

Logo Update

The Logo Foundation Newsletter ▲ Volume 3, Number 2 – Winter 1995

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At the closing session of Logosium in Boston last June we discussed ways of keeping in touch and sharing ideas on an ongoing basis. With the rapid increase in access to the Internet, it appeared to be the right time to use this new technology as glue for the international Logo community.

One concrete outcome of that meeting was the creation of a new Logo discussion group on the Internet. This joint project of the Logo Foundation and the Global SchoolNet Foundation has just gotten underway in the past few weeks. Turn to "Logo on Line" on page 12 to find out how to get connected to this group and to other Logo resources.

Some Logo telecommunications projects have been going on for some time. This issue of Logo Update includes articles about activities in the Americas, Europe, and Japan. If you're not yet in cyberspace, "Getting Connected" on page 12 can help you get there.

Carol Sperry reviews *Turtles, Termites, and Traffic Jams* by Mitchel Resnick. It's about a new Logo-StarLogo – which serves as a vehicle for exploring decentralized organization and thinking. What does this have to do with our telecommunications theme? Well, the Internet is a prime example of decentralized, self-organizing behavior. No one is in charge. In spite of that – no, because of that, it works!

Michael Tempel

Logo Telecommunications: Crossing Boundaries and Opening Minds

by Sarah Dickinson

The Logo Telecommunications Project – LogoNet – is in its fifth year. It was started at the Epistemology and Learning Group of the MIT Media Lab, in 1989 as a pilot project with Gilda Keefe, a 4th grade Spanish bilingual teacher at the Hennigan School in Boston. The first project focused on linking Keefe's class with children in a primary school in San José, Costa Rica. Ideas and methods of working with telecommunications within the Logo learning environment which were developed by Keefe and her students during this first project and supported by myself and Fred Martin, were critical in the evolution of Logo telecommunications.

What is the Logo Telecommunications Network?

Logo telecommunications and LogoNet are the terms used to describe the ability to communicate between groups of students and teachers at various locations on the Internet via both a LogoExpress and LogoNet software interface. Logowriter text, graphics, and digital video still images, formatted as Logowriter files, are exchanged between participants on the network. Therefore the students in Keefe's class were able to "talk" with students in Costa Rica and share stories, graphics, and pictures with one another. Over time the project evolved and expanded to include communication with children in a rural school in El Tejar.

This project with Costa Rica was the first step toward the realization of a larger project during 1991 and 1992 focusing on ecology and neighborhoods. It involved Dave Batten's 5th grade multicultural class at the L'Ecole Internationale in Geneva, Switzerland and Keefe's class at Hennigan. Randy Sargent, a graduate student at the Media Lab, developed the LogoNet software that allowed for the transmission of digital images taken with a still video camera. These included scenes of field trips in the Alps, Keefe's students' nature walks, and views of the area around the Hennigan School.

Within the past few years other teachers – Evgeny Patarakin in Russia, Oscar Becerra in Peru, Karin Rassmussen in Denmark, and Indu Varma in Canada have participated in LogoNet and the list is growing. Active participation by Medi-Lab-affiliated teachers Lurette Bourne, Ginny Grammer, and Denise O'Malley through the Science and Whole Learning Project in the greater Boston area has broadened the base and focus of these telecommunications projects to include work with Lego Logo. These projects also involved minority group students and severely disabled young adults.

Jean-Claude Bres, director of the Pangea Project in Geneva, is also an active participant in LogoNet. Plans for the future include global remote Lego Logo projects with visual telecommunications capabilities (motion video) between teachers in Boston, Uruguay, Switzerland, and other countries. Our goal is to bring together many more participants, including all Hennigan teachers, within the next year.

Why Logo Telecommunications?

The Internet is rapidly becoming the most comprehensive infrastructure for what is today commonly called "the information highway." While most would agree that teachers and students should have access to this resource, our work with the development of Logo Telecommunications concerns not just network access, but most importantly, how access to this resource reshapes

(continues on the next page)



(continued from page 1)

and transforms the learning environment. Questions as to how the Internet may be used to enable teachers and students to build *their own* communications environments, and the means by which this technology can become a fully integrated part of the classroom and school, are central to this research. Access to technology is only the first step. It is also critical to have a working knowledge of the dynamics surrounding the use of telecommunications technology as a cognitive tool across diverse classroom environments.

What have we learned?

Keefe's initial interest in the use of telecommunications was based on its ability to increase students' positive images of themselves as members of a larger world community. The first interactions accomplished via Logo telecommunications with children in Costa Rica enabled Keefe's Spanish-speaking students in an inner city Boston school to form a bond with children who shared a similar culture. To Keefe's students, working with Logo telecommunications became a foundation for deeply personal learning experiences beyond the classroom. "They're just like me." "Now I feel that I could actually talk with my grandparents back in El Salvador." "They seem so close." These were typical of the exclamations often made by the students.

The "Logo Communications" station became a real place within the classroom – decorated with drawings of Boston and Costa Rica – not just another computer with a modem. The communications process was easily integrated into the learning environment. Keefe said that the students often gathered at the station to talk

and socialize.

Just as the Logo programming language has created a common culture among educators and students around the world, Logo telecommunications enables members of the Logo community to greatly enhance interrelationships through the day-to-day sharing of ideas, concepts, and Logo programs. Students in Keefe's class have designed and written Logo programs to send over the network. They have made complex graphics of the rain forest and of their homes and families. To these children, working at the computer is not a solitary learning experience.

Logo telecommunications has given these children an opportunity to "read the world" far beyond the classroom and their own immediate environments of home, family, neighborhood and school. Places such as Costa Rica, Geneva, and Russia are no longer dots on a map, but real places with people who often express common feelings, hopes, fears, thoughts, and ideas.

This ability to go beyond one's own small universe via telecommunications sparks the child's natural capability to think within a much bigger world image and to touch and interact with that world. Being given the tools to *think within a larger space* is more critical to growth than narrow and passive experiences such as watching television or learning about other cultures from "schoolbook" lessons in geography or sociology. Through the process of communication and interaction, the child is able to build knowledge structures which are based on real experiences. This enables the child to make connections between other cultures and his or her own environment.

Children in Keefe's class *built their*

own telecommunications environment. They set up the station and along with Keefe, chose the projects and ideas they wanted to communicate to others. Keefe allowed the use of Logo telecommunications to evolve within the classroom as a learning tool relevant to ongoing classroom work.

What's next?

Today, with the increasing roll out of technologies to support the Internet and other transport mechanisms as educational, entertainment, and informational resources, we face the risk of losing our children in a maze of content-driven discontinuities along the information highway. It is most important that these children be given the tools to effectively navigate this information highway, as well as to build and invent their own tools with which to select and communicate information. Over the next few years we can expect to see the rapid transformation of the PC as the lines between the telephone, the computer, and the television continue to blur.

The challenge ahead for teachers of Logo is to find appropriate vehicles to enable the child to access on-line information services and bring content into the Logo environment. Logo telecommunications is a first step in allowing the child to build communication and information microworlds which are his and her own, enabling the child to become an information gatherer and communicator, not just a passive recipient of media messages. ▲

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Children in Costa Rica and the United States exchanged digitized pictures of themselves over LogoNet



LOGO-Net in Japan

by Takayuki Tsuru

Instructional use of computers has recently become popular in the elementary, junior high, and senior high schools in Japan. Schools have increasingly incorporated computers into their educational curricula.

Logo Japan, Inc. has developed multi-functional software for use in education. In particular, *LogoWriter2* has been incorporated into the lessons taught in many Japanese schools. It is one of the best selling programs in Japan and enjoys a good reputation among teachers for its educational effectiveness.

In order to support users of *LogoWriter2* we set up a communications system we call LOGO-Net. The host computer is based in our office in Tokyo and is connected into a nationwide computer network. To have access to the host, users can log in using any of the general-purpose communications software packages available on the market. The chart to the right shows the LOGO-Net main menu with the various areas available to users.

Through LOGO-Net, Logo Japan, Inc. provides information about Logo-related events and new products. Users may obtain technical support and information about the Logo language. Teachers ask questions about *LogoWriter2* and exchange ideas about how to use it in the classroom. Software and projects which have been created by students and teachers are exchanged in the Software Database section of LOGO-Net.

LOGO-Net also plays a role in the curriculum study that teachers engage in. There are *LogoWriter2* study groups in Tokyo, Osaka, Fukora, and other parts of the country. These groups post summaries of their meetings on LOGO-Net. Others are encouraged by this information and a closer networking of teachers has developed.

Communication among schools through computer networks is just beginning and we expect it to be greatly expanded in the future. We hope that LOGO-Net will not only be a communications tool for teachers,

but will also be a place for nationwide communication among students. ▲

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Quorum: A Latin American Collaborative Logo Network

by Alberto J. Cañas

The Setting

You are a 4th grade student in La Guaira, Venezuela working on an environmental project in collaboration with students from Mexico and Brazil. You want to send a copy of your current LogoWriter page (AMBIENTE) to Marcio Diaz (userid mdiaz4b), a member of your group from the Ipanema School in Rio de Janeiro. From within LogoWriter, you type the command:

```
send* [ambiente mdiaz4b
Ipanema Rio]
```

and the LogoWriter page is sent to Marcio. You type:

```
receive
```

and LogoWriter displays a list of LogoWriter pages that have been sent to you. You display a page, rename it OZONO and forward it to your classmate Gregorio Loma (userid gloma4a):

```
send [ozono glom4a]
```

Gregorio, sitting at another computer in your school, can immediately receive and load the LogoWriter page you sent.

This type of collaboration is taking place within the Quorum Project, a three-year cooperation between the University of West Florida and IBM Latin America to implement a telecommunications network connecting schools participating in Project Genesis, an IBM initiative that has grown to over a thousand schools throughout more than ten Latin American countries. Genesis distinguishes itself by a fundamental emphasis on the training, preparation, and support of teachers, and the use of Logo as a tool in the development of curriculum-integrating projects. Quorum builds on this effort, and includes not only communications from a technical point of view, but more

*The Spanish commands *envía* and *recibe*, and their Portuguese translations, are actually used.

important, working closely with teachers, coordination in the design and development of projects, access to experts in the various areas of the curriculum, and development of educational materials.

Telecommunications in Schools

As has happened before with other technologies (e.g., CAI and multimedia), telecommunications (more specifically, the Internet) is being portrayed as the technology that will have *the* impact that everybody has expected technology would have in education. Little thought has been given, though, to what this Internet access will be used for. The emphasis – as before – is on installing the new technology in the school, but as usual, no budget is available for teacher development. In a few years, schools will discard Internet (“We already did that”), and it will be some other technology’s turn, maybe virtual reality.

In Quorum we have taken a different approach. Throughout the life of Genesis, we’ve observed a high degree of similarity among student-developed projects from schools in the various Latin American countries. Overall, the constructionist approach is shared by thousands of teachers who have participated in extensive workshops using LogoWriter. For example, projects on conservation of the environment will have a local flavor, but will highlight many concerns shared by students from different countries. For years, we have envisioned how students would benefit from collaborating in the development of these projects. Therefore, the main thrust in the design of Quorum has been on enabling students to exchange LogoWriter pages. We see the network as a means for allowing students to collaborate, to help them understand their cultural and social differences, as well as their commonalities. Students collaborate on issues that are global in nature, involving not only the problems of their communities, but also those of neighboring communities and the world as a

whole. We anticipate that by their participation in the Quorum Project, students are gaining an enhanced appreciation of their social responsibilities and a deeper appreciation of the world at large.

LogoWriter as a Mail Tool and Mail Medium

We are interested in empowering the students to embrace telecommunications – to make it one more tool they can use when they need it. We believe that to achieve this, all students and teachers in the school must have their own unique e-mail addresses, and be able to exchange messages with any other student or teacher in the network. Not all projects require that students participate individually, but they should have the capability of doing so. We also want the mail tool to be accessible to students of all ages. Having it as part of LogoWriter has allowed for the introduction of telecommunications as part of the student’s work with Logo without the need to learn a new software package.

Only a few state-of-the-art mail programs allow users to send graphics, animation, or sound; most e-mail users are limited to text messages. Quorum students and teachers, on the other hand, are able to send not only text, but graphics, animation, and sound, and more importantly, executable programs. Few, if any, mail systems allow you to “execute” the mail message you receive.

Network Implementation and Current Status

The Quorum network is divided into regions. Each region consists of the group of schools located physically close to a Quorum Server, which is usually installed at an IBM regional office. All IBM offices are linked through reliable communications using its proprietary network VNet. As illustrated in the chart on the next page, schools need only to call the closest IBM office to connect to the network. Next, the messages and files proceed transparently from there to

the IBM office which serves the destination school. VNet is not used for communication between schools within the same regions, that is, those that are connected to the same IBM regional office.

In Quorum schools, computers are connected in a Local Area Network, using a School Server computer to store all student and teacher files. Each student has a userid to log in to the LAN, which becomes his/her e-mail id. The files and messages that students and teachers send are stored in the School Server. If the intended recipient is at the same school as the sender, the message is immediately accessible. If the destination is another school, the files and messages are left in the School Server until communication is established with the Quorum Server at the closest IBM office. This connection is carried out by a program that automatically establishes the link, sends all the messages and files that have another school as a destination, receives all messages and files sent from other schools, and distributes them to the corresponding students and teachers in the local school. The only intervention needed from a teacher is to run the program.

Quorum became operational in May of 1994. Students have been collaborating within regional networks in Rio de Janeiro, Brazil; Caracas, Venezuela; Aguascalientes, Mexico; and Sao Paulo, Brazil. In-

ventions, Logo challenges, math projects (e.g., construction of a numerical system), garbage and waste disposal, and a collaborative newspaper are among the projects being carried out during the fall of 1994.

The communication between regions is currently functional, and projects involving students collaborating with other regions will begin in early 1995. To facilitate communication between Portuguese-speaking Brazilians and Spanish-speaking students from other countries, LogoWriter tools have been developed that translate LogoWriter pages' primitives from/to Portuguese LogoWriter to/from Spanish LogoWriter (and to/from English LogoWriter). Other countries (possibly Argentina and Uruguay) will be joining Quorum in the next few months. During the next two years, Project Quorum will include most of the Latin American countries.

An Internet gateway has been established at the University of West Florida, that gives each Quorum student and teacher a unique Internet mailing address. For example, Marcio Diaz can receive mail from the Internet at the address: `mdiaz4b@ipanema.rio.quorum.uwf.edu` and can respond to my mail from within LogoWriter by sending a page:

```
send [logopg acanas ai.uwf.edu
internet]
```

or by sending only the "text" portion of the page using:

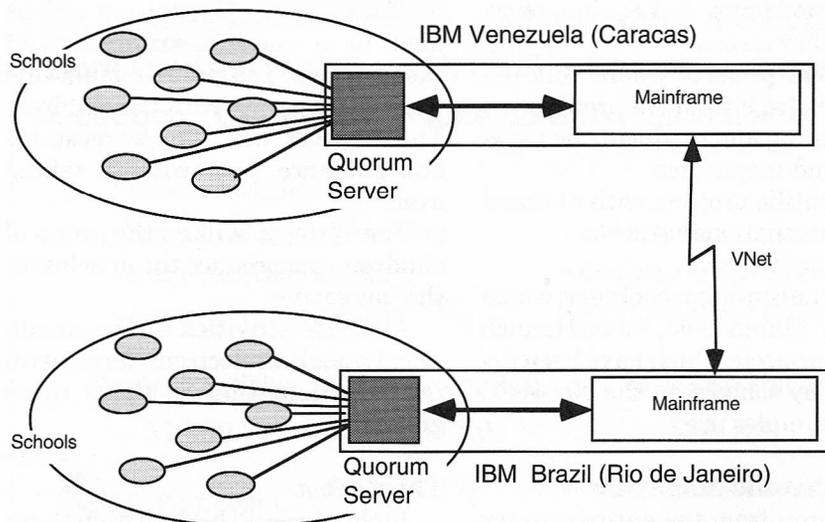
```
sendtext [logopg acanas
ai.uwf.edu internet]
```

Quorum mail messages are MIME-compliant. (MIME - Multi-purpose Internet Mail Extensions - is a standard that defines the structure of Internet messages.) Therefore, using a mail program that can send and receive MIME attachments, Internet users can send and receive LogoWriter pages to and from Quorum users. This will facilitate the participation of outsiders (IBM support personnel, experts, parents, etc.) in the development of projects, and the collaboration with schools that are not part of Quorum.

Although we have concentrated on the use of LogoWriter in the project, additional tools are being developed as part of Quorum, including a more sophisticated mailer, newsgroup tools, concept mapping, LinkWay mailer, support for MicroWorlds, and others.

Summary

Quorum is not a project that will vanish after three years. The objective is to establish an infrastructure that includes connectivity (both hardware and software), technical and pedagogical support, and a momentum of interaction between schools that results in a project that is self-perpetuating and continues to grow.▲



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Educational Telecommunication Network In Costa Rica: A New Tool For Learning

by Ma. Gabriela Ramírez V

The Programa Informática Educativa (PIE) in Costa Rica involves 160 schools from all over the country. This program, which was launched in 1988, is being jointly developed by the Omar Dengo Foundation and the Ministry of Public Education. The PIE has recently launched an Educational Telecommunication Network (Red Telemática Escolar).

The Educational Telecommunication Network has two general objectives:

1. To provide the school environment with a new communications tool in order to breathe life into the learning process, and to carry that learning process beyond the classroom by providing students and teachers with access to recent scientific information and technologies.
2. To facilitate communication between computer labs with the goal of strengthening the development of the children's cognitive process, as well as provide a cultural exchange, and support the learning of foreign languages.

Ninety-five of the 160 schools already have access to the Internet through our Network. This technological innovation is important in order to give Costa Rican students and teachers the same opportunity to use up-to-date scientific information and other technological resources that are available in developed countries.

Furthermore, the Network enriches the school environment by improving the quality of learning resources and by bringing technologies, such as databases and computer imaging, into the classroom. The Network also facilitates the sharing of ideas and information among students and teachers and can virtually bring the knowledge of experts in many fields from around the world into the classroom.

The Network could be equally powerful for motivating teachers and shaping their attitudes so that they become active "guides" for children, by putting children in charge of their own learning processes and abandoning their traditional role as merely receptors of information.

Among the many new activities the lab teachers are developing is the daily checking of e-mail in order to determine the possibilities for working on domestic and international projects in accordance with the needs and interests of the different children's groups.

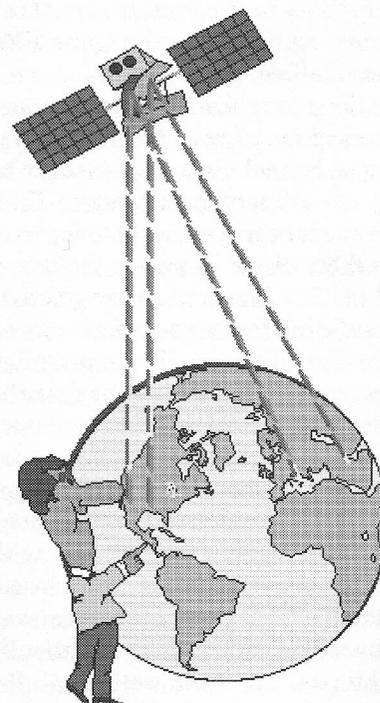
The benefits of this project are already materializing. Ninety-five thousand children from rural and marginal urban areas and 250 primary school computer lab teachers are now connected to the Network. This project will be expanded as the national telecommunications company provides us with new telephone lines that will eventually connect all 160 schools. Some of the ways children and teachers can participate in the Network are:

- in forums on pedagogical issues
- in different interest groups
- by accessing information from different databases
- in long-distance workshops
- in forums on domestic and international problems, the Logo language, and other issues
- in group projects where children try to solve a common problem
- by creating and producing newspapers and magazines
- in scientific projects with national and international experts

During the coming school year, which begins in March 1995, we will launch various projects which have been developed by schools on the Network. Some examples are:

An Electronic Magazine

Children from the entire country will develop an electronic magazine.



The children will be in charge of the whole process, which will be coordinated through e-mail. Three groups will interact:

The Editorial Group will include children from all parts of the country. The editors will discuss all aspects of the publication among themselves and with everybody else who is involved in the project. They will decide about all aspects of the magazine, including organization, layout, design, and content.

The Advisory Committee will be made up of teachers, writers, and all those adults and professionals who want to cooperate with the children. The advisors will offer suggestions and guidance, but without taking over.

The Writers will be the group of children who produce the articles for the magazine.

All these activities will be coordinated through an electronic forum with the participation of these three groups.

The Forest

In this project children from Costa Rica will be working with children

from Washington State. They will be studying the forests from both countries and how to make rational and sustainable use of them. At the same time, children will learn English and Spanish respectively.

Mirandonos

This project, which has already started, consists of an exchange among Latin American countries. Children are communicating both by e-mail and traditional mail. They began the project with pen pal relationships and now, based upon their learning needs and interests, they select a topic to pursue. At the present time they are working mainly in the

areas of geography and social studies.

Electronic Art Show

The children will be using LogoWriter to express in an artistic way what they feel about any topic that they are interested in. The results will be used to prepare an electronic show for the schools in our Network.

The ultimate goal of the Programa Informática Educativa of Costa Rica is to give children the opportunity to develop their own imaginations, problem solving abilities, and creative capacities. In doing so, we can be sure of creating a generation of leaders

capable of carrying our country into the future. The Educational Telecommunication Network provides us with new and exciting ways of achieving these goals.▲

Gabriela Ramírez is the Coordinator of the Educational Telecommunication Network in Costa Rica. She may be contacted at:

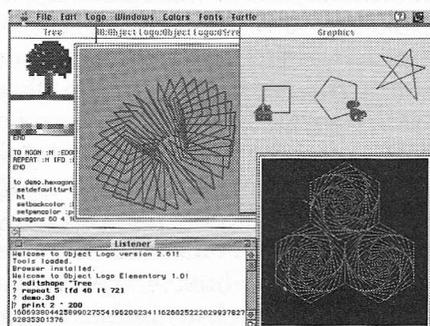
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ObjectLogo is now available from the Logo Foundation. Use the Response Form on Page 15 to place your order.

The End is Near!

Volume 1 of *Computer Science Logo Style*, by Brian Harvey, is out of print. The folks at MIT Press say there are no plans to reissue it. We have a few copies left at the Logo Foundation office. Use the Response Form on page 15 to order now ... before it's too late!

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Book Review

by Carol Sperry



Turtles, Termites, and Traffic Jams by Mitchel Resnick, MIT Press, Cambridge, MA, 1994

After reading *Turtles, Termites, and Traffic Jams*, Mitchel Resnick's hot-off-the-presses book, I was tempted to indulge in some radical meanderings a la postmodern nouvelle critique; that is, I wanted to construct my own meaning of the text and give my "interests and imagination free rein." For, indeed, there's a lot here to think about and a flexible springboard for a free-wheeling romp through ideas and connection-making. Given the premise of the book, I could safely assume that even the author might approve. However, I guess that wouldn't tell you much about this interesting work, so I'll take an "old-fashioned" approach.

Resnick's book, subtitled "Explorations in Massively Parallel Microworlds," is a description of his development of StarLogo, a qualitative leap in the use of computers as exploratory and expressive tools. He contextualizes his work in a sweeping look at various instances of the impact that decentralization and self-organizing systems have on thinking about society, learning, and thinking, itself. More about that later. Resnick's interest in what he calls his Ultimate Paradox—how complex systems can emerge from simple elements—evolves from one of his passionate curiosities as a boy; wondering about the stars, but more important, the space between and beyond the stars. He couldn't imagine the universe going on forever but then, he couldn't imagine its ending either. Where would that place be? These questions led to considerations of more and more conundrums, a degree in physics, a fascination with artificial intelligence and then with the field of artificial life. Algorithms lost their appeal as he searched for more qualitative ways of understanding—for feeling about—such mysteries as how a mind can emerge from a few chemicals, how "complexity can arise, on its own, from some simple

pieces." I mention all this because it underlies what I suspect most readers of *LogoUpdate* believe in—the power of becoming emotionally involved in wondering and learning and what amazing results that can produce.

In the middle eighties, Resnick had access to Danny Hillis' Connection Machine, a massively parallel computer which allowed him to experiment with the way great changes can come from simple interactions between and among individuals, how complex systems could form from simple elements, with no one calling the shots, no one in control. Massively parallel computers have tens of thousands of processors that allow a problem to be divided into separate parts so that different processors can work on those parts at the same time. This opens up vast new worlds (microworlds) to explore and play with.

Resnick began to develop StarLogo. Features of this next generation of Logo include thousands of turtles able to perform actions at the same time. He could observe phenomena emerging from a "creature" to a "colony" level. As he points out, "In many cases, the behavior of a colony changes qualitatively when the number of turtles is increased." Resnick calls them "behavioral turtles" who have better "senses"—they can "sniff" for food, for example, or follow the gradient of a scent. Another intriguing aspect is the reification of the turtles' world. Each pixel or small square of this world is called a "patch" and can hold a variety of information or "state." For instance, given certain circumstances, a patch can "grow" food or diffuse chemicals. The environment, therefore, becomes active and has equal status with the creatures that inhabit it. Resnick states, "StarLogo aims to change the way people think about creature-environment interactions—perhaps leading to new and richer ways of thinking about how phenomena emerge in the world," and, as he reiterates throughout the book,

perhaps will bring home the important point that the way human creatures interact with their environment really matters and has great consequences.

Chapter Three is devoted to Resnick's StarLogo research with various high school students as well as researchers. He calls it "stimulation" rather than "simulation," a good change of name, for the projects described inspire others. This is a good place to say that Resnick has the ability to describe the projects in a clear and lively manner, not always so easy when one is dealing with procedures, evolution of procedures, and changes in students' thinking. Though each project is complete in itself, I view them as guides, inviting the reader's own inputs, enhancements, and extensions. We start with the lowly slime mold and see how its behavior changes when food becomes scarce, stops reproduction, aggregates into an "it" and moves until it finds a more favorable environment, then detaches and starts a new cycle. Resnick says that slime mold aggregation is now viewed as a classic example of self-organizing behavior. He uses this "stimulation" to illustrate how many people (some were MIT researchers) have false intuitions about what kind and how many clusters would form. It supports, along with other stimulations, another premise of the book—that people resist a decentralized mindset, that they attribute intentionality where none exists and often assume a leader or centralized authority where none exists or is needed. We are treated to projects on ants and the mysteries of their search for food, termites and their wood chip piling procedures, how traffic jams really happen and why, turtle ecology, turtle geometry, and more—all integrated with the worlds of biology, sociology, economics, philosophy, and psychology.

For example, in a project on how turtles and frogs might reorganize themselves in their lily pad neighborhoods, we hear about Harvard economist Thomas Schelling, who investi-

gates how the "micromotives of individuals can lead to 'macro' patterns that are not necessarily desired by any of the individuals."

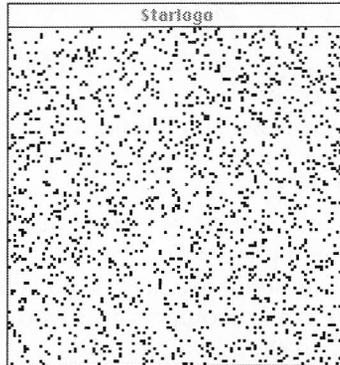
Resnick describes the movements at a cocktail party where, as people gather into clusters to chat, the arrival in the group of more women than men may cause some men to drift away to a more male-dominated group, causing the women in the new group to drift away and...well, you get the picture. This is a "stimulation" that goes far beyond the computer and could have many interventions and different repercussions, some benign and some not so. However you approach it, it's my bet it will start you (and your students) thinking.

Turtles, Termites, and Traffic Jams is a short book packed with such ideas and information. I've only given you a teaser. It is a potent catalyst for mind-stretching and interesting conversation. A weakness for me is Resnick's over-enthusiastic connections between some world events and the spread of the decentralized mindset. I'm also a bit uneasy about what I perceive to be the lack of distinction between phenomena involving humans and those involving agents without self-consciousness. But that's just my point - I want to talk about it. Resnick's premises and projects have got me going. As Seymour Papert says in his preface, "Resnick is an object to think with." Resnick's pedagogical intentions are clear and noteworthy. His goal is "to probe, challenge, and disrupt the way people think about systems and processes in general." He says, "The major challenge for educators and educational developers...is to create tools and environments that engage learners in construction, invention, and experimentation." He envisions educators who "design things that allow students to design things." Resnick gives clear and extensive examples of how the exploration and understanding of decentralization will enhance and liberate students' understanding of the world and how they engage with it. And he never forgets how personal involvement and passion figure into dynamic construction of knowledge.▲

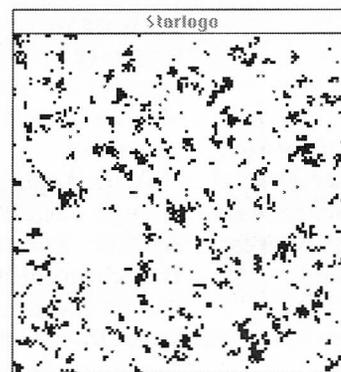
Carol Sperry is at the Harvard Graduate School of Education. She may be contacted at:
41 Linnaean Street
Cambridge, MA 02138
carols@media.mit.edu

Turtles, Termites, and Traffic Jams may be obtained from the Logo Foundation. Use the Response Form on page 15 to place your order.

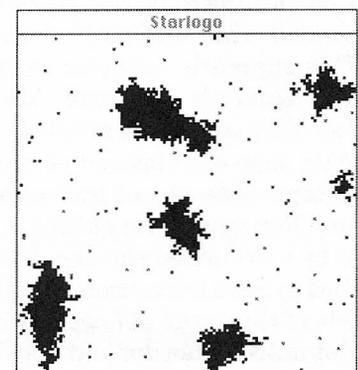
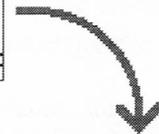
A StarLogo simulation of termite behavior



Hundreds of wood chips are scattered at random. A hundred termites wander around randomly, each following a set of simple rules: If you're not carrying a chip pick up the next one you encounter. If you are carrying a chip, put it down near the next chip you run into. Then scoot away and repeat the process.



After a while the chips are mostly in a few large piles although the rules the termites follow say nothing about building piles.



The termites and the wood chips are represented by dots which are different colors on the StarLogo screen, but not distinguishable in these black and white pictures. In the third image just about all the scattered single dots visible between the piles of wood chips are wandering termites.



Mitchel Resnick and his colleagues at MIT are working on a Macintosh version of StarLogo. They expect it to be reasonably full featured and well behaved within a few months. If you would like to be notified when it becomes available, turn to page 15 and check the appropriate box on the Response Form.

LogoExpress: An Idea Whose Time Has Come (and Gone)

by Michael Tempel

It was a great idea: a telecommunications system for Logo people. The brainchild of LCSIT's Brian Silverman, LogoExpress was a version of LogoWriter that was used for sending and receiving e-mail. The same software was also used by people with modest technical knowledge to set up and maintain Host systems on computers as small as the Apple IIe.

LogoExpress was not one of Logo's greatest hits. I think I personally knew almost everyone who used it. But we loved it. A few Logo procedures took care of your e-mail:

```
mailthis "whomever
```

```
sent the text on the page as an e-mail message to whomever.
```

```
mail "whatever "whomever
```

```
sent whatever to whomever.  
What's more, if whatever was a LogoWriter page it was recognized as such by whomever's LogoExpress software on the receiving end.
```

```
checkmail
```

```
checked your mail, putting the text mail on the screen and the LogoWriter pages and other files on your disk.
```

This approach is similar in spirit to the Quorum software Alberto Cañas discusses in his article beginning on page 4. A special version of LogoExpress developed by Fred Martin and Randy Sargent at MIT is still used by teachers on the LogoNet described by Sara Dickenson in the lead article of this issue of *Logo Update*.

But unlike Quorum and LogoNet, LogoExpress Hosts also supported public bulletin boards as well as private e-mail. These areas of common ground were important for developing group projects and a sense of community.

LCSI maintained Hosts in its Montréal and New York offices and several school districts also set up Hosts. The New York Host had areas for general discussion and others for specific topics and projects. There

was a statistics project in which we checked the dates on thousands of pennies and studied the distribution. For a while, several teachers exchanged programs for creating recursive snowflake patterns.

In Mahwah, New Jersey students posted book reviews and read those left by other students. The Mahwah Host was also used to ease the transition from junior high school to high school. Eighth graders posted questions that were answered by students from the high school.

In Scarsdale teachers posted challenging math problems and students posted responses.

In St. Paul students in schools around the city participated in poster contests with a different theme each semester. The posters were LogoWriter pages that were available on bulletin boards for everyone to look at.

With Logo Express one could exchange LogoWriter pages between Apples and MSDOS machines, though any graphics on the page were lost in the transition. It was possible to transfer complete pages, graphics included, between the MSDOS and Apple IIgs versions of LogoWriter. This rather arcane feature was useful at least once: The teachers and students of Project Mindstorm at the Gardner Academy in San Jose, California were creating a T-shirt using Logo graphics. They had beautiful designs and drawings, but they could not print in color from their IBM LogoWriter. So they used LogoExpress to e-mail the pages to me. I received them on an Apple IIgs, printed them in color on an ImageWriter and sent them back the old fashioned way, via US Mail.

LogoExpress has become extinct. There are two reasons. First, LogoExpress Hosts were stand-alone systems, not connected to the Internet. This limitation seemed less important five years ago than it does today.

Second, LogoExpress is for old machines with an old user interface. It was a great companion to LogoWriter

on an Apple II or older MSDOS computer. Now it's a bit dated.

But, it's certainly not the end of the road for Logo and telecommunications. I think Brian may have something new up his sleeve.▲

Michael Tempel is president of the Logo Foundation. He may be contacted at:

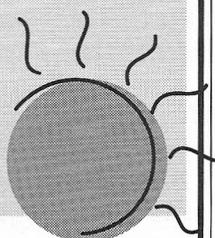
*Logo Foundation
250 West 57th Street
New York, NY 10107-2228
Telephone: (212) 765-4918
FAX: (212) 765-4789
michaelt@media.mit.edu*

A more detailed description of LogoExpress activity was presented at the V Congreso Internacional Logo in San José, Costa Rica in November 1991. "Logo and Telecommunications" is included in the conference proceedings published by Fundación Omar Dengo and is also available from the Logo Foundation. You may use the Response Form on page 15 to request a copy.

The **MicroWorlds** family of products and **Turtle Math** are now available from the Logo Foundation. Use the Response Form on Page 15 to place your order.



Introducing the next best thing to two months off in the summer.



Turtle Math and MicroWorlds Math Links from LCSi

After years of development and consultation with teachers like you, LCSi introduces **Turtle Math** and **MicroWorlds Math Links**: two math tools for teachers who want to make math exciting.

Turtle Math and **MicroWorlds Math Links** provide a true advantage over any other math software. Each easy-to-use package provides students with an invaluable exploratory environment plus dozens of activities that help them think mathematically. So they learn more about math. And that means increased satisfaction for you.

Turtle Math, designed for students in grades 3 – 6, lets students use a collection of activities and challenges in which measurement and geometry is the context for exploring various math concepts.

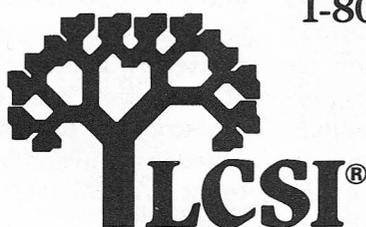
Aimed at students in grades 4 – 8, **MicroWorlds Math Links** is an interactive learning environment that

gives students concrete ways to explore abstract ideas and visualize answers to mathematical questions.

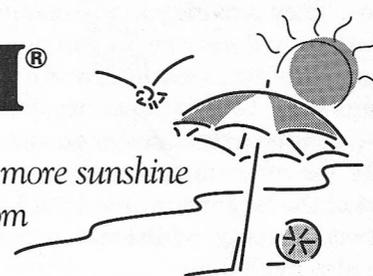
Both packages support the NCTM Standards. **Turtle Math** is available for Macintosh computers; **MicroWorlds Math Links** is available for Macintosh and IBM computers.

If you're interested in exploring a new standard in math teaching tools, why not call us today for a free demo disk. Ask for Helen at:

1-800-321-5646.



*And bring a little more sunshine
into your classroom*



Logo On Line

Here are some Logo discussion groups and services that you will find on line. If you know of other on-line Logo services please let us know. We'll print an update in the next *Logo Update*.

The **Logo Foundation** and the **Global SchoolNet Foundation** recently initiated a Logo discussion group on the Internet. People from around the world are exchanging Logo programs and ideas, and discussing classroom experiences. The group is moderated by Michael Tempel of the Logo Foundation and John St. Clair of the Global SchoolNet Foundation. There are two ways to join the group:

1. If your Host System is a subscriber to the **Global SCHLnet Newsgroup Service**, tune in to the **schl.sig.logo** newsgroup.
2. The group is also available as **listserv** to anyone with access to Internet e-mail. (A listserv is a mailing list. When you send mail to the list you are actually sending it to all the people who are members of the list.) You may sub-

scribe by sending e-mail to:

majordomo@acme.fred.org

with the only line in the message being

subscribe Logo-L

In a short while you should start receiving mail. To post a message send it as you would a regular e-mail message to Logo-L@acme.fred.org.

Comp.lang.logo is the **Usenet** newsgroup for Logo. (Usenet is the name given to a collection of thousands of topical discussion groups on the Internet.) The people using this forum include teachers, computer scientists, and parents. They have a wide range of interests and levels of expertise.

Jim Muller has moderated the **Logo Forum** on **CompuServe** for many years. It carries general discussions about Logo and also provides information and technical support from Logo software vendors.

Eadie Adamson at **Scholastic Network** maintains Logo libraries and discussion groups as part of **The Technology Center**. The libraries include projects submitted by teachers and many Logo Foundation publications. These services are available to Scholastic Network subscribers.

The **MIT Media Lab** has an **anonymous ftp** file server with extensive libraries of Logo related documents including research papers from the Epistemology and Learning Group at the Media Lab, and back issue of *Logo Update* from the Logo Foundation. Public domain versions of Logo are also available here. The server is **cher.media.mit.edu**. (Ftp stands for "file transfer protocol", The technical standards by which files are moved from one machine to another. "Anonymous ftp" is a procedure that lets you connect from your host to another host on which you don't have an account.)

Getting Connected

So you're not cruising the information superhighway? You're not out there surfing the Internet? How can you get connected? It's similar to arranging for telephone or cable television service, but instead of there being one provider, there are many.

One approach is to use one of the large commercial telecommunications services, such as **CompuServe** or **Prodigy**. Commercial networks generally charge a basic monthly fee and additional charges for some services. They provide you with communications software so all you need is your computer, a modem, and a telephone line. One such service, **Scholastic Network** is designed specifically for educators, and since it is part of the larger **America On Line** network, many additional services are also available.

The **Global SchoolNet Founda-**

tion (formerly the FrEd Mail Foundation) was created about ten years ago by Al Rogers to provide free and inexpensive telecommunications services to educators. You can get a free account on one of the hundreds of local FrEd Mail hosts.

There are many local providers - too many to list here. Some states and cities have networks and provide teachers with free accounts. Texas has **tenet**. The New York City Board of Education runs **nycenet**. There are scores of others. If you are enrolled in a university you may be able to get an account on that institution's host.

The **International Society for Technology** in Education has a SIG (Special Interest Group) for Telecommunications and publishes *Telecommunications in Education News*, a quarterly journal.

Here are addresses and telephone numbers for the organizations mentioned above and a short list of books that may help you understand how telecommunications works and point you in the direction of additional resources.

Books:

The Internet Complete Reference
Harley Hahn & Rick Stout
Osborne, Berkeley, 1994

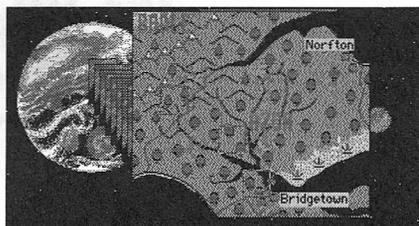
The Internet
Paul Hoffman
IDG Books, Foster City, CA, 1994

Internet: Getting Started
April Marine
Prentice Hall, Englewood Cliffs, NJ, 1994



THE CRYSTAL RAIN FOREST

The planet Oglo is in trouble. Its rain forests are being destroyed.
The king has been poisoned. Only YOU can save them!

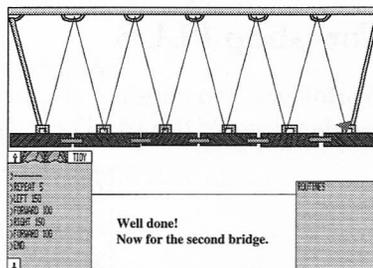


The Crystal Rain Forest helps students in grades 3-8 use math to learn about the environment. They hunt for clues in the town, then search for the lifesaving magical crystals deep in the rain forest.

On their quest, they face a series of mathematical puzzles and challenges to solve. They give instructions to robots, guide and rotate shapes to mend bridges, navigate a boat, estimate distances and angles to

connect wires, draw shapes to make nets, change box sizes using simple algebra, and so on.

As a result of these carefully sequenced activities, students learn to use the Logo language. *Crystal Logo*, an easy-to-use version, can be run separately from the adventure, and its command names can be modified.



The Crystal Rain Forest, award-winning software from England, is available here as a single user version (\$49.95), as a single version for school use with curriculum materials (\$59.95), and as a building site license (\$250.00).

PC version requires a 286 or better with VGA and a mouse.

Mac version requires System 7, and color monitor.

Terrapin™

TERRAPIN SOFTWARE, INC.
400 RIVERSIDE ST. • PORTLAND, ME 04103
207-878-8200

1-800-972-8200

LU 9/94

The *Crystal Rain Forest* is now available from the Logo Foundation. Use the Response Form on Page 15 to place your order.

Organizations:

ISTE

1787 Agate Street
Eugene Or 97403-1923
800 336 5191

Global SchoolNet Foundation

PO Box 243
Bonita CA 91908-0243
Telephone: 619 475 4852
Fax: 619 472 0735
info@acme.fred.org

Scholastic Network

555 Broadway
New York NY 10012
(800) 246-2986

WinLogo is now available from the Logo Foundation. Use the Response Form on Page 15 to place your order.

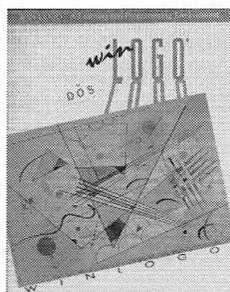
Open the Power of Logo with WinLogo™

A New Logo Language for Advanced Learning

WinLogo for Windows

Features:

- 12 turtles, color graphics, import of PCX, BMP, EPS, PS, TIFF, TGA files, etc.
- 300 built-in primitives, math capability, list processing, debugging tool, extension using C or assembly language
- font and printer support, icons, on-line help



	<u>DOS</u>	<u>Windows</u>
Student Edition*	\$ 49	\$ 59
Single user	\$ 99	\$149
5 User Pak	\$249	\$349
10 User Pak	\$299	\$449
20 User Pak	\$499	\$649

(* no documentation)

Also available: WinLogo/LASY Robotics System

SoftEast Corp.

P.O. Box 764
Concord, MA 01742
Call: (617) 893-4858 or Fax: (617) 893-4948

MicroWorlds™ Quick Start Workshop

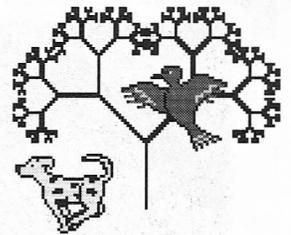
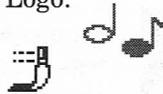


- You've been using Logo and you've seen or heard about MicroWorlds. Should you switch?
- You've just made the change to MicroWorlds and you have many questions. What's the same as in your old version of Logo? What's new and different? What can you and your students do with it?

This workshop focuses in on the new features of MicroWorlds Logo:

- ✓ Enhance your Logo projects with buttons, sliders, text boxes, drawing tools, and a melody maker.
- ✓ Create animations and turtle graphics with many turtles programmed to do different things simultaneously. Now the bird can fly while the dog wags its tail while...
- ✓ Move text, graphics, and sound between MicroWorlds and other applications.

push me!



This three-hour workshop includes both presentations and hands-on time. You will develop a complete MicroWorlds project. The MicroWorlds Quick Start Workshop is conducted at your school on your computers for up to 20 people. The cost is only \$390 plus travel. (That's less than \$20 per person.) All materials are included.

MicroWorlds™ Quick Start Workshop PLUS

If your school does not yet have MicroWorlds you can obtain a site license and have a MicroWorlds Quick Start Workshop, both for \$1095. That's the regular price of the site license alone.

To arrange for a workshop contact:

The Logo Foundation
250 West 57th Street, Suite 2228
New York, NY 10107-2228
Telephone: 212 765 4918 Fax: 212 765 4789

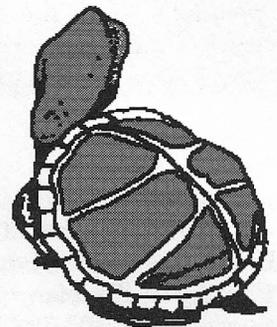
If you would like more information, use the response form on page 15 to request a detailed outline of the **MicroWorlds™ Quick Start Workshop.**

The Logo Foundation and the **St. Paul Public Schools** announce . . .

Logo St. Paul

The 1995 Logo Summer Institutes

Over the past fourteen years the St. Paul Logo Project has provided a comprehensive professional development program for hundreds of elementary and secondary school teachers. The cornerstone of this program has been the **Logo Summer Institute**, an intensive one-week workshop which provides for an immersion in Logo theory and practice. The individualized approach of the Logo Summer Institute accommodates experienced Logo users as well as novices.



A limited number of places are being set aside for people from outside the St. Paul Public Schools.

- ✓ The registration fee includes
 - all workshop materials.
 - use of a Macintosh or Apple II computer.
 - use of whichever version or versions of Logo you choose: MicroWorlds, LogoWriter, Object Logo, Logo Plus, UCBLLogo, and StarLogo.
 - Optional attendance at two follow-up workshops in November 1995 and March 1996, each a day and a half long. The topics and dates will be determined during the Summer Institutes.
- ✓ As an option, you may also receive three graduate quarter credits from Hamline University.
- ✓ Major discounts on purchases of Logo software are available to Summer Institute registrants.

When: June 26 - 30 or
August 21 - 25
Where: St. Paul, Minnesota
Cost: \$490 per person
\$111 for graduate credit

Use the response form on page 15 to request registration materials for the 1995 Logo Summer Institutes and to obtain more information about the St. Paul Logo Project. If you are a teacher in the St. Paul Public Schools these registration procedures and fees do not apply to you. Instead, contact Ms. Geraldine Kozberg at 360 Colborne Street, 228-3631.

Logo Foundation Response Form

- Enter my free subscription to *Logo Update*.
- Send me the complete Logo Foundation Catalog of software, publications, and services.
- Send me more information and registration materials for the 1995 St. Paul Logo Summer Institutes.
- Send me a detailed outline of the MicroWorlds Quick Start Workshop.
- Please notify me when the Macintosh version of StarLogo is available.

Enter my order for:

Books and papers referred to in this issue of <i>Logo Update</i>	quantity	amount
<input type="checkbox"/> <i>Turtles, Termites, and Traffic Jams</i> by Mitchel Resnick \$24.95	_____	\$ _____
<input type="checkbox"/> <i>Logo and Telecommunications</i> by Michael Tempel \$2.75	_____	\$ _____
<input type="checkbox"/> <i>Computer Science Logo Style, Volume 1</i> by Brian Harvey \$22.95	_____	\$ _____

Logo products advertised in this issue of *Logo Update**

<input type="checkbox"/> MicroWorlds Project Builder \$99.00 <input type="checkbox"/> Macintosh <input type="checkbox"/> MSDOS	_____	\$ _____
<input type="checkbox"/> MicroWorlds Math Links \$79.00 <input type="checkbox"/> Macintosh <input type="checkbox"/> MSDOS	_____	\$ _____
<input type="checkbox"/> Turtle Math (Macintosh only) \$69.00	_____	\$ _____
<input type="checkbox"/> Object Logo Student Edition (Macintosh only) \$75.00	_____	\$ _____
<input type="checkbox"/> Object Logo Full Version (Macintosh only) \$195.00	_____	\$ _____
<input type="checkbox"/> Crystal Rain Forest \$49.95 <input type="checkbox"/> Macintosh <input type="checkbox"/> MSDOS	_____	\$ _____
<input type="checkbox"/> WinLogo for MSDOS \$99.00	_____	\$ _____
<input type="checkbox"/> WinLogo for Windows \$149.00	_____	\$ _____

Subtotal \$ _____

Shipping and Handling \$ _____

United States: \$3.50 on orders up to \$70.00, 5% of subtotal on orders over \$70.00

Canada and Mexico: \$7.00 on orders up to \$70.00, 10% on orders over \$70.00

Tax deductible contribution to the Logo Foundation \$ _____

Total \$ _____

*These prices are for single-user sets. Call or write for prices of lab packs and site licenses. These products are available from the Logo Foundation only within the United States. Contact the developer for information about international distribution.

Name _____

Organization _____

Address _____

City _____ State _____ Zip _____ - _____

Day Phone () _____ Evening Phone () _____

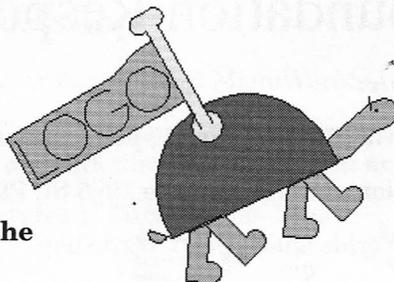
Please enclose payment or a school purchase order.

Overseas orders require additional shipping charges. Please inquire before ordering as the amount depends upon destination and carrier.

Logosium '95

Friday, June 16, 1995

- A full day of Logo discussions, sharing sessions, and presentations
- Sponsored by ISTE's SIG-Logo and the Logo Foundation
- A pre-conference activity at NECC '95, Baltimore
- If you have an idea for a session you'd like to lead, or a request for a session you'd like to see happen, let us know.



Contact:

Marian Rosen & Michael Tempel
 c/o Logo Foundation
 250 West 57th Street, Suite 2228
 New York, NY 10107-2228
Telephone: 212 765 4918 Fax: 212 765 4789
e-mail: mjrosen@delphi.com michaelt@media.mit.edu

For registration and hotel information contact:

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 1787 Agate Street
 Eugene, OR 97403-1923
Telephone: 503 346 2834 Fax: 503 346 5890
e-mail: necc95@ccmail.uoregon.edu

LOGO USERS GROUPS

Long Island Logo Users Group
 Contact: Marilyn Tahl
 516 333-4018 (evenings)
 516 627-8110 (days)

Los Angeles Logo Users Group
 Contact: Carolina Goodman
 Campbell Hall
 4533 Laurel Canyon Blvd.
 North Hollywood, CA 91607
 818 980-7280 ext.234

Logo Anonymous
 Contact: Marian Rosen
 Conway School
 9900 Conway Road
 St. Louis MO 63124
 314 993-2878

New York Logo Users Group
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