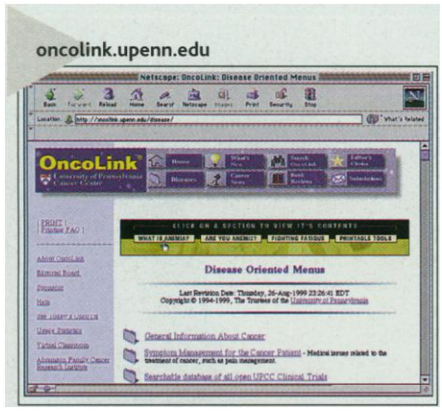

SITE VISIT

Know Thine Enemy

Many people stricken with cancer gird themselves for battle with the nation's number two killer by first learning as much as they can about the disease. Perhaps the largest source on the Web for cancer info—from basic facts to clinical trial results—is Oncolink, a 5-year-old Web site at the University of Pennsylvania.

Aimed primarily at patients and their doctors, the backgrounders, news digests, and abstracts here are also meant to help clinicians and other researchers keep up on the latest studies and drug approvals. For example, the site gets a feed from Reuters on new cancer research, and its own editors—mostly Penn faculty—contribute coverage of the American Society of Clinical Oncology meetings. Journals Scan is a physician-written summary of the latest papers in such publications as the *New England Journal of Medicine* and the *Journal of the National Cancer Institute*. Visitors can sign up for numerous e-mail listservs, on topics such as angiogenesis and molecular biology. Digging deeper into the data trove, specialized pages cover more specific topics, such as the accuracy of cancer info on the Web, vaccine therapies, and the angiogenesis drugs that caused a hubbub last year.

NET NEWS

It's a Small Web After All

The Web is humming along like the U.S. economy in at least one respect: The rich are getting richer. In two recent studies, researchers have found that the proportion of Web pages with many outside links pointing toward the page is much higher than would be expected in a random network, probably because people adding new pages tend to link to already-popular sites. As a result, the number of steps it takes to move from place to place stays very small, even as the Web grows exponentially in size.

Albert-László Barabási, a physicist at the University of Notre Dame in Indiana, and two colleagues analyzed the links into and out from the 325,729 pages on Notre Dame's domain, "nd.edu." They found that the pages followed a distribution known as a "power law": That is, the number of pages with n links was proportional to $1/n^2$, so that pages with 20 links were one-quarter as frequent as those with 10 links. This pattern is "typical of self-organizing systems," such as neural networks, Barabási says. His team found that the law accurately described some other domains (such as whitehouse.gov), so the researchers assume it works for the estimated 800 million pages on the entire Web. If so, then several dozen pages have 1000 or more incoming links. If people had simply linked their pages with other Web pages at random, pages with at least 1000 links would be virtually nonexistent, the team reports in last week's issue of *Nature*. Another team at Cornell and IBM presented a nearly identical power law at the WWW8 conference in Toronto earlier this year.

From the power law, Barabási deduced that the average number of clicks it takes to get from any page on the Web to any other is only 18—and will increase to just 20 if the Web grows by a factor of 10. "If you know where you're going, you can really get there quickly," says Lee Giles, a Web metrologist at NEC Corp. in New Jersey.

COOL IMAGES

Mind Your Back

An early Cretaceous *Afrovenator*, right front, stalks a young sauropod in a chilling scene by Montana illustrator Douglas Henderson. He has compiled 90 vivid paintings and sketches in an online book, *Earth History Illustrations*,* that leads the reader through the history of prehistoric creatures, from Devonian fishes to Pleistocene mammoths and all the terrible lizards in between. Henderson's images have appeared in *National Geographic*, museums, and books for grown-ups and kids. He started drawing dinosaurs at an early age, he says, giving in to the "curious foible we have to want to see what we haven't seen." The site includes some classics from Henderson's Crayola period.

* gallery.in-tch.com/~earthhistory

CREDIT: DOUGLAS HENDERSON

HOT PICKS

Circuit breakthrough. The transistor, essentially an on-off switch inside an electrical circuit, is regarded as one of the century's most important inventions. This PBS site covers the history, science, and personalities involved in the 1947 Bell Labs invention that led to everything from vacuum tube–less radios to today's Pentium computer chips. Accompanies a TV show airing on 8 November. www.pbs.org/transistor/index.html

Skyshopping. A new window on the planet opens for business this month as NASA begins selling photos (around $600 a pop) from the Landsat 7 Earth-observing satellite launched last spring. Visit the gallery to see highlights from the last few weeks, such as icebergs off Antarctica, sand dunes in Australia, and a crisp, 30-meter-resolution snapshot of Manhattan. landsat7.usgs.gov

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