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In a first, FDA OK's CRISPR-based drug

Vertex uses gene-editing tool on sickle cell disease; Bluebird Bio also gets approval

By Jonathan Saltzman
GLOBE STAFF

The Food and Drug Administration on Friday approved the first drug in the United States to use the revolutionary gene-editing tool called CRISPR-Cas9, a historic action that pushes medicine and bio-

technology across another frontier as researchers seek cures for diseases from cancer to heart conditions.

The new medicine, marketed as Casgevy, treats sickle cell disease, a long-neglected blood disorder that causes crushing pain and mostly afflicts people of African descent.

Casgevy was developed by Boston-based Vertex Pharmaceuticals and CRISPR Therapeutics, which is headquartered in Zug, Switzerland, but has most of its workforce in Massachusetts. It uses a method to edit DNA first described in a landmark scientific paper 11 years ago by two authors who would win a Nobel Prize in chemistry.

The FDA also approved a rival sickle cell treatment called Lyfgenia,

developed by Somerville-based Bluebird Bio, that hadn't been expected to gain approval until Dec. 20. Lyfgenia is a gene therapy that uses an engineered virus to insert a modified gene into the DNA of a patient's blood stem cells. The FDA has approved at least eight gene therapies for mostly rare diseases since 2017.

"Sickle cell disease is a rare, debilitating, and life-threatening blood

CRISPR, Page A10

Fallout from bias hearing continues

Harvard's Gay apologizes; UPenn leader faces pressure

By Mike Damiano and Hilary Burns
GLOBE STAFF

The fallout from Tuesday's explosive congressional hearing on campus antisemitism continued to intensify Friday, after Harvard University's president apologized for part of her testimony and the president of the University of Pennsylvania faced mounting pressure to step down.

►The US vetoed a UN resolution calling for an immediate cease-fire in the Gaza Strip. A4.

The presidents of those two universities, as well as the leader of the Massachusetts Institute of Technology, have faced denunciations and calls for their resignations since they offered equivocal answers to a question about whether calls for genocide against Jews would violate their schools' policies.

Pressure mounted on UPenn president Liz Magill as a donor threatened to withdraw an approximately \$100 million gift and an advisory board of alumni and donors called for her resignation. And top Pennsylvania Democratic elected officials, including the governor, indicated her days as president might be numbered.

Late Thursday, the executive committee of the MIT Corporation, the university's governing board, issued a vote of confidence in MIT presidents, Page A10

Mass General Brigham sees rebound year

Finances improve, but business still challenged

By Jessica Bartlett
GLOBE STAFF

If ever there was a sign that the pandemic is still creating challenges for the health care industry, it would be the year-end financials of the state's largest system.

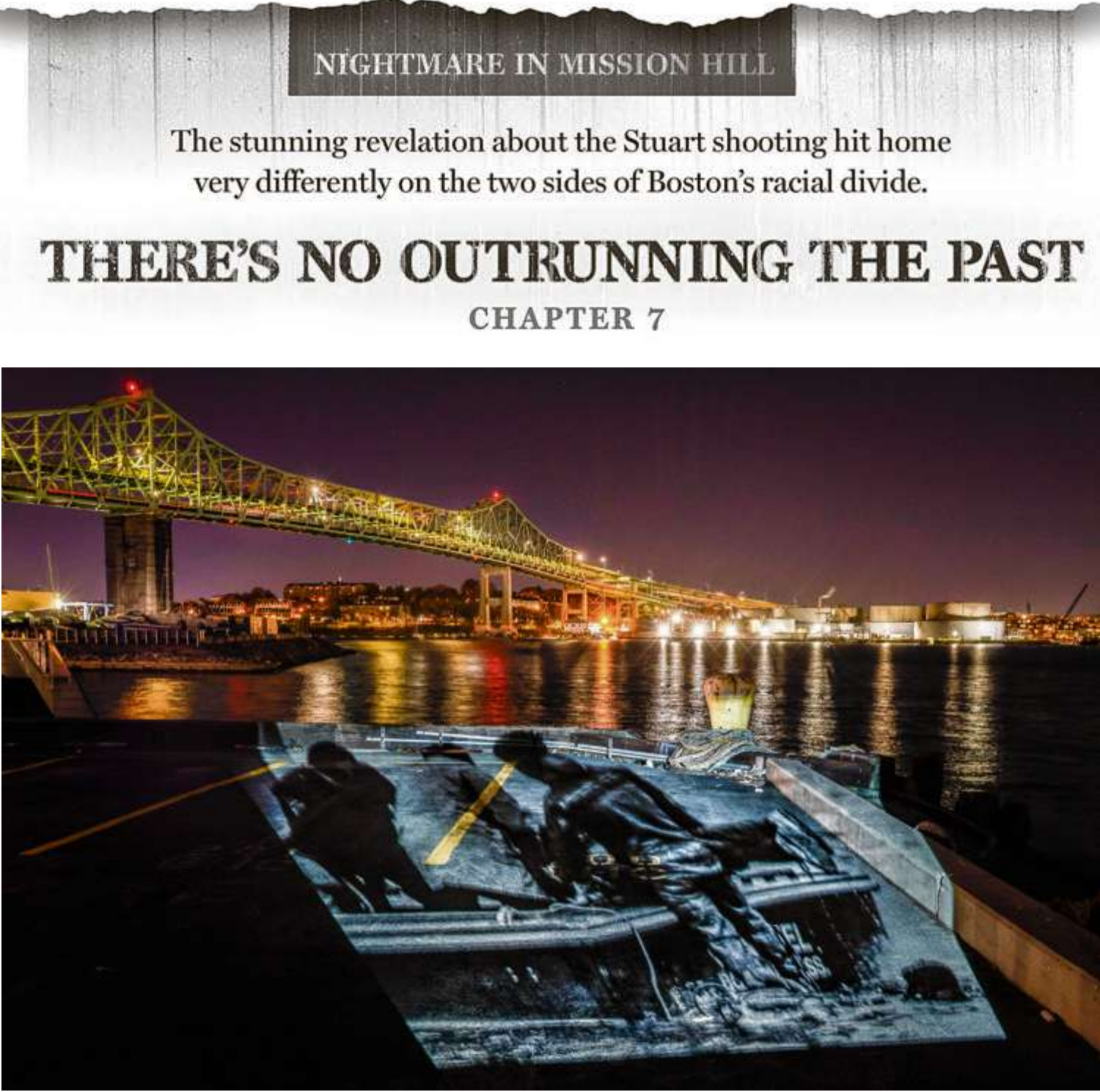
Mass General Brigham on Friday reported its 2023 results, and while the system is in the black by \$95 million — a welcome return following last year's record-breaking losses — the view under the hood is cloudier. The system is treating fewer people than it would like to, largely because there is less capacity at nursing homes and rehabilitation facilities that would normally take discharged patients recovering from hospitalization.

Those challenges are holding down the organization's revenue, even as it faces escalating expenses in its efforts to recruit and retain talent.

This year, the system had two saving graces — COVID relief money still trickling into the books and a robust investment portfolio buoying its bottom line. While Mass General Brigham has been able to use its size and scale to weather those challenges, other systems may not be so fortunate.

"The [health care market] is challenged," said Ellen Murphy, a health care consultant for commu-

HOSPITAL, Page B4



ERIN CLARK/GLOBE STAFF

A photo of Chuck Stuart's body being lifted from the water on Jan. 4, 1990, is projected near the Tobin Bridge in Boston.

This series was reported by Adrian Walker, Evan Allen, Elizabeth Koh, Andrew Ryan, Kristin Nelson, and Brendan McCarthy. This story was written by Allen.

Jack Harper stood on a dock and watched State Police divers bob in the choppy waters of the Mystic River. It was the morning of Jan. 4, 1990, and all the WCVB-TV reporter knew was that a man had jumped off the Tobin Bridge just before sunrise. Police were saying it was Chuck Stuart, the man who had dominated headlines for months.

This poor guy, Jack thought.

Jack had watched Carol Stuart's funeral on TV with the rest of America. He'd even cried at Chuck's eulogy: *Goodnight, sweet wife, my love*, Chuck had written for a friend to read aloud. *God has called you to his hands*.

From his hospital bed, Chuck had drawn from some impossible well of compassion and urged the people of Boston to

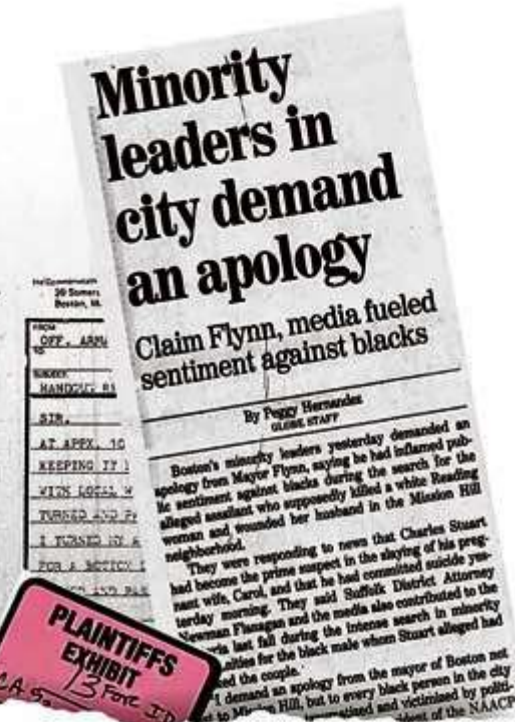
forgive his wife's killer. Jack, like many others, felt sympathy.

Now, police boats circled the divers in the Mystic and helicopters buzzed in the sky. The bridge and the dock swarmed with police, grimacing men in long trench coats barking into handheld radios and trying to steer clear of the media horde.

Law enforcement officials would only say that they were looking for Chuck. They had said nothing about Chuck's brother coming forward overnight to reveal Chuck as the mastermind behind his pregnant wife's and son's killing.

So Jack — along with countless others watching the events unfold on TV that morning — assumed that Chuck had finally buckled under the weight of his losses.

STUART, Page A6



Commitment defines Army-Navy game

Contest endures even as college football landscape changes

By John Powers
GLOBE CORRESPONDENT

The teams no longer play for the national championship or are ranked among the top 10. Only four times in the last six decades have both rivals entered the game with winning records, and this season neither does.

And yet when Army's and Navy's football squads meet for the 124th time Saturday afternoon at Gillette Stadium, the country still will take notice.

America's Game, as its participants bill it, has been broadcast nationwide since 1930 and televised since 1945. Tickets have been sold out for months, as they customarily are.

"I don't think there's a better rivalry in sports," said Army coach Jeff Monken. "Every competitor on the field and every one of their classmates sitting in the stands have made a pledge to serve our country. They're willing to pay the ultimate price for everybody that watches the game. It's a pretty incredible commitment."

ARMY-NAVY GAME, Page C2



ASSOCIATED PRESS

Nearly 100,000 people filled the stands for the 70th annual Army-Navy game in 1969 in Philadelphia.



Sun of mine

Saturday: Partly sunny.
High: 49-54. Low: 40-45.

Sunday: Becoming rainy.
High: 57-62. Low: 50-55.

Comics and Weather, **D4-5**.
Obituaries, **C9**.

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Governor Maura Healey nominated state solicitor Elizabeth N. Dewar to the SJC, tapping a longtime adviser. **B1.**

The government's upbeat employment update keeps the prospect for a soft landing alive, returning inflation to more normal rates without inflicting a painful recession, writes Larry Edelman. **D1.**

Ryan O'Neal, a major star in the 1970s who had an Oscar-nominated role in "Love Story," died at 82. He worked with his daughter in "Paper Moon" and kept acting into his 70s. **C9.**

A leader of the lawsuits against Big Tobacco has shifted his attention to online betting, targeting the offerings of local firm DraftKings. **D1.**