

The hometown
newspaper for
Menlo Park,
Atherton,
Portola Valley
and Woodside.

The Almanac

www.AlmanacNews.com

February 21, 2001 ■ Vol. XXXVI, No. 25 ■ 50¢

visionary Ideas

for 50 years.

mouse inventor

PAGE 12

Doug Engelbart has

been rethinking the

way humans

and computers interact

Doug Engelbart in the late 1960s
when he was poised to launch
a revolution in computer use
that last year won him
the National Medal of Technology.

News This Week

► Fluoridation

The San Francisco PUC endorses plan to fluoridate all Peninsula water, including in Menlo Park, Atherton, Portola Valley and Woodside.

PAGE 5

► Betsy Crowder

A Portola Valley man faces trial in a bizarre accident that caused the death of conservation leader Betsy Crowder. His blood-alcohol level was four times the legal limit.

PAGE 9

► Soaring costs

The Portola Valley school board examines options, including another bond issue and private donations, to meet a \$5.5 million shortfall in its construction plans.

PAGE 16

SECTION 2

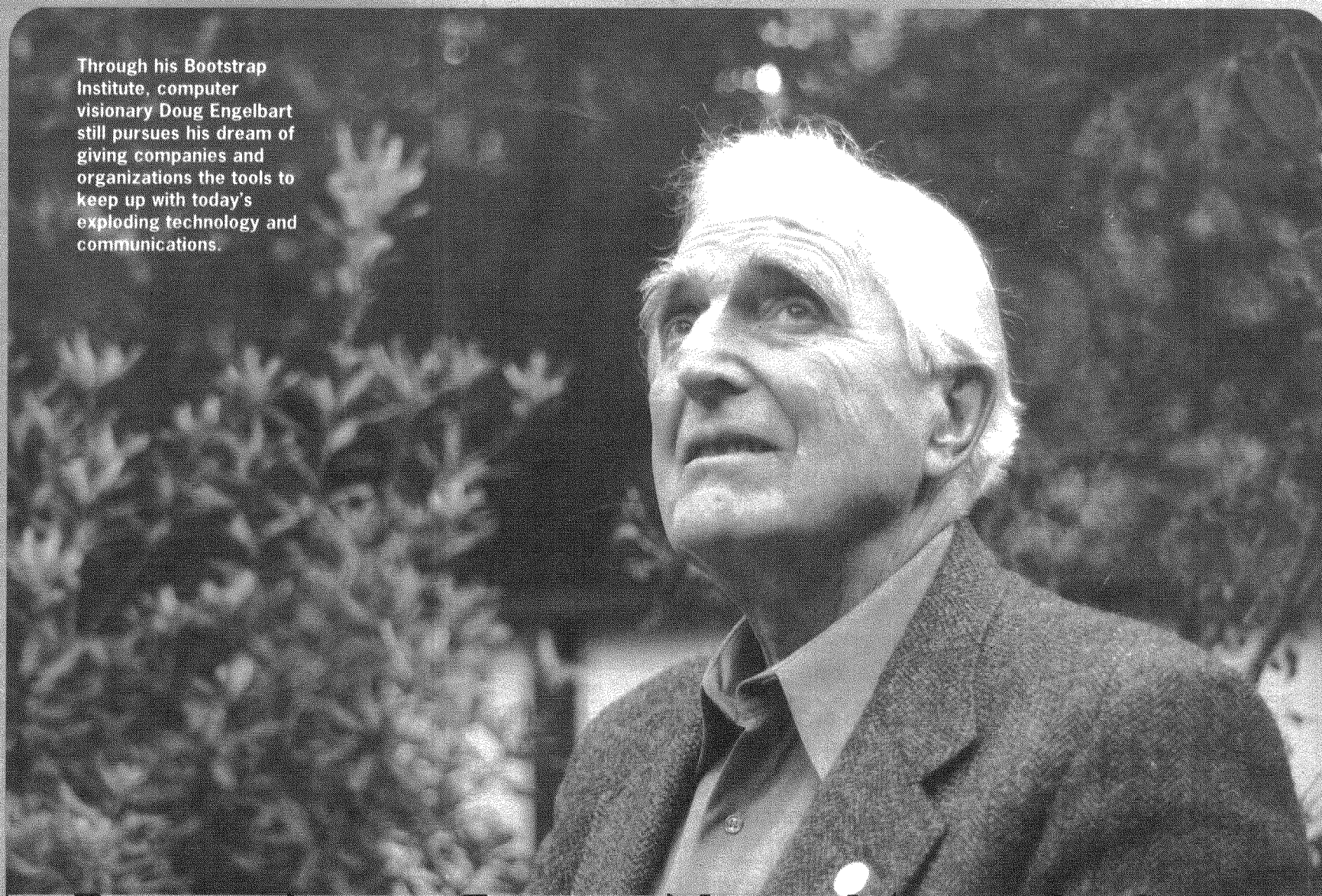
Get your own beach!



► Family Almanac

New Woodside foundation takes kids on field trips, including to Ano Nuevo to see the elephant seals.

Through his Bootstrap Institute, computer visionary Doug Engelbart still pursues his dream of giving companies and organizations the tools to keep up with today's exploding technology and communications.



Margaret Kaye

Douglas Engelbart's vision

By Marion Softky
Almanac Staff Writer

Computer visionary seeks to boost people's collective ability to confront complex problems coming at a faster pace

Douglas Engelbart is used to swimming upstream; he's been doing it for 50 years. Even as the Atherton scientist stacks up awards for creating the foundations of today's communications revolution — such as the mouse and the computer systems it serves — Dr. Engelbart himself focuses on the even greater challenges we still face — collectively.

Through his long career, Dr. Engelbart has endeavored to devise models and equipment to meld computers with humans in ways that would allow people and organizations to address the kinds of problems that come up in an increasingly complex world.

"The scale of change, and the rate of change, and the pervasiveness of change are dizzying," he says in a wide-ranging interview in his Atherton living room. "We've never had to deal with that. It could absolutely collapse our society."

Meanwhile, Dr. Engelbart is getting more and more recognition for past contributions to the technology that has revolutionized the way the world communicates.

In December, he traveled to Washington to receive the

National Medal of Technology for 2000, for "creating the foundations of personal computing."

In presenting the award, Secretary of Commerce Norman Mineta cited Dr. Engelbart, "whose invention of the computer mouse, whose concepts of point-and-click, hypertext linking, and other innovations, helped move the incredible power of computing into the hands of ordinary people."

Dr. Curtis Carlson, president and CEO of SRI International, where Dr. Engelbart did his seminal work in the 1960s, added, "His work touches the lives of nearly everyone in the world — in business, education, entertainment and our daily lives."

Back in the 1950s, the Atherton resident forged a vision of how computers — then considered only as fancy calculators — could be used to magnify human intelligence. In the 1960s at then-Stanford Research Institute, he and his team of computer whizzes crafted a set of tools that could enable people and organizations to harness the growing power of computers to meet the exploding challenges of the coming times.

Besides the omni-present mouse, they developed hypertext linking, which allows you to hop around documents and Web sites; real-time text editing; integration of text and graphics; on-line journals; shared-screen teleconferencing; and technology that allowed people to collaborate on problems from different remote locations.

In 1969, Dr. Engelbart's SRI laboratory received the first message on the ARPAnet, predecessor to today's Internet.

Turning point

Dr. Engelbart presided at the famous demonstration December 9, 1968, that launched today's computer-driven revolution in communications. He sat on the stage at San Francisco Civic Auditorium at a major computer conference and demonstrated the technologies developed at SRI to a packed house.

For 90 minutes, Dr. Engelbart used his mouse to manipulate text and pictures on a giant screen. He reorganized a grocery list, communicated with co-workers at SRI in Menlo Park, 35 miles away, and put their pictures on the screen. He collaborated on-line with a colleague in Menlo Park; pointers from both their mice flicked around the screen as they jointly revised a document.

Two thousand people gave him a standing ovation. And all at once people began to realize what computers could do.

"It was stunning," says Bob Taylor of Woodside, who won the 1999 Medal of Technology for his contributions to developing personal computers and the Internet. "It really waked a lot of people up to a whole new way of thinking about computers — not just as number crunchers."

Dr. Engelbart's reaction was simpler. "I was so relieved. So many things could have broken," he says, recalling the jury-rigged setup, and the antennas carrying the message from Menlo Park to a truck on Skyline with antennas that connected to roof of the Civic Auditorium in San Francisco. "It took a lot of nerve."

Takeoff

After that, the economic juggernaut that led to personal computers and the Internet took off.

And Dr. Engelbart was left behind, pursuing his vision of far more powerful systems that would help people collaborate more effectively to solve the big problems — many of which were complicated and speeded up by the technologies he helped launch.

"That's the big, big thing that's so important: How do we increase the capability of people to deal collectively with urgent complex problems? That's been my pursuit all these years," he says.

For 30 years, Dr. Engelbart has plugged away at developing the human and organizational side of the equation as the computer-tool side zoomed ahead. Until 1978, he continued at SRI, then moved to Tymshare, where his project was renamed AUGMENT. In 1984, he moved on to McDonnell Douglas when it bought Tymshare.

When McDonnell-Douglas shut down his program in 1989, Dr. Engelbart founded the Bootstrap Institute to pursue his concepts of "bootstrapping" — human-computer systems to promote collaboration and raise people's collective IQ. Ironically, he's working in offices in Fremont provided by mouse-maker Logitech, which has sold more than 300 million of the skittery devices first invented at SRI about 1964.

Thirty years after the demonstration, Stanford sponsored an all-day seminar devoted to looking at how far the computer revolution had come, and how far it would go. It was called "Doug Engelbart's Unfinished Revolution."

Are Dr. Engelbart's ideas still valid and important? Yes, says futurist Paul Saffo of

Menlo Park's Institute for the Future. "Doug Engelbart stands as the single most misunderstood pioneer in the history of computing. His ideas are still ahead of their time."

Patrick Lincoln of Woodside, current head of computer science at SRI, is another Engelbart fan. "Yes, he's outdated," he says. "He's a thousand years ahead of his time."

Vision

Doug Engelbart got his calling in 1951 when he had just become engaged to marry. Driving to work as an electrical engineer at Ames Laboratory in Mountain View, he contemplated his professional future.

"I looked downstream at work into one long, uneventful hallway," he recalls. "I had no proper goals that interested me."

He thought of the 5-1/2 million minutes before he was 65, and wondered what he wanted to do with his life.

In the rigorous order in which he still thinks, young Mr. Engelbart decided: "Step 1. Why don't I try to maximize the value of my career in the sense of how to benefit mankind?"

"Can you imagine that?" he says, in the spare living room designed by his late wife Ballard, who died three years ago. "To this day I don't know where that came from."

Over the next months, he pondered various crusades, eventually focusing on how to solve problems that are so complicated they have to be solved collectively by a lot of people.

Enter computers. The bulky, new-fangled machines were cumbersome and expensive then, but they offered unexplored possibilities to improve people's ability to deal collectively with complex and urgent problems. "That gave me a goal," he says.

Oregon childhood

The future visionary grew up in an idyllic setting on a one-acre farm near Portland, Oregon, during the Depression. He helped milk the cow and tend the chickens and garden. He played in the creek and rambled in the 90 acres of untouched forest behind the farm.

"Those woods and that creek made such a marvelous environment," he reflects. "They shaped the way I think."

Young Doug took two years off from studying electrical engineering at Oregon State University to serve in the Navy at the end of World War II.

As an electronics technician in the Philippines, he worked with radar — and learned you can display information on a screen. Later he realized, "If a radar screen can do that, so can a computer."

After receiving a degree in electrical engineering in 1948, Mr. Engelbart came to the Bay Area, and began developing his vision for computers.

Swimming upstream already, he looked for a place to get a Ph.D. and found there was no such thing as a computer science department; he settled on the University of California at Berkeley, where they were at least building an experimental computer. In 1955, he got his doctor's degree; his thesis was on plasma devices, not computers.

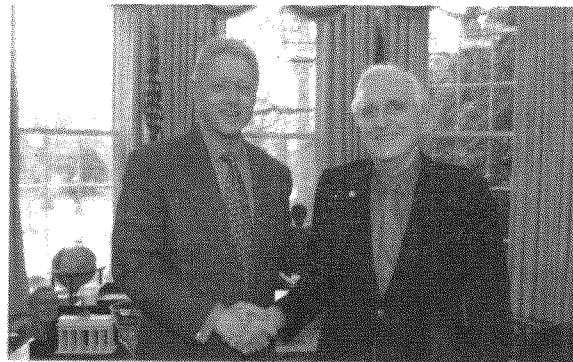
Looking for a job where he could pursue his dreams of enlisting computers to augment human endeavors, Dr. Engelbart found that

NATIONAL MEDAL OF TECHNOLOGY



FOR CREATING THE FOUNDATIONS OF PERSONAL COMPUTING INCLUDING CONTINUOUS, REAL-TIME INTERACTION BASED ON CATHODE-RAY TUBE DISPLAYS AND THE MOUSE, HYPERTEXT LINKING, TEXT EDITING, ON-LINE JOURNALS, SHARED-SCREEN TELECONFERENCING, AND REMOTE COLLABORATIVE WORK.

—WILLIAM JEFFERSON CLINTON



President Clinton congratulates Doug Engelbart for winning the National Medal of Technology.



Doug Engelbart wows the computer world in San Francisco Civic Auditorium in 1968.



The first mouse, invented at SRI by Doug Engelbart, is an icon of the computer revolution.

See VISION, next page ►

CARDINAL ROOFING INC.

Owner Operated Since 1960

Our Specialty is

REROOFS & REPAIRS

the complete roofing service

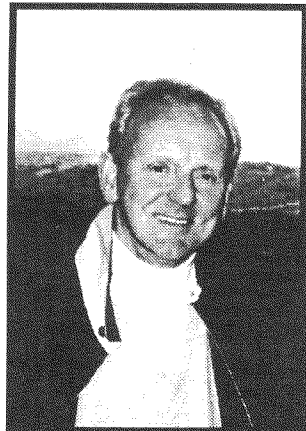
Quality Work

650-321-7590 LIC. #221655



Building a new home?

SURELY THIS IS THE ONLY WAY.....



Colin Whiteside

... Complete design-build services available, including soils and structural engineering, schematic design, working drawings, permit application, construction management, interior design, landscapes design and construction.

Client pays only the hard cost plus a fixed fee.

Full time professional Construction Management on site throughout the project.

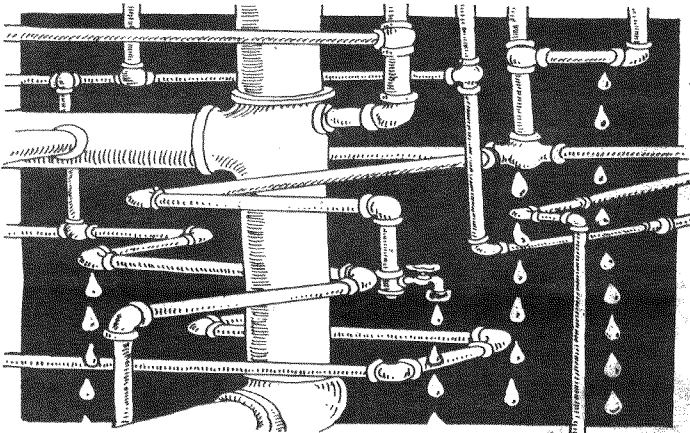
Budgetary control on all expenditures with regular variance reporting.

No headaches, surprises, and horror stories.

We have been doing all of the above very successfully for 25 years and would love to add you to our long list of clients.

Colin Whiteside
CMS Custom Homes
(650) 326-7555

"THE PIPES ARE CALLING!"
BUT THEY'RE NOT BAG PIPES LADDIES...
THEY'RE YOUR WATER PIPES!



dahl PLUMBING, HEATING
& AIR CONDITIONING
650-321-5500

Cosmetic Surgery For The Silicon Valley

Ultrasonic Liposuction and
Body Contouring for Men and Women

Natural Breast Enhancement

Facial Rejuvenation and Eyelid Lift
Ultrasonic Fat Removal From The Neck

LIGHTSHEER Laser Hair Removal With
Permanent Reduction for Men and Women

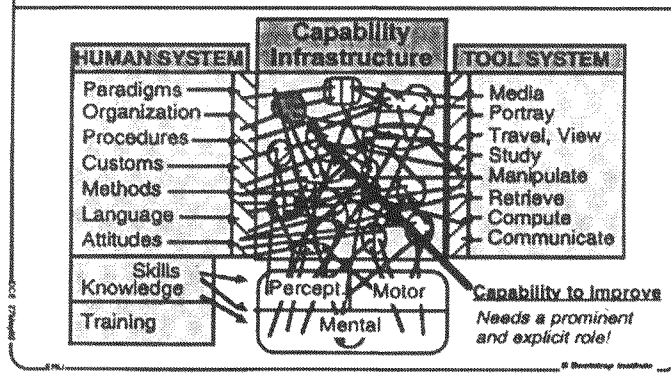
Microdermabrasion-Refinity Skin Refining
Procedures, BOTOX and Collagen
Treatment

vistnes.com

M. Dean Vistnes, M.D., F.A.C.S.
Board Certified by The American Board of Plastic Surgery
Stanford University Trained Plastic Surgeon
1515 El Camino Real, Palo Alto Phone: 650-322-5444

COVER STORY

CO-EVOLUTION IS A CAPABILITY THAT WARRANTS SERIOUS HIGH-LEVEL ATTENTION!



This diagram shows how Doug Engelbart maps complexities in human-computer interaction.

VISION

continued from previous page

Berkeley, Stanford, and Hewlett-Packard were not interested. In 1957, he went to work at Stanford Research Institute.

In 1962 Dr. Engelbart published the seminal paper outlining his vision. In 132 pages, "Augmenting Human Intellect: A Conceptual Framework" laid a path toward much of what has happened to this day in computers, and even more than hasn't.

Speed

When Dr. Engelbart first started dreaming, a computer was made with vacuum tubes. It filled a room; it got instructions from punched cards.

"It was so hard to find people to take us seriously when computers were so big and expensive," he recalls. "But I realized that inevitably they would get smaller and smaller, and faster and faster, and cheaper and cheaper. I realized that might happen in my lifetime."

During these technically tumultuous years, Dr. Engelbart, a soft-spoken man with a quirky sense of humor, lived in Atherton with his family. He and Ballard raised four children who went through local schools. Now he enjoys nine grandchildren.

His daughter, Christina, who helped found Bootstrap Institute, remembers enjoying outdoor activities with her father — hiking, camping, canoeing, and folk dance parties on Skyline at the late Gerda Isenberg's. In fact, Dr. Engelbart's oldest daughter is named Gerda, after Mrs. Isenberg.

There was also a dark time. In 1976, as SRI was winding down Dr. Engelbart's project, his house burned down in the middle of the night, as the family escaped in pajamas. It took years and lawsuits to rebuild. "It was very depressing," Dr. Engelbart acknowledges.

Takeoff

Dr. Engelbart winces at the word "user-friendly." It typifies the direction that the computer revolution took after his 1968 demonstration awakened the world

to their power.

Several of his staff scientists went to Xerox PARC, where the foundations of the personal computer and the Internet were developed.

At PARC and later Apple and elsewhere, the emphasis was on office automation, and making computers accessible, while Dr. Engelbart was still pushing for more attention to larger questions of building better human systems. "They were not into hypertext and collaboration," he says.

They didn't even use all the power in the SRI programs, he grumbles. In SRI's hypertext, one could jump to any word or line in a document, not just a location, he says. And he believes his 1970 version of Windows was better. "We used them in a more usable way," he says.

But he particularly objects to the dumbing down of computers for the most basic user, and the philosophy of "easy to use; natural to learn." He is more interested in developing capability than ease of use.

Dr. Engelbart likes to use the metaphor of a bicycle and tricycle. The tricycle is easier to learn, but a bicycle does more.

Dr. Engelbart then suggests having different user interfaces available for people of different skills or purpose — like pilot licenses, which can be issued for daytime only, instrument flying, or higher levels.

From hunter-gatherers

Dr. Engelbart takes the long view. Ever since hunter-gatherers evolved into farmers, people have evolved to accommodate new technologies, he argues.

"Just think," he says. People stopped roaming and settled down. They got better housing, discovered commerce, created villages and then towns, aristocracies, war, and writing.

"Every really significant technical inventions was followed by years of evolution of society," he says. "Society changes in all sorts of ways to get value from inventions."

Phones and railroads changed the way we communicate. "They changed the whole way a community operates."

And so it should be with com-

puters and the new wave of communication, Dr. Engelbart says. "If you suddenly get an invention, you have to expect co-evolutions — evolution of the social and cultural life that goes along with the invention."

Bootstrapping into the future

Because computer power and speed are doubling every few years, there's a tremendous challenge to co-evolve human systems to match them.

"We're going full speed ahead with no headlights," is the way his daughter Christina Engelbart puts it. "To solve the problems of today and the future, organizations need better ways to work together."

Dr. Engelbart lays his hope for managing the computer future in the concept of bootstrapping — derived from the metaphor of pulling yourself up by your bootstraps.

"As soon as we make headway, we should be able to improve the improvement process. That is, the better I get, the better I get at getting better," Dr. Engelbart says. "It's compound interest; it's positive feedback."

Ever since his 1962 paper, Dr. Engelbart has been developing models to improve the co-evolution of computers with human organizations to boost collaboration, and to create what he calls "high performance organizations."

Now his Bootstrap Institute aims to help companies and organizations utilize his techniques.

Dr. Engelbart has had it with commercial development. "People keep telling me the marketplace will take care of it. It won't" he says.

Instead, he is planning a system of open software that can be distributed free over the Internet. People can download it, adapt it, change it, use it. "It's got to have an evolving capability and more flexibility than any proprietary software can have," he says.

For example, he and enthusiastic volunteer helpers are working to refine his system for open hypertext documents to be released to the public. "It's going to evolve. We've got to get the process going," he says. "It can apply in different domains — engineering, medicine, music, poetry, biology, business."

Now SRI has rejoined the effort, and is looking for government funding to prepare Dr. Engelbart's systems for launching over the Internet. Dr. Lincoln calls it a viral model. "We give it to people and they give it to one another, and it spreads," he says hopefully.

What about examples? "How can we collectively develop an energy plan?" Dr. Engelbart asks. "What are we going to do about the inevitable depletion of fossil fuels, which is 25-30 years off?"

The Bootstrap Institute is located 6505 Kaiser Drive, Fremont, CA, 94555. Call 510-713-3550, or log onto www.bootstrap.org. ■