moraff has seen.

<u>The Games</u>
These games tend to demand thinking rather than speed or dexterity. They appear simple and attractive enough so that it takes a combination of trial and error and some quick defeats to accept the need to devise strategies. The apparent simplicity deceives you until you start seeing the signs of an original talent at work—in the choice of games, the way of presenting them and the use and complexity of the graphics. Often, the graphics are much more than just fun and kind to your eyes.

Several of the games are quite unoriginal. What could be more copycat than chess and checkers. Others are original but only in the sense that they are variations of older games. Some may well be partly his own inventions as he adapts a game idea for a computer. And a few

may be completely his own game inventions. I do not know and I have not asked.

Highlights and Comments
SphereJongg and MoreJongg: Non-Trivial Matching Games

The sphere game, which uses colorful marbles, is the more complex of this duo while the tile game—MoreJongg--is easier to play. The graphics in both are delightful and imaginative (watch for the subtle design variations in the tiles) and contribute to the challenge of the games. Each game has a number of major and minor variations, including a range of structures from which to choose making for almost endless variety. In effect, each structure or arrangement uses the same objects to create a new puzzle game. Scores are kept separately for each puzzle if you wish. You can also get flashing hints, cheat or opt for honesty, choose colors and structures and music, etc. Each game then is a quite large set of different puzzles.

To complicate matters further, SphereJongg offers a choice of four levels of difficulty of play using any of the ten or so puzzle arrangements. This gives you have a minimum of thirty-six different games to play, not to mention the myriad ways in which the many marbles can be distributed. The simple catch is that Moraff offers you a choice of different rules for exposure and removal of the spheres. The rules change and become more difficult at each level. Although time is kept, there's no rush. You just sit and stare at the nice colors and keep trying or if you wish, call for a hint or go back and undo some of your previous decisions. So good luck and use his secret hint to "be lucky".

Moraff wisely decided to provide demos for these programs, which potentially makes it easier to better understand the one sentence strategy statement: "The order in which the marbles, or tiles, are

removed determines your fate." The trouble is that the "teacher" removes the marbles so fast that you have no way to choose or check your judgments against the tutor. I got nothing from these demos.

By the way, you can also create your own tile sets for MoreJongg, as well as graphics for some other programs, with an Image Editor and Image Viewer program which come with the package. The directions are actually understandable and the programs work. These programs also enable you to convert graphic files into different formats and have other features. See the directions and try them out. It seems to be a big extra—another nice surprise.

<u>UltraBlast</u>
This game reflects some of the Moraff trademarks. What looks like one game is actually seven with sharp variations of the same structure. You can even get insight into how he does this by trying to creating your own screens. What looks like a simple demand for speed and dexterity calls for much more for "success". No demand for a strategy is inconsistent with the man. So I checked the instructions and played with the screen editor. The game objects are seven or eight kinds of bricks—e.g., one-way bricks. You use and arrange these bricks however you wish. His big strategy hint: "As you learn to recognize these bricks, you will be able to use good strategy to reach higher levels." Cryptic to a fault. Does he sayeth the truth? How will I find out? Will there be a New Age guru to show me the path? Is brick recognition easy, or do you need backup from a teenager? The fact is that you start getting higher scores only when you begin to think. Although his help is always sparse by word counts, he often gives more with strategy hints.

Some suggestions for those who try this program. It is often tempting to skip and skim the help files for games. Unless you have a special

need for frustration, don't do this with WorldNet. Scan the options behind his menus of commands. This chap has a tendency to hide a significant game variation, perhaps because he has so many. I found one in this game, for example, when I tried a command called "change backgrounds". Some of the backgrounds made the game objects stand out better and so increased both my accuracy and my scores.

MoreTris

My early reactions to this Tetris game was that it was rather boring in comparison to others. The action was slower and you seemed to have to much time for decision. I gradually realized there was much complexity, promise and originality in the challenge. These people can be subtle, not an uncommon experience with Moraff's games. He does not use many words and does not warn you about what he's up to. Rather he simply challenges you by setting very high standards for himself. You may not want to ski like a semi-pro but he is going to give you the option. Here, he calls upon his graphics talents to create a surprising variety of shapes for the game pieces. He then embeds these in a variety of colors and color contrasts, often muted so that the contrasts are not shouting at you. You either give up in frustra-tion or annoyance with his flouting of convention or you are forced to assess and use the different cues as you make decisions. There are only three different versions of Mortris using colors, shapes, arrange-ments and screen sizes. You have to give this one a try even if you are not a Tetris fan.

MoraMind

The directions for this quite different diversion are simple and minimal, so much so that I kept avoiding the game, perhaps from embarrassment. Finally, I tried it only to realize it is quite difficult to solve - it cannot be impossible! Even the easiest level poses difficulties

and I have not come close to the toughies. I must admit that my attitude started to change drastically when I solved a puzzle with only my third response in my third game-- and got this stunning message on screen telling me how remarkable I was and all that.

Peter Neuendorffer's Alice, who had just dropped in, was belaboring me with questions and sarcastic comments about this Moraff guy. It was she who advised me to keep my cool and that it was a canned message produced by AI - not even real intelligence! She went on to say that this was part of an organized PR effort by those nerds to make us more tolerant of all those meaningless, cryptic, hellish, neatly boxed error messages they typically send us. She also said it was part of a message library devised by those Microsoft people to sell the tool set to write games for Windows'95. Anyhow, Alice persuaded me to stop feeling flattered and said that I would soon fail. She was right. So there is little point in trying to describe this game. Try it if you dare go for broke—a happy boxed answer. He even provides a single sentence on strategy.

<u>Play by Modem: Chess, Checkers and More</u>

Both games are intended for play with an opponent on your computer or over the Internet as an alternative to more traditional modes of long distance play. (Checkers aficionados can also play against the computer.) The game are played in real time with both on-line so you do not want to play this way if you pay an hourly access rate. A primary difference from the traditional modes is that both have the entire board on screen, and that this comes closer to normal interactive play. You can even have chat mode verbal exchanges and maybe this is more acceptable than an opponent distracting you with sounds. You can have music and sounds of course. Two people can also play on screen at home and this may give you a better way to teach Chess to a

newcomer. The colors and graphics are surprisingly unexciting but some of the visuals are helpful.

There are several other strategy games which can also be played by modem—Vorb and Nexus-- which I have not tried. His directions for connecting up to play these games seem clear and icons for the major commands are provided in the opening screen to bring up the necessary dialog boxes.

There are three other games I haven't even mentioned. One is called Jiggler and is a rather elaborate Jigsaw puzzle solving game. Another is called Escapade and is a Windows version of a game he originally put out in a DOS version. This one comes closest to what might be called an arcade game. Finally there is a takeoff on the card game of Concentration called CyberMemory.

Of course, not everyone will like all these games. Enough people have liked Moraff's choices and creations, however, so that he has been doing games for over a decade. There is a lot of variety in the games in this suite and the price is good, even if you only like half of them. It is a satisfying low cost buy.

This chap's work is so good I refuse to give up on two games where I have made absolutely no progress. I have made four or five efforts to quickly grasp the essentials at least to get a start but I neither understand them nor can I play them. My operational rule is simple: if he worked at a game it must be good until proven otherwise. I will be patient and try again with a bigger effort. I suspect the problem is that these games are designed for play against a human and that I need one of my grandsons at the other end of a modem connection.

$49 for set of 12 games and Image Editor/Viewer.
Available on CD-ROM or floppy. Either 16 bit or 32 bit.
Email address=MoraffWare @ AOL.com
Web site = www.moraff.com (new)
Shareware versions available for four of the games all over the Internet and on AOL (keyword is mahjongg); Compuserve.
Separate files for SphereJongg; MoreJongg; RingJongg and Ultrablast.

Playing computer games would be sufficient reason for Jerry Laulicht to have a high end computer. His enjoyment of the Moraff Suite has been quite evident with his colorful and often loud verbal commentary. He is a regular WindoWatch contributor!

It's Not Smoke and Windows!

Windows has brought PCs to more desks than any other OS. Or is this just the result of a generalized interest and move to the graphical interface? Would PCs have spread as far and wide with DOS or Desqview? I think not. The perceived ease of use and relative visual attractiveness of working in a graphical environment is helping to bring PCs to the desktops of more workers, managers and administrators than ever before.

However, this raises some new challenges, - especially for consultants. Gone are the days when everyone gathers around, sits cross-legged on the floor, and pleads with the grey-haired consultant to regale them with stories of DRAM and EDLIN. Even batch programming is becoming something of a lost art.

Now when a consultant walks into an office he is confronted by a wide assortment of users. First, there's *Joe the office expert*. Joe has a recent copy of PC Magazine under his arm and changes the colors of his Windows desktop every week. This week he's using Hot Dog Stand. Joe demands to know the reason behind every move you make and second guesses you relentlessly. Worse yet, Joe feels compelled to personally review, and occasionally revise, every line of every .INI file...generally a few hours after you leave.
Joe occasionally gets some neat tips from his magazines, but more often than not he's installing animated icons or little applets that

loudly proclaim "Elvis Has Left The Building" when you exit. This is all well and good, except that left to his own devices he will install seventeen of these, simultaneously, dropping available Windows resources to just under 35%.

Joe once deleted PROGMAN.INI in an effort to save hard drive space.

Some offices are cursed with several Joe's.

Next you'll meet Suzie. *Suzie is the bookkeeper* who's entire life revolves around Excel. She likes to operate out of File Manager and panics when you suggest that she use it as her shell. With Joe's help and your begrudging cleanup she has managed to set-up a series of directories and associations to launch her applications. She refers to it as her menu and has asked you on several occasions how to add a file she creates to her menu.

Suzie is somewhat afraid of her computer and her blood pressure rises when she finds herself accidentally faced with Program Manager and the dozen icons that live there. She thinks that Joe is an expert and quotes him to you constantly and confidently. Suzie is well meaning but rather timid and the only thing she fears more than her computer are books about her computer.

Suzie once called you in a panic, insisting that without touching her computer all of the data in her spreadsheet had disappeared. In truth, she had accidentally changed worksheets, one click magically restored her work. While she waited for you she sat for a couple of hours wringing her hands.

Joe wasn't able to solve her problem but DID manage to get the Excel

icon to change colors every 15 seconds.

***Cheryl is the office manager*. Cheryl wants to know why their 386 with 4 Megabytes of RAM has a GPF every third time they launch Word for Windows 6.0. She verbally insists that Joe could fix it if he tried although privately isn't convinced that he could. If you suggest that an upgrade of RAM is needed, she'll ask for a quote, followed by a cost breakdown and a detailed, estimated ROI.**

IF you can make a convincing argument, she'll ok the upgrade, but won't pay the bill for nearly a month while they decide if they really need to use that machine after all.

Cheryl once called in Joe's cousin Norm (who works for a computer superstore during the day) to do some work in the office because Norm would do it for less than half of your rate. She then bristled when presented with your bill for fixing what she paid Norm to do.

Cheryl's own PC sits on her credenza and is actually turned on twice a month.

The point of this silly scenario is this: Because of the spread of PCs into nearly every office, consultants are increasingly faced with people who have responsibilities and often authority, but are not quite ready for the computer revolution. For the consultant, people skills are becoming increasingly necessary. Being a good tech or a good programmer isn't enough any more. You have to be patient, ask the right questions, have a pager, a sense of humor, and be able to teach in easily understood English. A walk in the park!

You have to be willing to chat about the latest version of Myst with Joe and not insult him when he suggests that you put a SoundBlaster card into the fileserver. You have to be patient enough to answer Suzie's questions and spend a little extra time showing her how things work and that there's really nothing to fear from her PC. You have to be strong enough to deal with Cheryl, professional enough to respond to her questions authoritatively and be willing to grin and bear it when she does things that irritate you because she's not a computer person; she's a bureaucrat with a position of authority to maintain.

You have to work well with all of these people and more, or they will make your life hell.

Now then, who wants to hear about the time we added 2Megs of socketed DRAM to an 80286?

***Ben Schorr** is the Host of the Ilink Consultants conference and the Director of Operations of Watson/Schorr Consulting of Canoga Park, CA . Ben's consulting practice keeps him very close to what is happening and being said on the street. He is a regular contributor to **WindoWatch**. He can be reached at ben.schorr@bcsbb.com or ben.schorr@panasia.com*