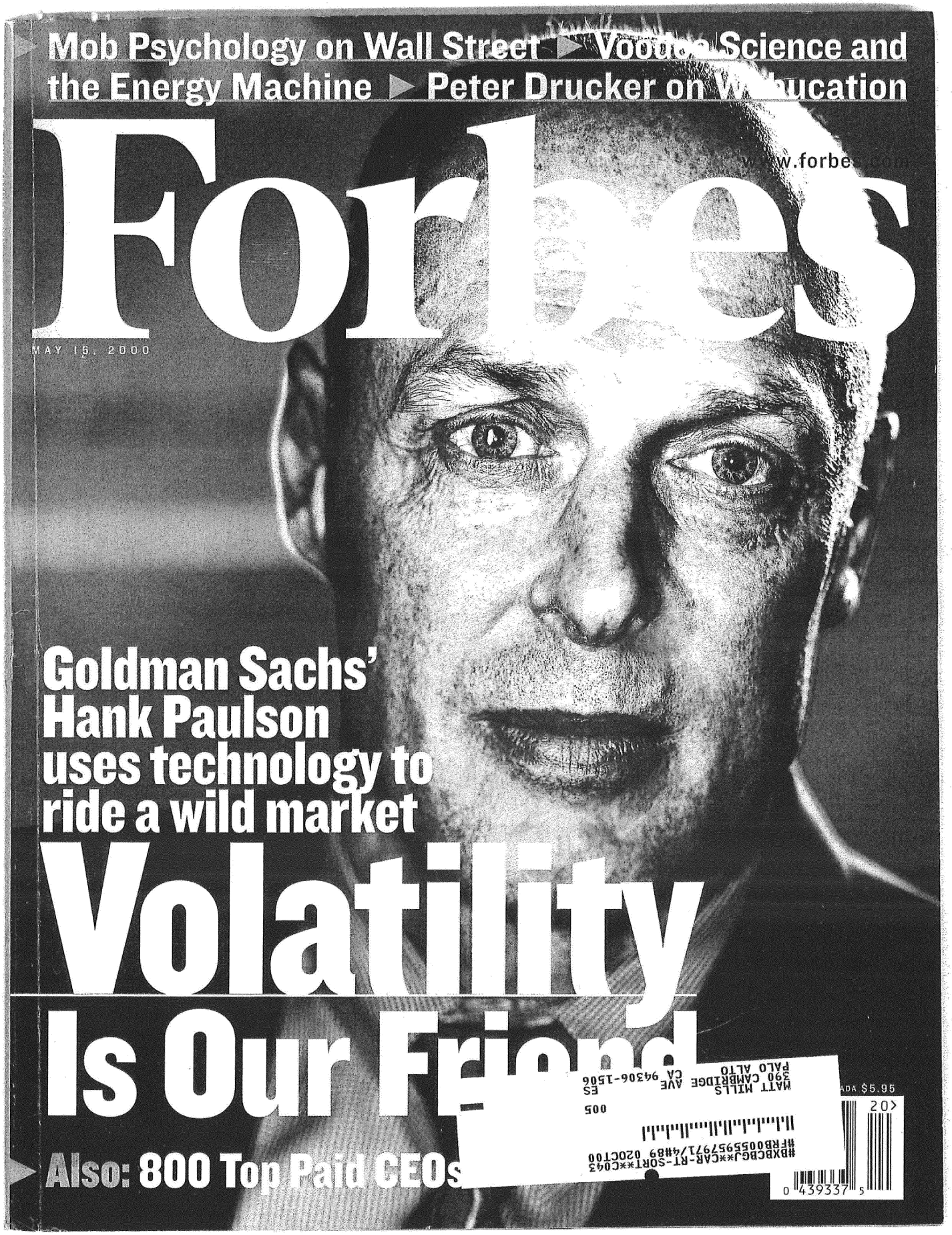

Mob Psychology on Wall Street
Voodoo Science and the Energy Machine
Peter Drucker on
Forbes
www.forbes.com
MAY 15, 2000
Goldman Sachs' Hank Paulson uses technology to ride a wild market
Volatility Is Our Friend
Also: 800 Top Paid CEOs
MATT MILLS
390 CAMBRIDGE AVE
PALO ALTO CA 94306-1506
$5.95
0 439337 5

THE WEB

Browser Bashers

Everybody says that the Web is ugly, unreliable and hard to use. At last someone is trying to do something about it.

BY DANIEL LYONS

WHEN MOST PEOPLE WERE just discovering the World Wide Web five years ago, Roy Stringer was already discovering its shortcomings. Stringer was a consultant in a computer lab at John Moores University in Liverpool, England at the time. His main beef was with the browser, that supposedly nifty little piece of point-and-click software used by 240 million people worldwide to surf the Web.

He has been trying to build a better one ever since. Stringer figures the basic problem is that typical Web sites arrange information in a hierarchical structure. You spot an underlined "link," click on it and go down one step, then another, then another—then realize you're in the wrong place. So you back up, back up, back up, then start all over again on a different ladder.

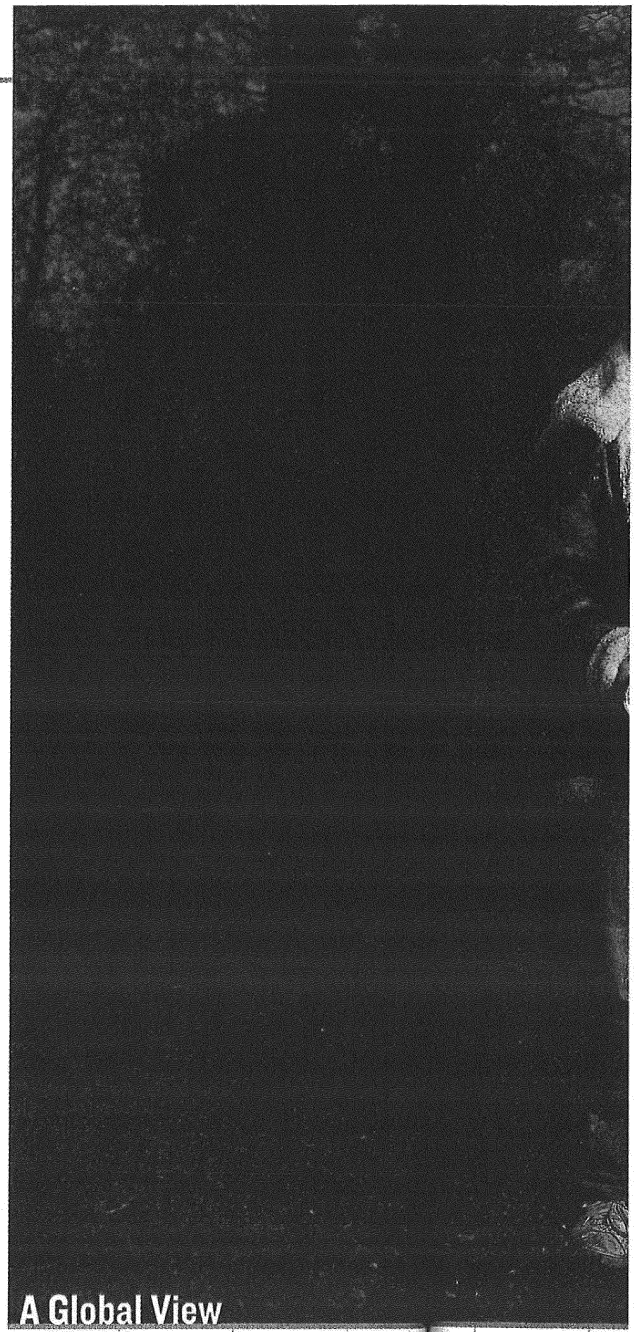
A better approach, Stringer reasons, would be to arrange a Web site's information as points on a globe. On a globe with 12 points, each point would be no more than three clicks away from any other. And you could see the whole thing by rotating the globe on-screen.

He called this structure a "navihedron," and in 1997 his operation was spun out of John Moores University into Amaze Ltd., a 100-employee Web design shop with offices on the banks of the Mersey. Last year Stringer published his concept on the Web, along with some prototypes, inviting other Web designers to try it.

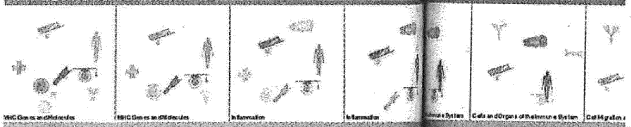
Today about 2,000 navihedrons exist, visible at www.navihedra.com, but most are experimental. Many of Amaze's clients shun the navihedron in favor of traditional site design. Stringer, Amaze's "chief hypermedia architect," admits it will be a struggle to get the world to scrap the old browser. "We have 20,000 years of hierarchy in our systems. It goes back to kings and queens. Those sorts of hierarchical mechanisms in society are very strong in our psyche," he says.

Stringer's experiment points up a growing dissatisfaction with the way the Web looks and works. Many critics blame the browser and are trying to develop an entirely new way of navigating the Internet. Excite at Home, the Web portal, runs a handful of skunkworks projects, including one aimed at creating three-dim
Microsoft is p
well. At the W
tium, scientists
driven browser

Now Strin
who dropped



A Global View



Roy Stringer's navihedron lets you see all the parts of a Web site at

ROBERT WALLIS

Confidential – Outside Attorneys' Eyes Only
DODOTS0026104
Page 2 of 5
DoDots Exhibit 2023
Samsung v. DoDots - IPR2023-00756



Let me show you the way the Web should work: Roy Stringer of Amaze is your guide to a new kind of browser.

lets you see all the parts of a Web site at once. Click on an icon, and that subject rotates to the front of the globe.

ROBERT WALLIS

vith the way Many critics trying to de- of navigating me, the Web skunkworks ned at creating three-dimensional Web interfaces. Microsoft is pursuing a 3-D design, as well. At the World Wide Web Consortium, scientists are working on a voice-driven browser.

Now Stringer, a Liverpool native who dropped out of school at age 16 and never attended college, is accelerating his crusade to one-up the browser. This summer Amaze releases its software free for any Web site to use, so long as it plugs Amaze on-screen. Later this year it will debut its own browser, free of charge and specially geared to run animation and video.

But displacing such a pervasive, if antiquated, software tool as the browser will be a huge challenge. First designed under the name Mosaic at the supercomputer lab of the University of Illinois at Champaign-Urbana in 1993, it inspired Netscape's Navigator and Microsoft's Explorer and is still the only game in town. Netscape, now owned by America Online, just introduced its sixth major release in six years, and it boasts such whiz-bang features as integrated messaging and search functions. But it's still essentially the same thing Marc Andreessen helped create.

"Web usability is a disgrace," says Jakob Nielsen, a former interface guru at Sun Microsystems and now a principal at Nielsen Norman Group, a Web-design consultancy. "For seven years we've had close to zero progress in enhancing the user's main tool for using the Internet."

The big problem with the typical browser is that it relies on the metaphor of pages in a book; you can view only one page at a time, then click on another. That is fine for displaying a simple brochure, but it's a big step backward as far as user interfaces are concerned. Some experts liken it to the limited interface of computers in the 1970s. "The printed page is a wonderful thing for communication, but it's crippling what we can do on the Internet," Stringer says.

Other beefs about the browser: Links go only in one direction instead of two, so it is difficult to retrace your

Confidential – Outside Attorneys' Eyes Only
DODOTS0026105
Page 3 of 5
DoDots Exhibit 2023
Samsung v. DoDots - IPR2023-00756

steps; it takes too many mouse clicks to get from one place to another; the arrangement of information sometimes makes no sense. And many sites are just plain ugly.

It seems unfair to blame the browser for the sins of bad Web site designers, but some say it contributes to the mess by forcing designers to build sites in a limited way—as a stack of pages. Dozens of browser "plug-ins" add such functions as music and video, but the plug-ins only add to the mess. It is like taking a World War I biplane, adding a bunch of extra features and trying to fly it into outer space.

"That little thing you started with is simply inadequate. That's why people are trying to fix it by creating all those plug-ins," says Stuart Card, manager of the user interface research group at Xerox's Palo Alto Research Center.

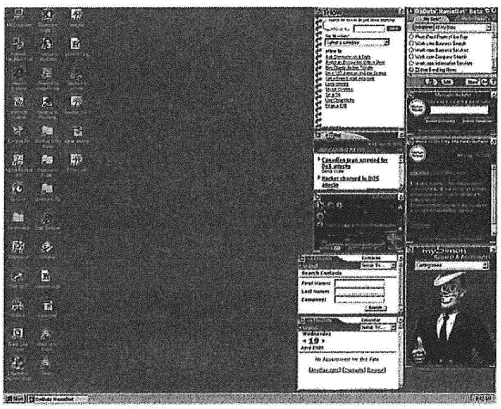
Card and his team at PARC are working on an alternative called Web Forager, which lets you gather dozens of Web pages into a "book" and store these live links on a "shelf." Take down a book on, say, car-buying, and you can flip through the pages without waiting for each page to load. And you can look at several pages at the same time, in a 3-D "work space."

Another PARC-related effort, pursued by Xerox spinoff Inxight Software in Palo Alto, aims to let users view a picture of an entire Web site before diving in. "By using graphics you can see the whole territory first and then realize which portion of the site you want to visit, to get to the right area more quickly,"

THE WEB'S EARLY DESIGNERS ERRED BY DUMBING IT DOWN TO MAKE IT WORK.

says Ramana Rao, chief technology officer.

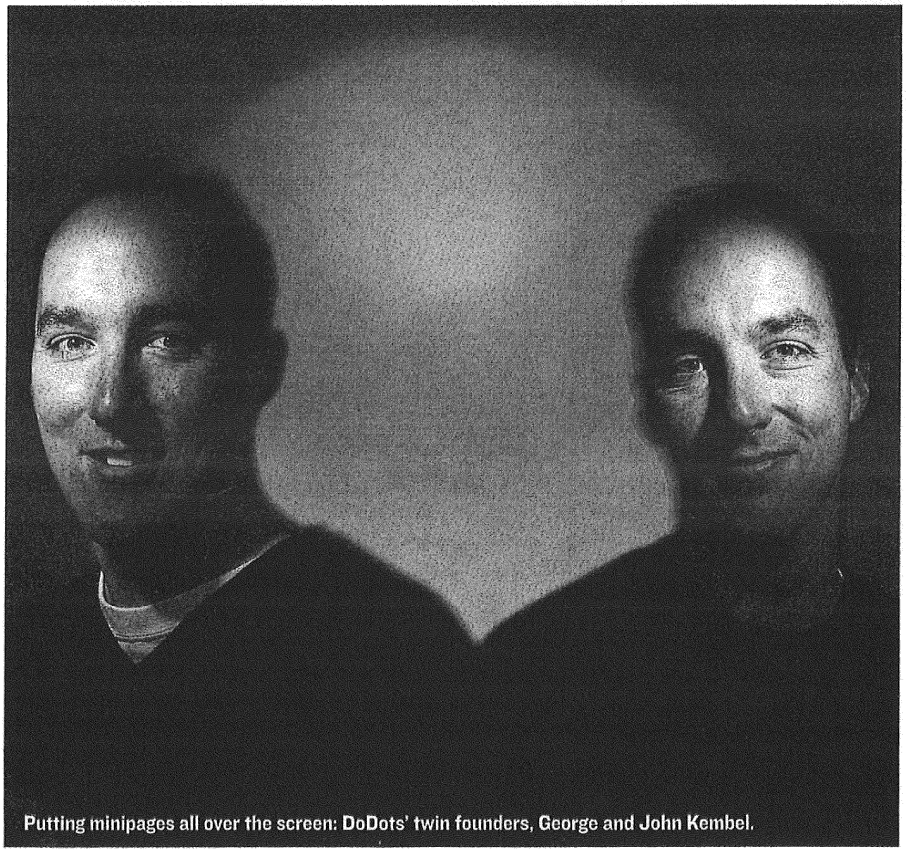
Inxight was spun off in 1997 to develop visualization tools for navigating the Web. One technology, Hyperbolic Tree, lets companies build a map of their site to show different areas and the links among them. A person trying to research a product can spin the map around until that part of the site shows up—and then click on that spot. So far 70 sites use Hyperbolic Tree, including the *Wall Street Journal*'s.



Do's and dots: DoDots runs multiple sites, side by side.

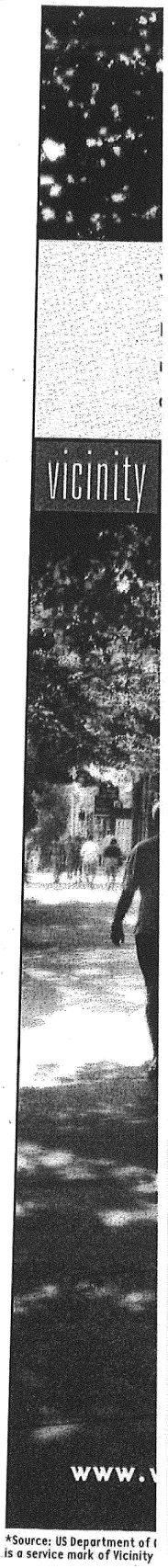
Microsoft's 3-D effort, TaskGallery, is experimental and will require a lot more bandwidth than most users have today. "We all know there's a lot more that can be done," says Daniel Robbins, a 3-D interface designer at Microsoft.

For now, some companies are trying to make the best of a bad situation by creating Web-based applications that hide the browser. Unext.com makes online educational software that runs on a browser; once the program is running, the browser disappears. "We need to just forget the browser. The browser has set



Putting minipages all over the screen: DoDots' twin founders, George and John Kembel.

GERRY GROPP



*Source: US Department of
is a service mark of Vicinity

Confidential – Outside Attorneys' Eyes Only
DODOTS0026106
Page 4 of 5
DoDots Exhibit 2023
Samsung v. DoDots - IPR2023-00756

us back ten years," says Donald Norman, president of Unext's learning division and a partner in Nielsen Norman Group.

Eliminating the browser is exactly what George and John Kembel, twins with engineering and design degrees from Stanford, have managed to do. Their shop, DoDots Inc., sells software that lets you view a handful of miniature Web pages, each one in its own little window on the screen, without having to run a browser. Some 20 companies now make their Web information available in this format.

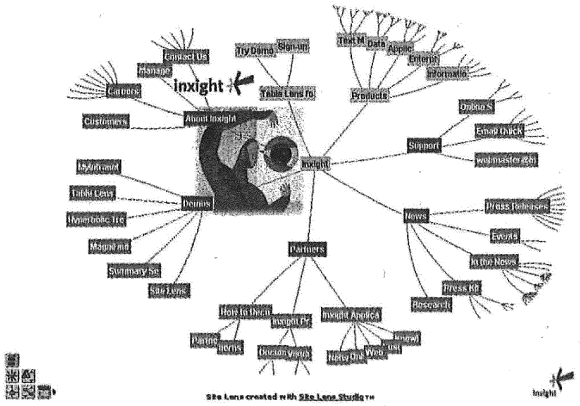
These "dots" offer less information than a full-size site but let you keep a lot of different information close at hand. One dot can have the Merriam Webster dictionary up on the screen, while another lets you track the stock market. "You don't have to drop what you're doing and hand over your entire screen to the browser whenever you want to go look something up on the Web," says George Kembel.

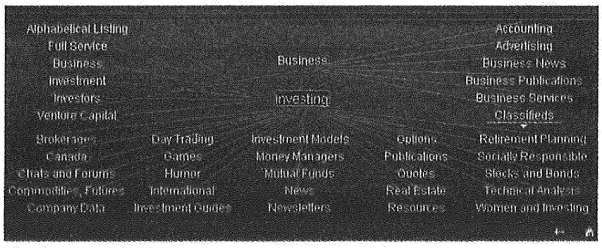
But big sites present a tough challenge for seamless navigation. To model all of a Web site's information for better surfing, Harlan Hugh created TheBrain. Hugh, a 26-year-old college dropout, released his first version of the software in 1998, letting users create connections among all sorts of Web information. A new version lets companies create sites that are easier to use.

"We're going to replace the old point-and-click interface with something that's much more in tune with what the computer is capable of," Hugh vows.

Another effort, ZigZag, from respected designer Theodor Nelson, seeks to create an entirely new structure for programming, graphics and data storage. He envisions a "floating world" in which the user "flies" through 3-D space as objects morph and pass around him. The Web's early designers erred by dumbing it down to make it work, he says. "They got a quick kill, and now we're paying for it," he gripes.

Just one problem: He has no idea how long it will take to make ZigZag work. For now, the only consolation is this: Even a bad browser is better than none at all. F





Mind-meld: TheBrain lets users see a site's interconnections.

THE WEB

URLazy.com

Professors hate them. Students love them. Web sites are posting free lecture notes online—and drawing heavy fire from the Ivory Tower.

BY ADRIENNE SANDERS

EVER SINCE THE INVENTION OF THE photocopier, enterprising students have been more than happy to sell their lecture notes to lazier classmates. Teachers warily tolerated the practice. Universities usually looked the other way.

Post them on the Web, free and for all to see, and this quiet cottage industry is suddenly besieged by a controversy over intellectual property rights, freedom of speech and the decline of education.

In the past year 13 Web sites, including Versity.com, StudentU.com and Study24-7.com, have posted lecture notes taken by students in thousands of courses at hundreds of schools. That has brought rebukes from Harvard, UCLA, Princeton and other universities. UCLA and Berkeley last fall sent cease-and-desist letters to Versity and StudentU. The sites retreated.

"These companies interfere in the student-teacher relationship and have no accountability," says Mathieu Deflem, a Purdue University sociology professor.

But academia is finding the Weblets to be tough adversaries. The sites have raised millions of dollars in backing, aiming to turn a profit on advertising revenue. Versity, founded in 1997 by four 20-year-old college dropouts, landed $12 million from the likes of Venrock and Sigma Partners. Collegeclub.com just acquired it for an undisclosed sum. StudentU raised $6 million from Houston incubator NetStrategy.

Flush with cash, these sites get students' attention through stunts and hailstorms of promotional trinkets like antenna balls, key chains and baseball caps. Versity unabashedly encourages guerrilla tactics to promote itself. Its student agents chalk up campus sidewalks. At Texas A&M, two students stand at opposite ends of a lecture hall and perform a kind of live commercial, shouting to each other: "Have you heard of Versity.com?" "No, what is it?" And so on.

Versity goes about recruiting notetakers just as bluntly, paying students up to $12 per class to post their notes within 24 hours. Students earn bonuses for su-

Confidential – Outside Attorneys' Eyes Only
DODOTS0026107
Page 5 of 5
DoDots Exhibit 2023
Samsung v. DoDots - IPR2023-00756