The Linnaean system had led him, during one decade's work, to use the same name for three different groups of mints. The system also required him to change the name of a large clade formerly called Teucrioidae in the standard nomenclature. Recognizing that another genus belonged to it triggered vexing rules about name priorities, but phylogenetic nomenclature accommodates these changes gracefully, he says.

This flexibility won over botanist Kathleen A. Kron of Wake Forest University in Winston-Salem, N.C. When she wanted to name a lineage that she'd discovered within the heath group, she found that the only two options under standard nomenclature each required changing almost 100 other plant names. The new nomenclature demanded none.

As Cantino summarizes the issue: "Would chemists be satisfied with a system of nomenclature in which naming a newly discovered compound required renaming other compounds?"

As the phylocoders have presented their ideas, "reactions have been extreme and varied," Cantino says. "The day after [his presentation at the International Botanical Congress], I was approached by some people who were very enthusiastic about it and others who were appalled."

Taxonomist Alan Whittemore of the Missouri Botanical Garden in St. Louis told Science News that "the so-called Linnaean system has been modified extensively over the past few generations to reflect phylogenetic thinking. It now works about as well as you could expect from any system of nomenclature."

Besides, he warns, "proposals to make very extensive changes in the way organisms are named have a very bad history. Many different schemes have been proposed over the years, and almost all of them have turned out to be impractical for one reason or another."

Congress Secretary General Hoch of the Missouri Botanical Garden does recognize the trouble caused when he and other taxonomists shift names. "The ecologists hate us; the horticulturists hate us. . . ," he laments. He still shudders to remember the plight of a colleague who reviewed the 25 or so species in the mustard genus *Arabidopsis* and discovered what Hoch calls an "awful mess."

Twenty of the species turned out to have no evolutionary relationship with *Arabidopsis thaliana*, yet the species is so widely used in plant-genetics labs that changing its name would be almost as controversial as redoing *H. sapiens*. To preserve the plant name according to the standard rules, the colleague shrank the genus to about five species and performed other fancy taxonomic footwork, says Hoch.

"Everybody can see the problem, but not many people are going to say, 'Let's throw the whole thing out,'" Hoch says. PhyloCode would "overburden the nomenclature system with too much information," he fears. "A guy doing a biological survey doesn't care what the next nearest relative is."

Who has to throw out anything? asks taxonomist J. Mark Porter of Rancho Santa Ana Botanic Garden in Claremont, Calif. He predicts PhyloCode will develop into "a parallel system and will require us to become bilingual." He doesn't envision that even herbaria, the bastions of botanical nomenclature, will suffer huge shocks. "Like Y2K, the fear of phylogenetic nomenclature is likely greater than its actual impact on herbarium management," he predicts.

That sounds fine to phylocoder Cantino. "I don't view what I'm doing as trying to topple the Linnaean system. We are simply making an alternative available," he says. "If the Linnaean system is eventually toppled, it will be through the will of the scientific community, not the efforts of a few individuals." □

Earth Science

Weather service's supercomputer burns

A fire late last month destroyed the primary supercomputer used for predicting the nation's weather, potentially lowering the reliability of forecasts for several months.

On Sept. 27, a fire broke out within the power pack of the National Weather Service's Cray C90 supercomputer in Suitland, Md. Firefighters quickly put out the flames, but they mistakenly used a calcium carbonate extinguisher instead of the carbon dioxide canisters in the computer room.

It was the calcium carbonate powder, rather than the fire, that caused irreparable damage to the computer, says Louis W. Uccellini, director of the National Centers for Environmental Prediction (NCEP) in Camp Springs, Md., which oversees the supercomputer operations.

The Cray C90 ran the weather service's primary forecasting models, which predict weather from a few hours to 16 days ahead. It also ran the foremost U.S. hurricane model, as well as the national El Niño model looking several seasons ahead. As a backup, NCEP has relied on two smaller computers to run most of the models, sometimes less frequently and at a reduced resolution. Other nations and the U.S. Navy and Air Force are also providing some computer outputs for NCEP.

"We believe all critical operations are being supported and our folks are doing their jobs," says Uccellini. The current limitations, however, have made it more difficult for meteorologists because they have less computer guidance for making forecasts. "There's more uncertainty in some of the products we issue," says Uccellini.

Even before the fire, the weather service had planned on retiring the 1994-vintage Cray. This year, NCEP purchased an IBM supercomputer capable of a peak speed of 690 billion floating-point operations per second (gigaFLOPS). The Cray's peak was 15.3 gigaFLOPS.

NCEP will start using the IBM on Nov. 15, but it may be a month or more before the new computer can take over all the functions of the old one, says Uccellini. *—R.M.*

Ozone hole is smaller than last year

The ozone hole over Antarctica this year fell short of 1998's record size, providing a piece of good news about the atmosphere's ability to recuperate from an overdose of pollutants.

"Before the patient can recover, it has to stop getting sicker. The hole doesn't seem to be getting bigger. This is the first indication that we have of what we expect," says David J. Hofmann of the National Oceanic and Atmospheric Administration in Boulder, Colo.

The ozone hole develops in the stratosphere over Antarctica in the Southern Hemisphere's springtime, when sunlight returns to the polar region. The light catalyzes chemical reactions involving chlorine and bromine pollutants that destroy ozone.

Satellite measurements reveal that the ozone hole was slightly smaller this year, covering an area of 25.0 million square kilometers on Sept. 15, compared with last year's record size of 27.2 million sq km, says Richard D. McPeters of NASA's Goddard Space Flight Center in Greenbelt, Md. (SN: 10/17/98, p. 246).

Satellite- and balloon-borne instruments showed that the amount of ozone over Antarctica bottomed out in early October at a value of 90 to 92 Dobson units, the same as last year.

Researchers have recently documented that the amount of ozone-destroying compounds in the atmosphere has stopped rising, thanks to international limits on these chemicals (SN: 3/9/96, p. 151). It will take a decade or more, however, before the ozone hole actually starts to shrink by a significant amount, says Hofmann. The difference between 1999 and 1998 resulted from year-to-year fluctuations in Antarctic weather, he says. *—R.M.*