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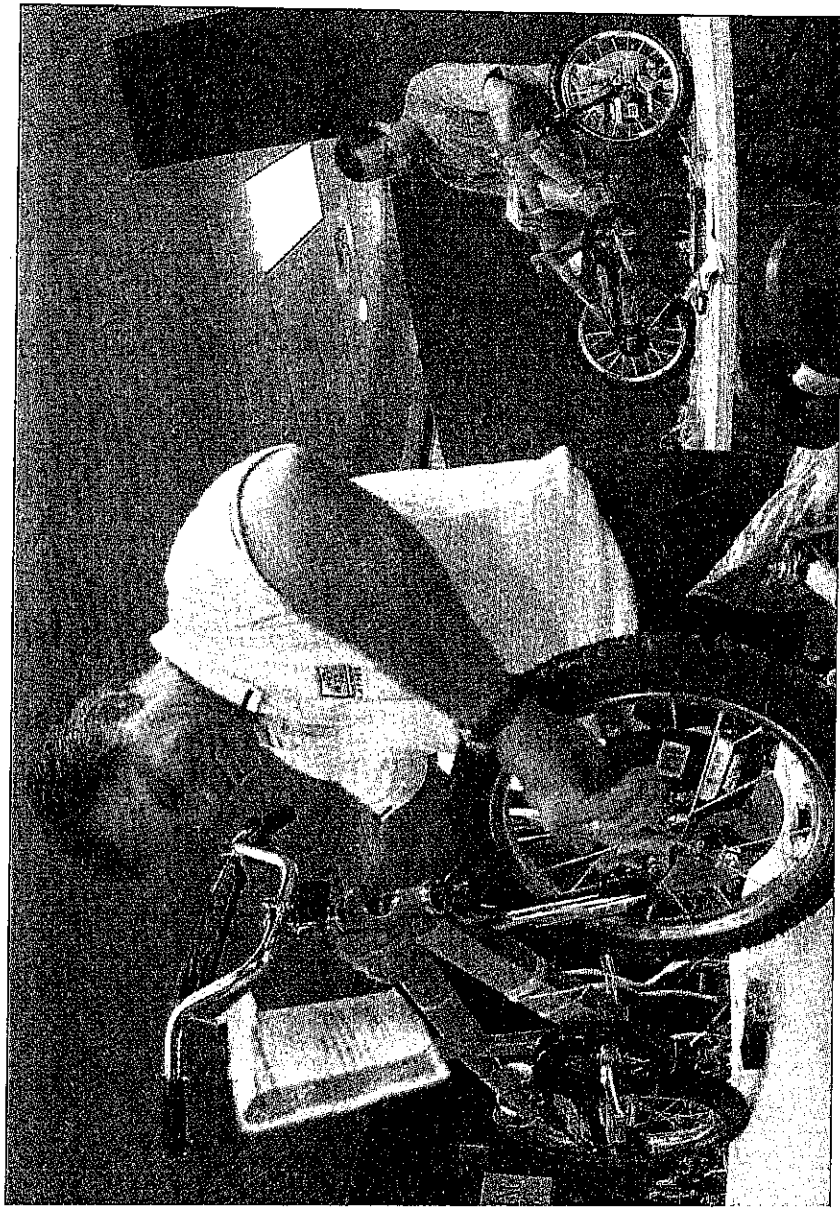
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EL DORADO PLACER SACRAMENTO YOLO

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CURRENTS



Matt Ramsey, left, and Patrick Murphy of Waste Connections Inc. assemble two of the 50 bikes donated to D'Iberville

Citrus Heights merchants crank up Gulf aid

LYLLY JOHNSON / STAFF WRITER

A Mississippi city still devastated months after hurricanes Katrina and Rita is getting a truckload of Christmas cheer from Citrus Heights.

In late August when all eyes were on the Gulf Coast

Nearly 4,000 people registered. Others who missed the deadline are on a waiting list and will get items if more goods are donated.

The retail value of the donated items is expected to exceed \$100,000.

CHARR CRAIL / SACRAMENTO BUSINESS JOURNAL

Roseville VC stakes chip tech firm

American River leads round

MARK ANDERSON / STAFF WRITER

American River Ventures has led an \$8.8 million venture-capital investment round in a Sunnyvale company whose equipment helps tech companies make a better computer chip.

The Roseville venture-capital firm invested \$3 million in Integrated Materials Inc., marking one of the largest single investments yet for the \$100 million fund. This is American River's 14th investment overall and its third this year.

Integrated Materials was founded by veteran Silicon Valley executives in 1999 to work on building better polysilicon racks, tubes and other materials used in chip-fabricating furnaces. The company reported in May that it had received an order from a major chip-maker for nearly \$1 million worth of equipment.

The market for polysilicon wares is potentially very large, with more than \$1 billion of such equipment sold annually, said Sean Foote, managing partner of Labrador

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Developer sweetens land for...

together at Orrick Herrington & Sutcliffe in Sacramento. "It poses lots of interesting issues for lawyers."

When the famous shot of Johnny Cash at San Quentin showed up on T-shirts at Urban Outfitters, Stroud sued for copyright infringement and got the shirts

AMERICAN RIVER: Tech firm hits goal first sought in the '70s

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Ventures in Palo Alto. His fund led the previous investment round in the company. He said the polysilicon racks are in trials now with nearly every chip fabricator in the world.

The racks hold chips on large silicon wafers while they are printed, etched and treated with other compounds in high-temperature ovens during manufacture.

The polysilicon racks are made of the same material as the chips, reducing the chance of contaminating or damaging the chip wafers. They replace racks made out of quartz or silicon carbide, which can emit particles, expand at a different rate than the chips, or even collapse suddenly inside the hot furnace.

Semiconductor makers in the 1970s tried to make racks out of silicon, but their products weren't rigid enough. Integrated Materials' approach makes its polysilicon racks much more stable and strong, said Barbara Grant, an American River partner.

Grant will take a seat on Integrated Materials' board of directors. She has a doctorate in chemistry from Stanford University, was chief executive of Siros Technologies, a laser-technology startup in the Silicon Valley, and worked for 21 years for IBM.

The work is quite a switch for a Placerville youth who began his legal career in securities law.

Can Hummer stop us? Stroud, 44, got his start at Orrick headquarters in San Francisco in 1986. He transferred to the

Three times the cost, 18 times the life: The polysilicon racks can be used on any semiconductor fabrication line, but the prime candidates are those that make high-end chips, where a tiny amount of contaminant can trash a lot of expensive product.

"You feel the pain most at the high end," Labrador Ventures' Foote said, adding that higher yields are the main attraction for manufacturers.

Integrated Materials raised \$2 million in its first round. It started scaling up a bit more than a year ago, raising \$8.5 million in May 2004 from Alloy Ventures, Labrador Ventures and Rocket Ventures.

This financing round also includes Alloy, Labrador and Rocket, and will be used to continue expanding the company and to open a manufacturing plant in Asia. The company now employs 16 in Sunnyvale.

The company make racks, rails, towers and other devices for handling silicon wafers of 150, 200 or 300 millimeters (nearly 12 inches) in diameter; customers specify the configuration of slots, rails and other details. Integrated Materials also uses polysilicon to make tubes that deliver gases to the wafers and even for linings of the production ovens.

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Business Journal Wednesday afternoon, resembles his previous proposals to donate proceeds from land development in Natomas to pay for a new arena and support local arts. Those plans foundered because too many other Natomas landowners didn't buy in.

This time, he told KFBK talk-show

Wall Street Journal, and was co-counsel in a case before the U.S. Supreme Court in which state insurance commissioner John Garamendi tried to get insurance companies that now do business in California to disclose to the public if they sold insurance policies in Europe during the

The towers look like a white plastic version of vertical home compact disc towers, but the price highlights the differences. An Integrated Materials polysilicon rack costs \$28,000; the quartz rack it replaces goes for about \$7,500.

The choice is framed as a quality-versus-cost argument. Quartz racks contain impurities which can be released during heating, and damage chip sets. In addition, polysilicon racks last 18 times longer and require far less maintenance.

Making chip wafers involves many steps of depositing chemical films or metals on wafers, diffusing material into the silicon, and repeating the process in layer after layer inside furnaces where temperatures may reach higher than 2,000 degrees Fahrenheit.

Trouble in the hot zone: Even at those temperatures, the polysilicon material doesn't generate unwanted impurities or require routine cleaning, and its tolerances don't change. That means the wafers remain in the right place when robot arms retrieve the stacks of chips. With quartz racks, the distortion caused by heat on the material can cause robot arms to miss, drop or damage chips.

A larger problem with quartz is that at

high temperatures — called the "hot zone" in chip manufacturing — it can release tiny quantities of contaminants such as dust and oxides into the air of the furnaces. If that lands on a critical area of a wafer, it can ruin a chip.

"If you make all of the materials in the hot zone out of the same material (silicon), they won't cross-contaminate," American River's Grant said.

Making the racks from the same material as the wafers also means that they share the same response to heat. Other materials used in racks expand and contract in ways different from the silicon wafers, and at the points of contact the difference can tear the structure of the crystal, causing failed chips, Foote said.

Local venture companies like investments such as IMI. It's a real company with proprietary intellectual property, revenue, customers and prospects for more.

"The climate for venture capital is improving. We are still behind in terms of how many entrepreneurs have strong business models, but it is slowly getting better," said Roger Akers, head of Akers Capital, a local venture-capital firm. "There are some very good projects out there, but you have to work really hard to find them."

'First we need to see if the Maloof family is willing to work with us.'



Angelo K. Tsakopoulos
Developer

TSAKOPOULOS: Sale would raise \$1 billion for arena, charities

Mark Enes, Tsakopoulos' chief financial officer.

The sales could generate about \$1 billion — \$400 million for the new arena and the rest for charities, he said.

Tsakopoulos told Sullivan that his arena plan would require no public funds, and said a nonprofit would own the