Court Test for Plagiarism Detector?

Fraud investigators Walter Stewart and Ned Feder, who toil in a cellar laboratory choked with file cabinets and computer equipment at the National Institutes of Health (NIH), have been using a mechanized plagiarism detector to mine a new vein of misconduct. Now, they are planning a court appearance for the technique—if they are permitted to testify as expert witnesses in a trial over disputed rights to a textbook on plastic surgery, slated for 9 December.

Stewart and Feder got involved in the case in August, when an attorney for the plaintiff asked them to compare duplicate wording in two textbooks. The earlier text is a seven-volume, nearly 4000-page tome called *Reconstructive Plastic Surgery* (second edition), published in 1977 and edited by John Marquis Converse. He was director of the Institute of Reconstructive Plastic Surgery (IRPS) at the New York University School of Medicine until his death in January 1981. A third edition of the textbook was being discussed in late 1980 by Converse and his assistant editor, plastic surgeon Joseph G. McCarthy, the current IRPS director. But the third edition never appeared. Instead, in 1990 the publisher—W.B. Saunders Co.—released an eight-volume textbook titled *Plastic Surgery*, edited by McCarthy. In a civil action, Converse's estate is suing W.B. Saunders and McCarthy, charging that "significant portions of [*Plastic Surgery*] are copied almost verbatim...or are substantially copied...or are derived from" the original text. In addition, lawyers for the estate contend that in referring to their project as the third edition of "Converse's *Reconstructive Plastic Surgery*" when lining up some of the authors for *Plastic Surgery*, McCarthy and Saunders were misusing the Converse name.

Through his lawyer and in court documents, McCarthy has denied the allegations, but admits that *Plastic Surgery* "contains material that appeared in" *Reconstructive Plastic Surgery*. In his preface to *Plastic Surgery* McCarthy writes, "Many of the ideas and principles, if not the exact words, that were integral to the teaching and writing of Dr. Converse live on in the present volumes." Lawyers for the publisher, meanwhile, have filed a brief saying, "Saunders owns the copyrights to the work which was allegedly plagiarized and, thus, has the right to copy it."

Other plastic surgeons who wrote chapters in both textbooks are dismayed by the suit. "The idea was to preserve the flavor of the Converse text," says Earl Browne Jr., chairman of the department of plastic and reconstructive surgery at the Cleveland Clinic Foundation. "I sympathize with [the Converse family]," adds Nicholas Georgiade, a plastic surgeon at Duke University School of Medicine. "But [*Plastic Surgery*] is considerably different than Converse's book."

Since being drawn into the case, Stewart and Feder have been feverishly feeding pages from both textbooks into Hewlett-Packard scanners. Using a computer program designed by Stewart, the NIH duo has been calculating the percentage of 30-letter strings that are identical in Converse's 100 chapters and McCarthy's 135 chapters. Their measuring stick is called the "freeman," after a physician recently accused of plagiarism. One freeman equals a completely plagiarized text. In their chapter-by-chapter analysis, Stewart and Feder say they have found close correlations between a number of chapters, especially the two introductory chapters—which overlap to the tune of 568.856 millifreemans, meaning there is a 57% match. Stewart claims to have discovered many instances in which words and drawings from the Converse textbook were used without acknowledgment in the McCarthy text.

Whether Stewart and Feder are allowed to air their opinions in court as "expert witnesses" for the Converse estate is still undecided. NIH has permitted Stewart and Feder to testify "in our own, private capacity," says Stewart. However, lawyers for Saunders and McCarthy, who declined to be interviewed, are expected to challenge the NIH scientists' standing as expert witnesses.

Nevertheless, some misconduct experts think Stewart's computer work will become a convenient means to quantify plagiarism, which is difficult to do at present. "Academics feel that they know plagiarism in most cases" when they see it, "but of course they'd like to...verify it," says one misconduct investigator. Officials who must enforce ethics codes would welcome a numerical method for identifying violations, like the freeman-based software. "There's plagiarism that's black-and-white, then a huge gray area," says C.K. Gunsalus, a University of Illinois official who oversees academic integrity issues at the university, and who is expected to testify for the Converse estate. Stewart's software "vastly speeds up the process of investigating plagiarism cases, which is in the interest of all the parties," she says. ■ RICHARD STONE

Europeans Launch Diet, Cancer Study

Last week, European epidemiologists launched in London a study billed as "the world's largest-ever in-depth investigation into diet and cancer." It will run for at least 5 years, involve seven European countries and require more than 250,000 people to keep detailed diaries about what they eat and provide blood samples to scientists. "We decided to take advantage of the large diversity of dietary habits in Europe and the diversity of cancer incidence," said Elio Riboli, the project coordinator and head of the Program of Nutrition and Cancer at the International Agency for Research on Cancer at Lyon in France. To create the pan-European project, smaller studies being planned around the Mediterranean were put together with others in Britain and northern Europe, says Riboli. Funding will be provided from sources within each participating country and coordination costs will be paid by the European Commission.

Already 12,000 women from around Milan in northern Italy have been enrolled in the project, along with 98,500 teachers from all 95 departments of France. They will soon be joined by people from Britain and Spain and, in 1993, from Germany, Greece, and Holland.

Previous studies have indicated many possible links between diet and cancer. For example, people who eat a lot of fruit and vegetables apparently suffer less stomach and bowel cancer. Burned meat may be bad news for stomach cancer. And high fat diets seem to be implicated in breast cancer. But the results are uncertain. "There are many issues which are still open," says Riboli. Take fats and cancer. If there is a link, "is it with total fats or specific components?" he asks. "If it is specific components, are some protective, and if so, which?"

One problem with previous investigations, says Sheila Bingham, a nutritionist at the Medical Research Council's Dunn Clinical Nutrition Centre in Cambridge, is that "you're asking people to recall their food habits from years ago. They actually tend to tell you what they're eating now." To get around this problem, Bingham and her colleagues have devised food diaries. Everyone in the study will keep these diaries and the records will be used later to search for links between diet and cancer.

Given the amount of data expected to flood in, it's no surprise that epidemiologists with an interest in diseases other than cancer are also planning to join in the study. The British Heart Foundation will use it to help collect more data about diet and cardiovascular disease, while the UK Ministry of Agriculture, Fisheries, and Food will support an

Senators Clash Over Military "Pork"

When several science projects popped up in the Defense appropriation bill without warning last month, a few Senators roared with outrage. But only a handful of their colleagues paid them much heed. The bill proposed giving about $120 million in special grants to research centers—most of them at universities—that had never been asked to compete, pass peer review, or even go through a perfunctory congressional hearing to win their money. These funds are in addition to the more than $200 million for similar academic pork buried in other appropriations bills Congress approved earlier this year (see *Science*, 1 November, p. 640).

The new awards—to be scattered from Alaska to Hawaii, and from California to Massachusetts—were inserted as "earmarks" by the appropriations committees just hours before the bill went to the floor of the House and Senate for up-or-down votes. The appropriations chiefs set it up that way, permitting no amendments. This rule and the porkbarrel style of funding research projects angered leaders of the Senate Armed Services Committee, including chairman Sam Nunn (D–GA) and ranking Republican John Warner (R–VA).

"What makes this most objectionable," said Nunn, is the "explicit" wording in the bill that ruled out any competition for the funds. Like other senators, Nunn said he was annoyed by the fact that "we have not had a chance to study" the details. The earmarking language in the bill, he said, "is a little bit like those Russian dolls that contain smaller dolls inside. You keep finding more earmarkings as you keep reading and looking behind the provisions." Both Nunn and Warner were so outraged that they voted to kill the entire Defense bill rather than acquiesce in this game. They were joined by a score of other dissenters, but lost in the final vote on 23 November, 66-29.

The result was a defeat for strict peer review, but passage of the bill was nevertheless not entirely bad for science. For one thing, the bill assured the National Science Foundation (NSF) that it will get just about all the money requested by the Administration this year. The piece of its budget that was missing until last week was $105 million for the Antarctic research program. Congress had left it out of the NSF appropriation, arguing that it should come from Defense because it would be at least partly used to clean up an environmental mess inherited from the Navy. The Defense bill now calls upon the Pentagon to hand over the $105 million. But there's a hitch. To comply with arcane new budget rules, NSF must reciprocate by cutting its research budget by at least $5 million. And it could be more: Another $70 million must be cut from NSF or from housing programs at the Department of Housing and Urban Development. The Administration will decide where to take the cuts this month.

The earmarked projects, though only a tiny fraction of the $271-billion defense bill, took up more time in the debate than any other item. The problem, Senator Albert Gore (D–TN) pointed out, is that they may result in an inefficient use of scarce federal science dollars. Some may actually disrupt other well-made plans. For example, Gore zeroed in on a clause saying that $25 million of the $150-million Strategic Environmental Research and Development Program had to be used "to support the Arctic Region Supercomputing Center." The center will be located in Alaska, home of Senator Ted Stevens, ranking Republican on the defense appropriations subcommittee. Gore pointed out that the environmental program has a science advisory board and a "carefully balanced governing council" to "create an atmosphere as objective as we could make it." But now, Congress has earmarked one-sixth of the budget for "one particular institution" and "one particular kind of research that has not been examined by any of the members of this science advisory council."

During the debate, senators clashed on many other cases as well: a $1-million grant for an "earth science information network" whose "mysterious location" Gore could not discover; $10 million for a neuroscience center of excellence at Louisiana State University; $7.7 million for aeronautics research at Kansas State University; $29 million for undefined research at Boston University; and many others.

While earmarking by the appropriations committees has drawn flak in the past 2 years, especially from members of the authorizing committees, who see it as an intrusion on their turf, the prospects for change are not great. Patricia Warren, executive director of the Higher Education Colloquium on Science Facilities, says the underlying problem is that there's no ready alternative for building new science facilities at universities. The Colloquium would like to see Congress create competitive programs at every R&D agency to finance new academic research facilities. Until that happens, she says, the porkbarrel trend will "continue to increase." ■ ELIOT MARSHALL

SLICES OF PORK

Institution	Appropriation ($ Millions)
Louisiana State University	10.0
Marywood College, PA	10.0
U. Texas at Austin	6.0
Northeastern University	6.0
Texas Regional Inst. for Environmental Studies	5.0
Kansas State University	7.7
U. Wisconsin	1.6
Boston University	29.0
Medical College of Ohio	0.25
U. South Carolina	0.5
George Mason University	0.75
Monmouth College, NJ	2.3
U. Minnesota	10.0
U. St. Thomas in St. Paul, MN	0.5
Brandeis University	2.0
New Mexico State University	3.0
Arctic Region Supercomputing Center	25.0
Total	**119.6**

SOURCE: CONGRESSIONAL RECORD

effort to measure vitamin levels in the blood and see how they relate to several diseases.

A particularly important piggyback study will be carried out in Britain on the effect of hormone replacement therapy. New hormone formulations for post-menopausal women include progestrogens as well as estrogens. According to Phil Hannaford, a general practitioner and epidemiologist at the Royal College of General Practitioners' Manchester Research Unit, who is coordinating the study, "Added progestrogens might reduce the risk of cancer of the womb associated with estrogens, but might themselves increase the risk of heart problems." With data from the new study, they will have a chance to work out the overall risk factors.

Some patience will be needed before the answers begin to come in. It will be "7 or 8 years from now," says Riboli, before European doctors will be able to start lecturing their patients on the cancer risks that come with English sausages or on the benefits of Italian olive oil. ■ JEREMY CHERFAS