SCIENCE & TECHNOLOGY

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ng - "Coral and killing it. Montgomery and Strong have been studying this "suspect."

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The scientists cite several cases in the Caribbean and elsewhere that show a temperature-bleaching linkage. They urge a coordinated global study to try to verify this effect, it could be another reason for concern about human-made global warming.

But temperature isn't the only likely cause of bleaching. Excessive solar ultraviolet (UV) radiation can also do it, as Daniel F. Gleason and Gerard M. Wellington, biologists at the University of Houston, pointed out last October in the journal Nature. They reported experiments that

showed that the extra UV transmitted by unusually clear and calm waters can whiten coral.

Here again, potential climate change might increase this kind of coral stress. Human-induced thinning of the ozone layer that partially blocks solar UV isn't a concern.

That effect is small in the tropics. The Houston biologists note, however, that global warming might cause more frequent occurrences of the clear-water conditions that allow greater UV penetration.

Coral brittleness is another matter. Scientists have long suspected that nitrogen and phosphorous from sewage and farm runoff overfertilize coral and impede skeletal forma-

Now Australia's Great Barrier Reef Marine Park Authority has an

experiment under way to study this possibility. Preliminary results suggest that phosphorous does the damage. It may be the pollutant to con-

It's clear that scientists know enough about the coral problem to put together a comprehensive global-research effort, perhaps under United Nations sponsorship.

It's time to move beyond expressions of concern and piecemeal research and find out what exactly is going on with the coral reefs and what, ing the coral if anything, should be done about it.

Fains in Science and Math

ano, co-director of a New Jersey stitute of Technology program at is designed to keep young ds interested in the sciences nd math.

At higher levels, the federal ta show a more significant dirgence. About 47 percent of the ring in mathematics were fedes in 1991, according to the ational Center for Education atistics.

Forty percent of the 3,615 stunts earning a master's degree the subject that year were omen, but females made up only percent of the 978 people raing math doctorates in 1991. Thirty-one percent of the ,344 college students earning degrees in the physical sciences in 1991 were women. Of the 5,309 total students earning a master's degree that year, females made up about 28 percent. Nineteen percent of the 4,290 total doctoral degrees in the subject were earned by women in 1991.

The federal data did not break down the physical sciences into specialities such as chemistry, physics, biology, and others.

In engineering, 14 percent of the total 78,864 US undergraduate degrees were awarded to women in 1991. Females earned 14 percent of the 24,959 master's degrees that year and 9 percent of the 5,272 doctorates in the sub-

The Computer Key To Literary Insight

By Simson L. Garfinkel and Beth Rosenberg

THE Electronic Word: Technol-Democracy, ogy, and The Arts," by Richard A. Lanham, is a collection of 10 academic essays on the power of the personal computer for reforming the study of great literature. But whether Lanham's book is read on printed pages or on the screen of a Macintosh, this upbeat hymn to the PC ultimately denigrates the writers, students, and teachers those PCs are intended to serve...

Lanham's thesis is simple: The "academy" (the world of professional students and scholars) is suffocating the words of Shakespeare, Milton, and Chaucer with the pages on which they are printed. Paper, he contends, makes words static and dead, trapped in an order and arrangement assigned them by some irrelevant publisher.

In order to set the great texts of Western society free, they must be digitized, downloaded, and displayed on the most up-to-date networked workstations. The word must be made electronic, so contemporary students and scholars can change type style and layout, build them into multimedia presentations, and generally play with them in a way that was once reserved for authors.

These are strong ideas in anybody's book, but stronger still to be coming from a professor at the University of California at Los Angeles' writing program who has taught the academic canon for more than 30 years.

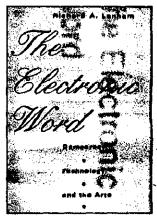
Using computers equipped with other people's texts for selfexpression is a key idea that Lanham returns to again and again. He would have us believe that electronic enlightenment is just a keystroke away, available to anybody with a good word pro-cessor and a CD-ROM of literature's greatest hits.

Lanham doesn't seem to understand that the greatness of Milton and Shakespeare doesn't derive from their typography or the images publishers chose to grace the covers of these texts. Great literature is great literature, no matter what type style is used

To be fair, the real focus of The Electronic Word" is not the words themselves, but the "academy" in which they are taught. Lanham's view of technology-as-- Associated Press savior seems dated and unrealisti- ments on popular culture.

cally optimistic. Today's university departments are bogged down by rhetoric and politics, not technology. Schools that have brought the electronic word into their curricula have sometimes found it a conduit for electronic plagiarism, digital harassment, and malicious hacking. On today's politically charged and politically correct campuses, the bytes often bring bedlam.

Indeed, the real value of "The Electronic Word" is Lanham's discussion of scholarship and copy-



THE ELECTRONIC WORD: DEMOCRACY, TECHNOLOGY, AND THE ARTS

By Richard A. Lanham University of Chicago Press 285 pp., \$22.50 cloth \$19.95 Macintosh floppy disk

right, which is clear, cogent, and outlines a current dilemma for the university. With academic electronic mailing lists traipsing up and down the Internet, printed journals are becoming increasingly irrelevant.

But who really owns the copyright, and the intellectual credit, to on-line scholarship? What is the relationship between text and hypertext? Who gets the royalties. Who gets tenure - the writers, or the programmers? What will happen to "publish or perish" when a text is created on-line, electronically circulated, and continually updated, never gracing the paper page?

Lanham raises more questions than he can answer, but their ramifications should be consid-

Simson L. Garfinkel is a freelance writer who specializes in science and technology. Beth Rosenberg is a freelance writer in Cambridge, Mass., who com-