

# Superconductors

(Continued from page 1)

in Cambridge, Mass. have resulted in magnetic fields so high that existing devices can't measure them. Researchers there estimate that the field-strengths may range from 800,000 to 3 million gauss.

Because of the potential strength of magnets made with copper oxide superconductors, some scientists have suggested that the federal government's planned superconducting super collider project be put on hold pending redesign of the magnets.

But Kirk says the \$3 billion to \$5 billion SSC project will probably go ahead as currently designed — with conventional niobium superconducting magnets — just because there is so much federal inertia behind the massive project.

"These new discoveries can't hurt the project though," Kirk says.

"If nothing else the magnets can be redesigned at some time in the future," he says.

In Hartwig's estimation, it may take years for technologists to come up with the first practical applications for the new superconductors.

"Most of the work in the initial period will be done by physicists," he says. "Right now there's a different theory for every theorist — there isn't any one theory that everybody thinks is right."

"But I think that will be done relatively quickly. Then it will take engineers and manufacturers to convert it into something practical we can use in a device — and that will take about 10 years."

Hartwig has studied techniques for fabricating wire using conventional niobium superconducting materials for years. But the ceramic metal oxide materials pose special problems for two main reasons, he says.

In contrast to niobium — a ductile metal alloy that readily can be combined with other conductive metals like copper and aluminum — the new copper oxide materials are brittle and ceramic-like. This will make it difficult, if not impossible, to draw it into wire using conventional techniques.

For this reason, a copper oxide superconductor is limited in the amount of electrical current it can carry before losing its superconducting property, Hartwig says. Niobium superconductors have been developed to the point that they can carry up to 1,000 amperes per square millimeter. In contrast, the new copper oxide superconductors can carry only 0.03 ampere per square millimeter before losing superconductivity.

But even at the present low current capacities, the new superconductors will have applications in supercomputers and communications devices, Hartwig says.

However, many of the more spectacular applications touted in the media, such as long-distance transmission of electricity or magnetic levitation, will require higher-current superconductors, he said.

Magnetic levitation is perhaps the most intriguing application of superconductor technology.

# Windom

(Continued from page 7)

"Right, that's why they haven't heard of me. They (the producers) are looking at now, the present. They don't know old farts like me."

Windom knows many in the audience for his Thurber show won't know him well either. They won't realize that his one-man show is built on a character similar to one he played on the television show "My World and Welcome to It."

"The reason they show up is," he laughs and takes on the character of a redneck good-old-boy, "I know him — what's that thing with that English woman — she's a detective or something, 'Mur... Murder he... Murder She Wrote.' That's it! He plays the sheriff."

Actually, the Emmy winner plays detective Jessica Fletcher's crusty doctor, Seth Hazlitt, who takes pleasure in giving the sheriff a hard time.

"That's how you get an audience

in," he says. "You get them in quicker if you're playing (in the TV show) 'Dallas' right now."

"What you need is a little freak value. I don't have much of that right now except for 'Murder She Wrote,' which is getting there."

But once the audience is there, the words of Thurber and the actor portraying him capture them.

"Take an actor like Rod Steiger," he says. "I wouldn't want to take a shot at (the) Mr. Joyboy (role) from 'The Loved Ones.' He played the

head mortician (at Forest Lawn).

"He was wonderful, and it was a part I really wanted, a great part. He did it better than I could do. I wouldn't touch that."

Then that lazy smile returns.

"I will take a shot at his redneck sheriff anytime," Windom says. "I can do it as well, if not better, than he can."

As he laughs, it's easy to imagine a slightly rotund sheriff with a badge, a gun, and of course, a thick, drawing accent.

# Senators warn airlines to shape up passenger services or face penalties

WASHINGTON (AP) — A string of senators warned airlines Thursday to shape up, improve services and cut delays or face possible re-regulation or heavy government-imposed penalties for shoddy operations.

"The airline industry in its zeal for competition has gone absolutely hog wild," declared Sen. J. James Exon, D-Neb., during a hearing where senior executives from three major airlines acknowledged a consumer backlash because of the rising number of delays and other complaints.

The executives from American Airlines, Continental Airlines and Delta Air Lines told the Senate panel they are prepared to make on-time

flight information and other consumer information available to travelers if other air carriers are required to do the same.

Robert Crandall, chairman of American Airlines, said he would agree to put the information into the airline-owned SABRE computer reservation system, which is widely used by travel agents. Delta and Continental suggested a periodic reporting of the information to the Transportation Department.

The federal government, which once kept on-time statistics, has not done so in years as part of the overall move by the Reagan administration to reduce government paperwork. No airline has offered to supply the

information independently for fear of being put at a competitive disadvantage.

"Consumers do not currently have the information they need to make meaningful choices" about competing airline services, acknowledged Thomas G. Plaskett, president and chief executive officer of Continental Airlines. Continental has been cited as a leading target of traveler complaints.

But Plaskett, Crandall and Murph Dullum, vice president for government affairs for Delta, said that if consumer information is made available by all airlines, the competitive marketplace — and not government edict — will improve airline service.

Airline delays increased by about 25 percent last year and the delay problem has continued into 1987. Complaints about airline service to the Transportation Department have soared in recent months.

The cries about poor delays, lost baggage and poor flight selections have been loud in Congress as well, prompting the introduction of a flurry of airline passenger protection legislation, most of which would require increased disclosure of consumer information by the air carriers.

Sen. Bob Kasten, R-Wis., told the airline executives he is confident that Congress will approve passenger protection legislation this year.

# At least 2 dead, 11 injured in Florida shooting

PALM BAY, Fla. (AP) — Two men armed with rifles opened fire at two downtown shopping centers Thursday, killing at least two people and wounding 11, authorities said.

The gunmen then took an unknown number of hostages in a supermarket, but one gunman was later taken into custody, said Palm Bay Police spokesman Louise Brown. She did not know the details of his arrest.

Up to 100 officers converged on the scene and police snipers were stationed on rooftops, according to witnesses. Hundreds of shoppers were evacuated from the area and many others were lying on the ground, but in the confusion and panic it was not immediately clear how many had been shot.

"Thirty is the number of bodies we have on the ground," Brown said.

The Holmes Regional Medical Center received two fatalities from the shootings and

treated 11 others for gunshot wounds, spokesman Mary Lu Tombleson said.

Brown said one of the dead was a police officer.

*"I felt one bullet go right through the top of my hair. I just dropped to the floor. I just knew the next shot was going to be lower."*

— Fletcher Redmond, Hostage

She had originally reported that police believed 12 people were killed, but said later that she could no longer confirm that figure.

Fletcher Redmond, 62, a co-owner of a jewelry store said, "I felt one bullet go right through the top of my hair. I just dropped to the floor. I just

knew the next shot was going to be lower."

Witnesses described both gunmen as having red hair, one in his late 20s and the other in his 50s and said both were carrying military rifles, Brown said.

Brown said a special telephone line was being set up for hostage negotiations.

She said the men opened fire at 6:25 p.m. in front of a Publix grocery store in this Atlantic coastal town about 70 miles southeast of Orlando.

From the store, they went to a nearby Winn-Dixie store and continued firing before entering and taking hostages, Brown said.

It was not immediately known how many people were in the grocery store.

Witnesses said the gunmen climbed to the roof of the store where shots were fired. Shots also were fired inside the store, witnesses said.

# Boy, 7, receives new liver after third try in 3 weeks

PITTSBURGH (AP) — Seven-year-old Ronnie DeSillers, fighting infection, pneumonia and an inflamed pancreas, came through a third liver transplant "with flying colors" Thursday after his mother told him "you can't keep a winner down."

The Miami boy, whose desperate need for a liver won support from Reagan, received the liver of an unidentified child during a 10½-hour operation Thursday.

The transplant, his second in less than three weeks, came on

the heels of two operations to correct abdominal pain and internal bleeding. He was in critical condition following the latest surgery.

"It went very smoothly, and they're calling this organ a perfect fit," Cardillo said.

Maria DeSillers, Ronnie's mother, said tests showed a lot of damage to the second liver, more than they had ever expected.

When she told Ronnie about the impending operation, her heavily sedated son could not speak but grabbed her hands with two fingers and cried.

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