

"All the News  
That's Fit to Print"

# The New York Times

LATE EDITION

Today: warmer, mostly sunny, dry, favorable travel weather, high 50. Tonight: clear, cold, low 37. Tomorrow: mostly sunny, turning milder, high 54. Weather map, Page A18.

VOL. CLXXII No. 59,615

© 2022 The New York Times Company

NEW YORK, TUESDAY, NOVEMBER 22, 2022

\$3.00



Members of Ukraine's Bratstvo battalion returning after a mission. Russian troops have retreated to the Dnipro's eastern bank.

## States Failed To Anticipate Betting Perils

This article is by Rebecca R. Ruiz, Kenneth P. Vogel and Joe Drupp.

David Hummel placed his first sports bet in January 2021, wagering \$250 on the underdog in a mixed-martial-arts fight. He won \$662.50, he said, "and it was probably the worst thing that could

### A RISKY WAGER

Addiction as an Afterthought

have happened to me."

Having been drawn in by an offer of a "risk-free" bet — the gambling company FanDuel promised to refund his money if he lost — Mr. Hummel kept betting. In little more than a year, he had lost more than \$30,000, draining his checking account to \$327.

Since 2018, when the Supreme Court opened the door to widespread sports betting, the gambling industry has mastered ways to attract customers like Mr. Hummel. Oversight of this young, fast-growing market has been left to states.

The states are not disinterested parties. They collect taxes on gambling, and the more people bet, the more governments get. One result is that states have, in many ways, given gambling companies free rein.

They have required few protections for consumers, dedicated minimal funds to fighting addiction and often turned to the gambling industry to help shape regulations and police its own compliance with them, a New York Times investigation found. Unlike some countries that have endured waves of gambling addiction, few states have imposed restrictions on the kinds of promotions that helped hook Mr. Hummel.

Continued on Page A12

## Ambushing Russian Forces on the Dnipro River

By CARLOTTA GALL

ON THE BANKS OF THE DNIPRO RIVER, Ukraine — Under cover of darkness, a group of soldiers beaved their dinghy off the sand into the water. Another group loaded equipment with a heavy clanking into their boat, while a third pushed off silently with oars. Engines humming quietly, the boats turned to the open water and disappeared into the blackness.

The fighters, a volunteer Ukrainian special forces team called the Bratstvo battalion, were crossing the wide expanse of the Dnipro River, the strategic waterway that bisects Ukraine and has become the dividing line of the southern front. After recapturing

### In the Dark, an Elite Squad Plants Mines by Enemy Camps

soldiers and attack a mortar position.

"It's a very dangerous mission," said Oleksiy Serediuk, the battalion commander. "They need to land where there is a swarm of Russians. They need to go around them and plant mines." From the beginning of a conflict defined by heavy aerial and artillery bombardment and grinding trench warfare, the Bratstvo battalion has undertaken some of the conflict's most difficult missions, conducting forward spotting and sabotage along the front lines, including in the early battles around the cities of Kyiv and Kharkiv. Now, in the battle for Ukraine's south, they've learned to use boats and infiltrate the Russian

soldiers and attack a mortar position.

"It's a very dangerous mission," said Oleksiy Serediuk, the battalion commander. "They need to land where there is a swarm of Russians. They need to go around them and plant mines."

From the beginning of a conflict defined by heavy aerial and artillery bombardment and grinding trench warfare, the Bratstvo battalion has undertaken some of the conflict's most difficult missions, conducting forward spotting and sabotage along the front lines, including in the early battles around the cities of Kyiv and Kharkiv. Now, in the battle for Ukraine's south, they've learned to use boats and infiltrate the Russian

soldiers and attack a mortar position. "It's a very dangerous mission," said Oleksiy Serediuk, the battalion commander. "They need to land where there is a swarm of Russians. They need to go around them and plant mines." From the beginning of a conflict defined by heavy aerial and artillery bombardment and grinding trench warfare, the Bratstvo battalion has undertaken some of the conflict's most difficult missions, conducting forward spotting and sabotage along the front lines, including in the early battles around the cities of Kyiv and Kharkiv. Now, in the battle for Ukraine's south, they've learned to use boats and infiltrate the Russian

Continued on Page A5

## Veteran in 'Combat Mode' Brought Down a Gunman

### Lives Saved at Colorado Club as Ex-Major Charged Through Spreading Chaos

This article is by Dave Phillips, Jack Healy, Shawn Hubler and Patricia Mazzeo.

COLORADO SPRINGS — Richard M. Fierro was at a table in Club Q with his wife, daughter and friends on Saturday, watching a drag show, when the sudden flash of gunfire ripped across the nightclub. His instincts from four combat deployments as an Army officer in Iraq and Afghanistan kicked in.

He charged through the chaos, tackled the gunman and beat him bloody with his own gun.

"I don't know exactly what I did, I just went into combat mode," Mr. Fierro, 45, who left the Army in 2013 as a major, said on Monday at an interview in his house, his first since the shooting on Saturday night. "I just know I have to kill this guy before he kills us."

On Monday, the authorities said they were holding the gunman, Anderson Lee Aldrich, 22, on suspicion of five counts of murder and five counts of bias-motivated crime causing bodily injury. Colorado's equivalent of a hate crime, for the five people killed in the shooting. Chief Adrian Vasquez of the Colorado Springs Police Department identified the victims as Daniel Aston, Kelly Loving, Ashley Paugh, Derrick Rump and Raymond Green Vance.

The number of wounded victims was revised downward to 18 from 25. Of those people, 17 were shot and one was injured without being shot, officials said. At least 13 injured victims remained hospitalized, spokeswoman for two hospital systems said. Mr. Fierro said his wife and daughter were recovering from injuries at home. Mr. Green Vance was his daughter's longtime boyfriend.

The rampage lasted only a few minutes, and the death toll could

have been much higher, officials said, if patrons of the nightclub had not stopped the gunman. Chief Vasquez identified Mr. Fierro and another man as the people who knocked down the gunman.

"He saved a lot of lives," Mayor John Suthers of Colorado Springs said of Mr. Fierro. The mayor said he had spoken to Mr. Fierro and was struck by his humility. "I have never encountered a person who engaged in such heroic actions and was so humble about it."

When the shooting started, Mr. Fierro said he hit the floor, pulling a friend down with him. As bullets sprayed, he saw the gunman



Richard M. Fierro was watching a drag show with his family.

move through the bar toward a door leading to a patio where dozens of nightclub patrons had fled. Mr. Fierro said he raced across the room, grabbed the gunman by a handle on the back of his body armor, pulled him to the floor and jumped on top of him.

The gunman, who Mr. Fierro estimated on Monday was

Continued on Page A17

THOSE WHO WERE LOST The victims, whose names were confirmed on Monday, included two bartenders and three patrons. PAGE A17

## Child Welfare Agency Is Accused Of Racial Bias, Even by Its Staff

By ANDY NEWMAN

For decades, Black families have complained that New York City's welfare agency, the Administration for Children's Services, is biased against them.

It turns out that many of the agency's own employees agree, according to a racial equity audit the agency commissioned but never publicly released.

A draft report, based on a 2020 survey of more than 50 Black and Hispanic frontline caseworkers and agency managers in Brooklyn and the Bronx, along with many parents and advocates, described a "predatory system that specifically targets Black and brown parents" and subjects them to "a different level of scrutiny."

In New York's child welfare system, where Black families are seven times as likely as white families to be accused of child maltreatment and 13 times as likely to have their children removed, "race operates as an indicator of risk," the report concluded.

The survey laid out deep-seated problems affecting an agency that must balance protecting the safety of children and respecting the autonomy of families.

A failure to detect signs of serious abuse can have tragic consequences, as a series of fatal beatings last year in families known to the agency demonstrated.

But families find child welfare investigations profoundly disruptive, humiliating and even traumatic. Caseworkers making unannounced visits strip-search children looking for bruises and peer into refrigerators and around homes looking for signs of bad parenting. One A.C.S. worker in

ment and 13 times as likely to have their children removed, "race operates as an indicator of risk," the report concluded.

The survey laid out deep-seated problems affecting an agency that must balance protecting the safety of children and respecting the autonomy of families.

A failure to detect signs of serious abuse can have tragic consequences, as a series of fatal beatings last year in families known to the agency demonstrated.

But families find child welfare investigations profoundly disruptive, humiliating and even traumatic. Caseworkers making unannounced visits strip-search children looking for bruises and peer into refrigerators and around homes looking for signs of bad parenting. One A.C.S. worker in

Continued on Page A20



Mixed World Cup Return for U.S. Gareth Bale of Wales (No. 11 in red) was given a penalty kick and scored for a 1-1 final. Page B6.

## A Philharmonic First: Women Are the Majority

By JAVIER C. HERNÁNDEZ

When the New York Philharmonic moved to Lincoln Center in 1962, its new hall had no women's dressing rooms. That's because there were no women in the orchestra.

But this fall, as the Philharmonic opens its newly renovated home, David Geffen Hall, its players have returned not only to more

### Shift at a 180-Year-Old New York Institution

equitable facilities backstage, but to a milestone onstage: For the first time in its 180-year history, the women in the Philharmonic outnumber the men, 45 to 44. "It's a sea change," said Cynthia

Phelps, the principal viola, who joined the orchestra in 1992. "This has been a hard-won, long battle, and it continues to be."

The orchestra's new female majority could prove fleeting — it currently has 16 player vacancies to fill, in part because auditions were put on hold during the pandemic — but it still represents a profound shift for an ensemble

Continued on Page A21

## Disney Chief Lost Trust After Series of Missteps

This article is by Brooks Barnes, Benjamin Mullin and James R. Stewart.

After a transition marked by numerous setbacks, some self-inflicted, Bob Chapek seemed by early fall to have finally found his footing after two years as Disney's chief executive.

The company's board had unanimously extended his contract un-

### Senior Executives Had Threatened to Quit

til at least July 2025. In August, Disney reported stellar quarterly earnings, including a 50 percent jump in profit, passing Netflix for the first time in streaming subscriptions. At a Disney fan con-

vention in September, Mr. Chapek pitched a rosy future for the company that included coming blockbusters like "Avatar: The Way of Water" and new theme park rides. "I'm very, very bullish," Jim Cramer, the CNBC host, said on air about the company in October.

Then, in November, came Disney's disastrous quarterly earnings report.

Continued on Page A21



NATIONAL A11-21

From Yale Law to Oath Keepers Stewart Rhodes stood out during law school, but few of his classmates would have guessed that he would go on to start a far-right militia. PAGE A18

Prosecutors Move on Trump The Manhattan district attorney's office has jump-started the investigation into the former president's role in a hush-money payment to a porn star. PAGE A15

Whose Bones Are These? Christie's pulled the sale of a T. rex named Shen after a fossil company questioned how much of it was merely a replica of another specimen. PAGE A11



ARTS C1-8

Telling Himself 'Yes' Jeremy Pope, star of the gay military film "The Inspection," discusses shame and learning to accept himself. PAGE C1

A Walk Through History An architectural tour of Greenwich Village stops at gay landmarks like the Stonewall Inn, and Julius' bar. PAGE C1

BUSINESS B1-5

Increased Risk of a Rail Strike A tentative deal, brokered in September with help from the Biden administration, was voted down by members of a union that primarily represents freight rail conductors. PAGE B1

Taiwan's Engineers Flee China The lure of money and new opportunities enticed talent to China's semiconductor plants. But harsh pandemic protocols and a looming tech cold war have changed the calculus. PAGE B1

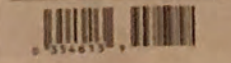
OPINION A22-23 David French PAGE A33



SCIENCE TIMES D1-8

Putting Their Heads Together A farm sanctuary in New York is trying to learn about the inner lives of various animals. Above, Saffia Prasad-Shukla engages with Hayes the steer. PAGE D1

Scores Die in Indonesia Quake Buildings crumbled and at least 162 people were killed on Java, where many people may still be trapped. PAGE A3







Dr. Pasachoff, left, studied eclipse data in 1981 with Don Landman at the University of Hawaii. He was particularly enthralled by the corona, the outermost layer of the sun's atmosphere.



Jay M. Pasachoff in 2017. Before an eclipse, he spent up to three years preparing equipment, lining up grants and arranging travel.

## Jay M. Pasachoff, 79, Who Pursued Eclipses Across the Globe, Dies

By CLAY REISEN

Jay M. Pasachoff, an astronomer at Williams College who spent more than 50 years traveling the world to observe solar eclipses and, with 74 sightings under his belt, probably witnessed more of them than any other human in history, died on Sunday at his home in Williamstown, Mass. He was 79.

The cause was lung cancer, his wife, Naomi Pasachoff, said. For Dr. Pasachoff, the sublime grandeur of a total eclipse was so overwhelming that it defied easy description, and its appeal needed no explanation: If you didn't understand it, he would say, you obviously hadn't seen one. Thousands of people knew what he meant. Hordes of them traveled thousands of miles to spend a few minutes in what amounts to an artificial night in the middle of the day.

"We are umbraphiles," he wrote in *The New York Times* in 2010. "Having one stand in the umbra, the moon's shadow, during a solar eclipse, we are driven to do so again and again, whenever the moon moves between the Earth and the sun."

But he was more than just an eclipse fan. He studied the corona, the outermost layer of the sun's atmosphere, which, being one-mil-

lions as bright as the sun itself, is best studied when the rest of the sun is obscured by the moon — in other words, during an eclipse. The corona may pale in the light of the sun, but it is a million degrees hotter, a mystery that enthralled Dr. Pasachoff. He liked to say that the mystery had actually been solved, but that it had 17 possible solutions, and one focus of his work was testing those theories.

Dr. Pasachoff preferred to be called an "eclipse procer" instead of an "eclipse chaser," with good reason. He would spend up to three years before an eclipse preparing equipment, lining up grants, arranging travel and planning for any of the countless contingencies that might interfere with the few minutes he and his team would have to watch the moon pass before the sun.

For starters, it wasn't enough to know the path of an eclipse across the Earth's surface. Dr. Pasachoff studied weather almanacs to find the site most likely to be obscured by a fresh, storm or morning mist. Sometimes that meant trekking to the deserts of northern Kenya, or flying 41,000 feet above Antarctica, as he did on Dec. 4, 2021, on what turned out to be one of his last expeditions.

Although Williams College has no graduate program in astron-

omy, Dr. Pasachoff worked so closely with his undergraduates students that over time he built a vast network of contacts across the world, making him one of the best-connected scientists around.

"He taught people everywhere," Michael J. Person, the director of the Wallace Astrophysical Observatory at M.I.T., said in a phone interview. "I knew I could call Jay Pasachoff and say, 'I need a telescope in New Guinea,' and he would know someone there."

It might seem, to an untrained eye, that one eclipse is more or less the same as any other. But Dr. Pasachoff knew otherwise. To him the sun was less a stable object than a river, in its perpetual transmutation, and he said he never saw the same eclipse twice.

"Each one is different," he said in a 2021 interview for this obituary. "The sun is different. Its eruptions are different. The structures on its surface are different."

Jay Myron Pasachoff was born on July 1, 1943, in Manhattan. His father, Samuel, was a surgeon who left soon after Jay's birth to serve in the Army Medical Corps; during World War II, he landed in

### An astronomer with 74 sightings of solar eclipses, probably the most of any person.

Niemansland and participated in the Battle of the Bulge. His mother, Anne (Traub) Pasachoff, was a teacher.

After his father returned from the war, the family moved from Manhattan to the Bronx, where Jay attended the Bronx High School of Science. His interest in astronomy started early, with visits to the Hayden Planetarium at the American Museum of Natural History; by the time he was in high school he was building telescopes with the Amateur Astronomers Association of New York.

He entered Harvard University at 18. For his freshman seminar, he chose an astronomy course with Donald H. Menzel, an expert on solar eclipses. By chance, just a few weeks into the semester, a total eclipse was set to begin off the

coast of Massachusetts, near Marblehead. Dr. Menzel borrowed a DC-3 plane from Northeast Airlines and took his class, along with the chief executive of Polaroid, to watch.

It was Mr. Pasachoff's first total eclipse, and he was hooked. He had intended to major in mathematics, but he ended up in astronomy instead. He received his bachelor's degree in 1963, his master's in 1965 and his Ph.D. in 1969, all from Harvard.

After a few years as a postdoctoral fellow at the California Institute of Technology, he arrived at Williams College in 1972 as the sole member of its astronomy department and the director of its observatory, the oldest of its kind in the United States.

He married Naomi Schwartz in 1974. Along with her, he is survived by his daughters, Elaine and Deborah; his sister, Nancy Kutner; and five grandchildren.

While his contributions to astronomy were many, Dr. Pasachoff was equally if not better known as, in his own words, a proselytizer: speaking to the news media, writing for general interest science publications and encouraging amateurs to share his passion for the night sky.

His expeditious offers included not just other scientists, but undergraduate students, graduate students from other schools and a coterie of friends and family, all eager to learn from Dr. Pasachoff.

"He had this rare quality of wanting to see all his students get to where they wanted to be, and then did everything he could to help them get there," said Amy Steele, a postdoctoral student in astronomy at McGill University who studied with Dr. Pasachoff at Williams and went on three expeditions with him.

He wrote several high school and college textbooks, an updated edition of the Peterson "Field Guide to the Stars and Planets" (1999) and, with the art historian Roberta J.M. Olson, "Cosmos: The Art and Science of the Universe" (2019).

Dr. Pasachoff loved astronomy, and astronomy loved him back. He and his wife are immortalized in the names of a pair of asteroids, 5100 Pasachoff and 8109 Na-napachoff.

## Cooperstown

including a single-season record hit for the Angels in 2008. He was also named an annual charges at Citi Field in August 2010 after punching his girlfriend's father outside the family room near the Mets' clubhouse.

Rodriguez, who was suspended for a thumb ligament in the fight and was traded to Milwaukee the next summer. He toiled in relative obscurity through 2017, earning his fifth and sixth All-Star selections and compiling enough saves to rank fourth on the career list. Those ahead of him — Mariano Rivera, Trevor Hoffman and Lee Smith — are Hall of Famers. Rodriguez will not come close.

## Huston Street

Plenty of fathers and sons have starred in the same sport. Far fewer pairs have excelled at different sports, at least as well as James and Huston Street. James Street was 20-0 as quarterback for the University of Texas, culminating with a Cotton Bowl victory over Notre Dame on Jan. 1, 1970, to win the national championship. He also helped pitch the Longhorns to three College World Series, and while they didn't win them, Huston Street led Texas all the way to 2002, earning Most Outstanding Player honors for the tournament.

He went on to earn 324 saves in Major League Baseball, all in three- or four-year stints for West Division teams: Oakland, Colorado, San Diego and the Angels. Huston Street died in 2013, and Huston uses a quote from him in his Twitter bio: "You are either getting a little better or a little worse. You don't stay the same."

## Jered Weaver

In Jered Weaver's first nine seasons with the Angels, through 2014, only Justin Verlander and C.C. Sabathia earned more victories. Weaver was a long, lean, righty with shaggy, sandy hair, a slow, smooth delivery and a dry wit. When he joined the Padres in 2016, he chose Mike Trout's jersey number, 27, because he said he wanted to hit like Trout. Also, Weaver went hitless (and winless) for San Diego, but he got halfway to 300 wins as an Angel — and made a touching tribute to a fallen teammate. When Weaver and his wife, Kristin, had their first child in 2013, they named him Aiden in honor of Nick Adenhart, a young teammate who was killed by a drunken driver in 2009.

## Jayson Werth

When Werth signed a seven-year, \$126 million contract with Washington in December 2010, it flummoxed the sport: Here was a solid player for the powerhouse Phillies being paid like a star to move to the struggling Nationals. To Werth, it was a perfect fit. "I was looking at being there four, five, six years," he said the next spring, referring to the Phillies. "Where was their team going to be toward the end of my contract?"

Werth's forecast was accurate; for most of his deal, the team's fortunes were indeed flipped. This fall, though, the Phillies were on their way to the World Series, and cheers greeted Werth as he fired the ceremonial first pitch of the pennant-clinching game — and fired is the accurate verb — to Bryce Harper, whom he mentored in Washington. "What are you doing? I've got to play a game!" Harper said later, recalling what he told Werth. "Thank goodness I'm a catcher, or I used to be. I wanted to kill him." Harper smiled and added: "So J-Dub."

Deaths	Deaths	Deaths	Deaths	Deaths	Deaths
<b>Allen, Ruby</b> Ruby Allen, 87, of Westport, N.Y., died Nov. 19, 2022. She was the widow of the late Dr. Allen. She is survived by her son, Dr. Allen Allen, and her daughter, Dr. Ruby Allen. She was a member of the Westport Presbyterian Church. Burial will be in the Westport Presbyterian Church cemetery. <i>Clay Reisen</i>	<b>APPEL-Robert J.</b> Robert J. Appel, 87, of Westport, N.Y., died Nov. 19, 2022. He was a member of the Westport Presbyterian Church. He is survived by his wife, Mrs. Appel, and his children, Dr. Robert Appel and Dr. Ruby Appel. He was a member of the Westport Presbyterian Church. Burial will be in the Westport Presbyterian Church cemetery. <i>Clay Reisen</i>	<b>APPEL-Robert J.</b> Robert J. Appel, 87, of Westport, N.Y., died Nov. 19, 2022. He was a member of the Westport Presbyterian Church. He is survived by his wife, Mrs. Appel, and his children, Dr. Robert Appel and Dr. Ruby Appel. He was a member of the Westport Presbyterian Church. Burial will be in the Westport Presbyterian Church cemetery. <i>Clay Reisen</i>	<b>APPEL-Robert J.</b> Robert J. Appel, 87, of Westport, N.Y., died Nov. 19, 2022. He was a member of the Westport Presbyterian Church. He is survived by his wife, Mrs. Appel, and his children, Dr. Robert Appel and Dr. Ruby Appel. He was a member of the Westport Presbyterian Church. Burial will be in the Westport Presbyterian Church cemetery. <i>Clay Reisen</i>	<b>APPEL-Robert J.</b> Robert J. Appel, 87, of Westport, N.Y., died Nov. 19, 2022. He was a member of the Westport Presbyterian Church. He is survived by his wife, Mrs. Appel, and his children, Dr. Robert Appel and Dr. Ruby Appel. He was a member of the Westport Presbyterian Church. Burial will be in the Westport Presbyterian Church cemetery. <i>Clay Reisen</i>	<b>APPEL-Robert J.</b> Robert J. Appel, 87, of Westport, N.Y., died Nov. 19, 2022. He was a member of the Westport Presbyterian Church. He is survived by his wife, Mrs. Appel, and his children, Dr. Robert Appel and Dr. Ruby Appel. He was a member of the Westport Presbyterian Church. Burial will be in the Westport Presbyterian Church cemetery. <i>Clay Reisen</i>

## Store

Support The Times.  
Make a difference.

Every purchase supports  
New York Times Journalism.

nytimes.com/store





ROGER KESSMEYER/CORBIS/VCG VIA GETTY IMAGES

Dr. Pasachoff, left, studied eclipse data in 1981 with Don Landman at the University of Hawaii. He was particularly enthralled by the corona, the outermost layer of the sun's atmosphere.

## Jay M. Pasachoff, 79, Who Pursued Eclipses Across the Globe, Dies

By CLAY RISEN

Jay M. Pasachoff, an astronomer at Williams College who spent more than 50 years traveling the world to observe solar eclipses and, with 74 sightings under his belt, probably witnessed more of them than any other human in history, died on Sunday at his home in Williamstown, Mass. He was 79.

The cause was lung cancer, his wife, Naomi Pasachoff, said.

For Dr. Pasachoff, the sublime grandeur of a total eclipse was so overwhelming that it defied easy description, and its appeal needed no explanation: If you didn't understand it, he would say, you obviously hadn't seen one. Thousands of people knew what he meant. Hordes of them travel thousands of miles to spend a few minutes in what amounts to an artificial night in the middle of the day.

"We are umbraphiles," he wrote in *The New York Times* in 2010. "Having once stood in the umbra, the moon's shadow, during a solar eclipse, we are driven to do so again and again, whenever the moon moves between the Earth and the sun."

But he was more than just an eclipse fan. He studied the corona, the outermost layer of the sun's atmosphere, which, being one-mil-

lionth as bright as the sun itself, is best studied when the rest of the sun is obscured by the moon — in other words, during an eclipse.

The corona may pale in the light of the sun, but it is a million degrees hotter, a mystery that enthralled Dr. Pasachoff. He liked to say that the mystery had actually been solved, but that it had 17 possible solutions, and one focus of his work was testing those theories.

Dr. Pasachoff preferred to be called an "eclipse preceder" instead of an "eclipse chaser," with good reason. He would spend up to three years before an eclipse preparing equipment, lining up grants, arranging travel and planning for any of the countless contingencies that might interfere with the few minutes he and his team would have to watch the moon pass before the sun.

For starters, it wasn't enough to know the path of an eclipse across the Earth's surface. Dr. Pasachoff studied weather almanacs to find the site least likely to be obscured by a freakish storm or morning mist. Sometimes that meant trekking to the deserts of northern Kenya, or flying 41,000 feet above Antarctica, as he did on Dec. 4, 2021, on what turned out to be one of his last expeditions.

Although Williams College has no graduate program in astron-



NATHANIEL BROOKS FOR THE NEW YORK TIMES

Jay M. Pasachoff in 2017. Before an eclipse, he spent up to three years preparing equipment, lining up grants and arranging travel.

omy, Dr. Pasachoff worked so closely with his undergraduate students that over time he built a vast network of contacts across the world, making him one of the best-connected scientists around. "He knew people everywhere," Michael J. Person, the director of the Wallace Astrophysical Observatory at M.I.T., said in a phone interview. "I knew I could call Jay Pasachoff and say, 'I need a telescope in New Guinea,' and he would know someone there."

It might seem, to an untrained eye, that one eclipse is more or less the same as any other. But Dr. Pasachoff knew otherwise. To him the sun was less a stable object than a river, in its perpetual transmutation, and he said he never saw the same eclipse twice.

"Each one is different," he said in a 2021 interview for this obituary. "The sun is different. Its eruptions are different. The structures on its surface are different."

Jay Myron Pasachoff was born on July 1, 1943, in Manhattan. His father, Samuel, was a surgeon who left soon after Jay's birth to serve in the Army Medical Corps; during World War II, he landed in

**An astronomer with 74 sightings of solar eclipses, probably the most of any person.**

Normandy and participated in the Battle of the Bulge. His mother, Anne (Traub) Pasachoff, was a teacher.

After his father returned from the war, the family moved from Manhattan to the Bronx, where Jay attended the Bronx High School of Science. His interest in astronomy started early, with visits to the Hayden Planetarium at the American Museum of Natural History; by the time he was in high school he was building telescopes with the Amateur Astronomers Association of New York.

He entered Harvard University at 16. For his freshman seminar, he chose an astronomy course with Donald H. Menzel, an expert on solar eclipses. By chance, just a few weeks into the semester, a total eclipse was set to begin off the

coast of Massachusetts, near Marblehead. Dr. Menzel borrowed a DC-3 plane from Northeast Airlines and took his class, along with the chief executive of Polaroid, to watch.

It was Mr. Pasachoff's first total eclipse, and he was hooked. He had intended to major in mathematics, but he ended up in astronomy instead. He received his bachelor's degree in 1963, his master's in 1965 and his Ph.D. in 1969, all from Harvard.

After a few years as a postdoctoral fellow at the California Institute of Technology, he arrived at Williams College in 1972 as the sole member of its astronomy department and the director of its observatory, the oldest of its kind in the United States.

He married Naomi Schwartz in 1974. Along with her, he is survived by his daughters, Eloise and Deborah; his sister, Nancy Kutner; and five grandchildren.

While his contributions to astronomy were many, Dr. Pasachoff was equally if not better known as, in his own words, a proselytizer: speaking to the news media, writing for general

interest science publications and encouraging amateurs to share his passion for the night sky.

His expeditions often included not just other scientists, but undergraduate students, graduate students from other schools and a coterie of friends and family, all eager to learn from Dr. Pasachoff.

"He had this rare quality of wanting to see all his students get to where they want to be, and then did everything he could to help them get there," said Amy Steele, a postdoctoral student in astronomy at McGill University who studied with Dr. Pasachoff at Williams and went on three expeditions with him.

He wrote several high school and college textbooks, an updated edition of the Peterson "Field Guide to the Stars and Planets" (1999) and, with the art historian Roberta J.M. Olson, "Cosmos: The Art and Science of the Universe" (2019).

Dr. Pasachoff loved astronomy, and astronomy loved him back: He and his wife are immortalized in the names of a pair of asteroids, 5100 Pasachoff and 68109 Namopasachoff.