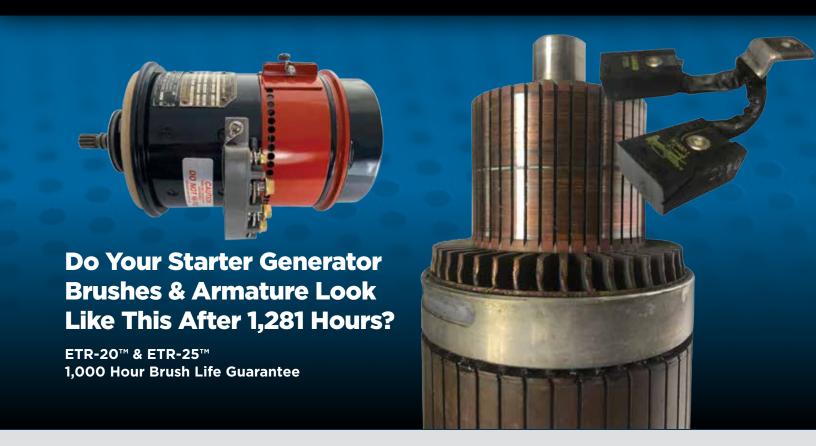




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PUBLISHER

James A. Viola

EDITOR

Gina Kvitkovich

DEPUTY EDITOR

Christine A. DeJoy

CONTRIBUTING EDITORS

Jayne Wood Andrew Parker

GRAPHIC DESIGN

**BonoTom Studio Inc** 

ADVERTISING

sales@rotor.org 352-388-7031

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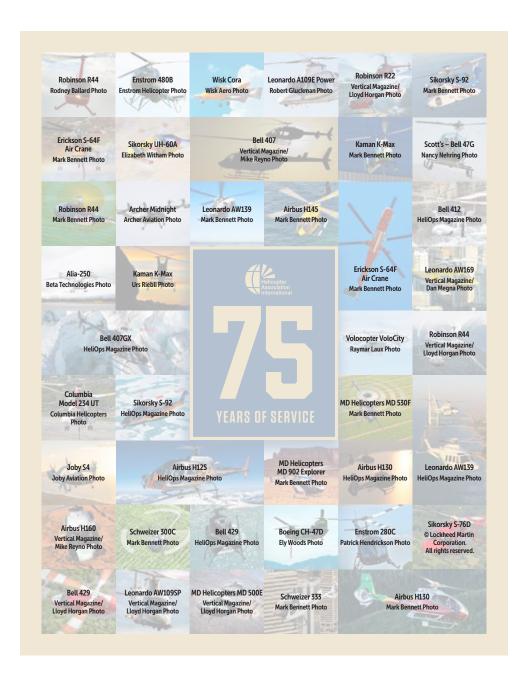
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ON THE COVER: For this issue commemorating the 75th anniversary of Helicopter Association International (HAI), we created a cover highlighting the work of the 18 HAI member airframe manufacturers that build certificated aircraft or have aircraft in the flight-test phase of certification. These companies and their dedicated employees produce the aircraft that make possible the achievements of the vertical aviation industry. For more details about the 42 aircraft shown on the cover, including the aircraft model and photographer information, please see the legend below.



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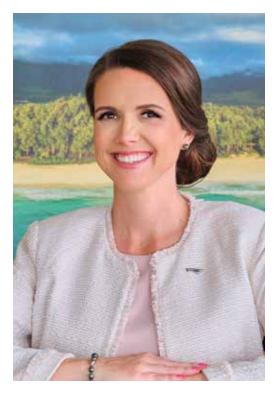




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#### By Nicole Battjes



Nicole Battjes is the owner and director of operations of Rainbow Helicopters, a Part 135 air tour operation based in Honolulu, Hawaii, and the 2023-24 chair of the HAI Board of Directors. She is a dual-rated pilot, flight instructor, and check pilot with more than 3,500 flight hours in helicopters. An active industry volunteer and advocate, Nicole has worked on issues such as community compatibility and SMS implementation for small operators in the Hawaiian Islands.

#### **Our Vision for Vertical Aviation**

The members of this association built this industry—and will shape its future.

ONGRATULATIONS to all of the members of Helicopter Association International on an incredible 75 years! HAI has come a long way since our founding on Dec. 13, 1948.

Anniversaries offer us a time to remember, celebrate, and reflect. As we observe our 75th anniversary, it's important for us to do all three: to remember why the association exists; to celebrate why its founders came together; and to reflect on why it has remained relevant for 75 years. When we do each of those things, they all lead back to the same conclusion: our members are the reason why.

Helicopter Association International exists to serve its members and in turn help its members serve their communities. Our members—you—provide rapid, on-demand solutions and vital services for communities around the world. You provide lifesaving care to those in need of immediate assistance. You deliver people and cargo to places that other forms of transportation can't reach. You provide police, fire departments, and the military with a range of capabilities to perform their missions and ensure public safety. You help maintain power grids and support offshore energy production. You fly people on adventures of a lifetime that they'll never forget. And no matter how you choose to serve, you provide the incredible power of vertical aviation to help your community when it needs you the most.

Our founders could only dream of all these missions. Yet, when they came together in 1948 to form the association, they understood that the only way the industry could achieve its potential was to bring leaders together to guide, protect, and nurture it. Those leaders couldn't, however, be outsiders. They had to be association members who came from within the industry. And 75 years later, that's still the case. Our leaders are our members, and every member of the association contributes to the vision and direction of the organization through your participation, your feedback, and the network you build with other members. The power of our connection is truly something to celebrate.

It's the collective strength of our member-led organization that has allowed us to not just survive but thrive over the past 75 years. Our founders overcame the early challenges inherent in creating a new form of transportation, and in doing so they demonstrated the tremendous utility and versatility of the helicopter. But that wasn't—and isn't—enough to ensure a prosperous and growing industry. They also had to advance the helicopter's design and expand its capabilities; work with governments to establish fair, performance-based regulations; standardize pilot training and maintenance; and improve the safety of flight. The association gave those early members a forum in which to do all those things and then spread the lessons outward to ensure the growth and strength of the industry.

As we look forward to the next 75 years, there are many things about the future of our industry we can't know. But one

thing we know for certain is that the future of vertical aviation is in our hands. It's our members who will design new powered-lift aircraft and devise novel uses for them. It's our members who will reduce sound impacts while sustaining the utility and versatility of vertical aviation. It's our members who will elevate a culture of safety. And it's our members who will strengthen vertical aviation's capability to be a vital asset for their communities.

The HAI Board of Directors, drawn from and elected by the membership, has developed a

strategic plan to guide the association in the first steps of its next 75 years. This strategic plan won't just expand our membership but will also develop and enhance our members' ability to grow and prosper, thereby strengthening our entire industry. A critical part of this plan is the association's advocacy with international, national, and local governments and regulators on behalf of members to address their issues and concerns. The HAI Board also feels strongly that the member programs that are part of the plan's implementation, including safety management system support, legal resources, small-business solutions, and education programs, will deliver greater value for our membership. And if our members see value in being a part of our association, then we will naturally attract more and more members, making our collective voice even stronger.

Regardless of the position you hold in the industry—pilot, aviation mechanic, engineer, crew member, technical professional, owner, inventor, or enthusiast—we want you to see value in your membership in the association. We want you to

build a network of fellow vertical aviation professionals and use that network to lead and grow. That's what many of the board members, including me, have been able to do over the years. We may have come to HAI HELI-EXPO® the first time not knowing what to expect, but then we experienced the power of a membership committed to our industry. Those experiences led us to become members, then volunteer, and then ultimately seek a leadership position to give back to the association—and its membership—that gave us so much.

In many ways, that's the story of our founders too. Particularly meaningful for me is the story of Elynor Rudnick, a founding member of the association and the first woman to serve in one of its leadership roles, first as secretary and then as president.

As we look forward

to the next 75 years, there

are many things about the

future of our industry

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we know for certain is that

the future of vertical aviation

is in our hands.

Elynor's list of aviation achievements is long, including opening her own private airfield in 1945 and founding one of the first helicopter operations, Kern Copters, in Bakersfield, California. Yet what really distinguished Elynor was her lifelong commitment to serve her industry and community. She saw value in being a member of the association and contributed her time and effort to enable it to grow.

Over the next 75 years, we'll need more leaders like Elynor, and that's why I'm proud to serve on the board with so many other incredible

association members. Being a leader of a member-centric organization is about coming together to solve our toughest problems. It's about listening to our members and advocating for their ideas on how to grow and strengthen our industry. It's about taking care of our members first and giving them the resources they need to achieve their goals.

I hope you'll join me, the rest of the Board of Directors, and the staff in celebrating this tremendous milestone for our organization. I hope also that you'll take time to reflect on how your membership has aided you in your own journey in vertical aviation. And when you do, I hope that inspires you to help lead us to the next milestone. You and all our members are not only the reason we exist, you are also our most valuable asset.

Thank you for all you do for our industry and your communities. And here's to another 75 years! •

Nicole

#### By James A. Viola



James A. Viola is HAI's president and CEO. After a career as a US Army aviator, he joined the FAA, where he served as director of the Office of General Aviation Safety Assurance before joining HAI. A dualrated pilot, James holds ATP ratings in both airplanes and helicopters and is a CFII. Contact him at president@rotor.org.

#### Celebrating Our Past, **Building Our Future**

Let us work together to create the future we want.

N DEC. 13, 1948, sixteen people representing six helicopter operators and one manufacturer met at the offices of AF Helicopters at what was then Lockheed Air Terminal, now Hollywood Burbank Airport (KBUR) in California and formed the Helicopter Council. The civil helicopter industry was brand-new, having been launched less than three years earlier with the certification of the Bell 47 on Mar. 8, 1946.

Now, 75 years later, and after several name changes, the members of Helicopter Association International (HAI) number in the thousands and operate in 65 countries around the world. We are a trusted partner, working with operators, manufacturers and suppliers, regulators, and government agencies to advance a safe, prosperous, sustainable global vertical aviation industry. None of this would have been possible without the vision and action of our founding members and early leaders, and we are in their debt.

They founded this association in a time of great innovation in vertical flight and, therefore, a time of uncertainty. What would a helicopter look like? What could these machines do? Despite their intense commercial competition, these operators had the foresight to recognize that their fledgling industry would benefit by coming together to pursue common goals.

When you arrive at a landmark anniversary such as HAI's 75th, there is a natural tendency to look back. Where did we start, and what have we done since? On the pages of this special issue of ROTOR, you will find the answers to those questions and more.

In addition to telling the story of how a council of California helicopter operators grew to represent the global vertical aviation industry, this issue describes the essential missions our industry performs. We remember the events, innovators, and leaders who helped shape vertical aviation, and we hear from some HAI members who are making their mark today.

We conclude the issue with a look at our industry's future: the next generation who will fix, fly, operate, manufacture, and supply the vertical aviation industry of tomorrow.

While combing through our archives to prepare this issue, we were struck by the ways in which history is repeating itself. Just as it was 75 years ago, our industry is experiencing a period of innovation. Once again, we are asking basic questions. What does a vertical aviation aircraft look like? What can our machines accomplish?

If you are finding all of this change unsettling, let me remind you: this industry was not started by those who were satisfied with the status quo. After all, in the 36 years between the Wright brothers' first powered flight in December 1903 and Igor Sikorsky's first free flight of the VS-300 in May 1940, fixed-wing aviation had matured. US pilots and aircraft mechanics were licensed, and airworthiness standards for their aircraft and components had been established. Pilots, already working with the basic tools of instrument flight, were breaking all sorts of records all around the world. The future of aviation seemed set.

And then came Igor and his solution to "The Helicopter Problem," as he titled a 1930 paper. Did he know back then all the

ways we would use this aircraft in the service of communities around the world? Not according to his son Sergei Sikorsky.

In a 2019 interview with HAI, while discussing the success of the Sikorsky Black Hawk, Sergei said, "The interesting thing is that, of course, people are using the Black Hawk in missions that wethat certainly Dad—never expected and certainly many of us also never thought about."

Our industry is not done innovating. The news is full of stories about what our future may bring: electric engines, simplified flight controls, synthetic vision, and uncrewed flights. New aircraft are wending their way through the lengthy certification process, and both industry and governments are preparing for advanced air mobility operations that will focus new attention on the unique capabilities of vertical aviation.

If you feel that our industry is changing in ways that cannot be anticipated, I agree. But simply maintaining the status quo is not what vertical aviation is about.

HAI sees a future where an expanded, diverse, sustainable vertical aviation fleet and workforce is embraced and supported by the communities around the world that it serves. Our operators, pilots, mechanics/engineers, manufacturers, suppliers, and other aviation professionals will command astounding technology while understanding the essential truths that elevate safety, efficiency, and performance: know how to do your job well, make good decisions, and always do the right thing, even when no one is watching.

That is the future that HAI is working to make come true, and we will accomplish this through our Strategic Industry Plan, which was published in the March 2023 issue of ROTOR:

- Strategic Initiative 1: Unify the industry around a new vision of vertical aviation and continually promote community compatibility
- Strategic Initiative 2: Engage all stakeholders in the global value chain to help create a favorable environment that helps the entire industry thrive and prosper
- Strategic Initiative 3: Elevate safety culture throughout the value chain
- Strategic Initiative 4: Develop business resources that help companies elevate their operational performance
- Strategic Initiative 5: Develop a pathway that helps attract and maintain the best workforce in the world.

I hope this vision excites you too. Because we will not

achieve it unless our industry continues to work together.

Over and over, during HAI's 75 years, we have seen how our collective expertise, determination, and voice have made a difference, both within our industry and for external partners such as regulators and other government agencies. And the bigger our footprint—the more manufacturers, operators, and industry professionals HAI represents—the greater our ability to make an impact and achieve our goals.

Earlier, I acknowledged our

founding members. Now, I want to thank our current members for their support. HAI's advocacy on your behalf only has meaning and impact because we represent you and the essential work you do. Utilizing the unique abilities of vertical aviation aircraft and our industry's decades of expertise in low-altitude aviation operations, you help keep communities around the globe safe, prosperous, and connected. When I visit with members and hear all the good work you are doing, I am very proud to be part of this industry.

For those HAI members who are reading this, I hope you are happy with the return on your investment in us. If you need assistance with any technical or operational problem, as well as legislative or regulatory issues, please contact me at president@ rotor.org. The HAI staff takes seriously our pledge to help you keep your rotors turning!

As HAI celebrates its 75th anniversary and lays the foundation for 75 more years of helping the global vertical aviation industry grow and prosper, there is one thing I know for certain: we are stronger together. 😨



#### To All HAI Members, Thank You

On the occasion of HAI's 75th anniversary, the HAI Board of Directors celebrates **YOU!** Your membership means the world to Helicopter Association International because it's our global community that empowers our association.

#### **Power of Purpose**

Our mission and vision are to promote and advocate for the vertical aviation industry and ensure its continued vitality across the world.

#### **Power of Voice**

HAI is the voice for the vertical aviation industry because we represent thousands of vertical aviation companies and professionals worldwide. Every member who joins turns up the volume.

#### **Power for the Future**

The vertical aviation fleet is expanding and diversifying, and so is the value of your HAI membership. Stay tuned for more news about how your association will power your success in vertical aviation.

We are proud of all that we have accomplished—together. Here's to the next 75 years!





### Connecting, Serving, and Advocating for

## VERTICAL AVIATION

## HAI celebrates 75 years of service to its members and industry.

**HE ORGANIZATION** that would become the world's most influential helicopter trade association came to life on Dec. 13, 1948, just a few years after the launch of the civil rotorcraft industry.

Helicopters were still experimental aircraft when World War II began on Sep. 1, 1939, two weeks before Igor Sikorsky's first tethered flight of the VS-300. Motivated by the urgency of war, both Axis and Allied militaries put this new technology to work before the conflict's end in 1945. It wasn't until Mar. 8, 1946, however, when the Bell 47 received the first US Civil Aeronautics Board (CAB) helicopter type certificate, followed shortly after by the Sikorsky S-51, that the civil helicopter arrived.

#### Early Days of an Industry

Operators were confronted with the dual challenges of bringing a new type of aircraft to market and simultaneously educating potential customers about the capabilities of these strange birds. And of course, just like today, there's a debate in every hangar about whether aircraft burn fuel or dollars—or is there a difference?

Operators seized whatever moneymaking opportunities that popped up. They supported construction, did surveys, and transported medical patients. They used their rotors to blow ice off power-transmission lines and dry fruit trees in picking season. Their aircraft sprayed insect powder on cattle, which they also helped round up. They tore down smokestacks, reseeded burned-out forests, and spotted

tuna and other fish. Then there were the rescues.

With seeds planted across the marketplace, helicopter operators watched for which would bear fruit. They flew Santa Claus at Christmas and carried trapeze performers aloft to make a buck. "We also raced with a car," Columbia Helicopters founder Wes Lematta said in 2007, recounting his early years in the industry. "We were just trying to make a living."

The helicopter business proved early on its international scope. Many operators turned to more far-flung pastures in search of fruitful operations. They worked America from coast to coast and border to border, and some moved abroad for opportunities.

"We weren't going to make it financially by just doing local business," Jim Ricklefs said in 2007. He started Rick Helicopters in Southern

California in 1948 but soon was "taking contracts in Alaska and other places where we could make money."

#### The Helicopter Council

Among the OEM folks who tried to clear operators' obstacles was Art Fornoff, Bell's salesman for its western region. A rated helicopter pilot since 1945, Fornoff was one of Bell's first hires.

On Dec. 13, 1948, Fornoff brought together representatives of six Southern California operators to discuss how they and their suppliers might collaborate in overcoming challenges. The 15 founding members of this trade association for a brand-new industry were:

- Harry Armstrong, Fred Bowen, Knute Flint, and James Newcomb of Armstrong-Flint Helicopters, which hosted the meeting in its Burbank offices
- Fred Blymyer and Bob Boughton of Helicopter Service, Inc.
- Bob Facer and Elynor Rudnick of Kern Copters
- Jim Ricklefs and Arni Sumarlidason of Rick Helicopters
- Roy Falconer and Joseph Seward of Rotor-Aids
- Ed Eskridge, Phil Johnson, and James "Tommy" Thomas of Sky Farming.

The 16 agreed to form the Helicopter Council—renamed the California Helicopter Association (CHA) in 1949—and elected Ricklefs president, Seward secretary, and Rudnick treasurer. Ricklefs called Fornoff "the one who really set up" the new association, saying, "Art was the spark plug." Fornoff was later recognized for his role as an industry evangelist, receiving in 1970 an honorary membership from the organization he helped found 22 years before.

In January 1951, members again renamed the group, this time as the Helicopter Association of America (HAA). Thirty years later, the much larger organization became Helicopter Association International (HAI), reflecting its growth and acknowledging the global nature of the industry. (For simplicity's sake, we'll use the HAI name for the association throughout the rest of this article, even if it was operating under a different name during the time period being referenced.)

A board of directors elected by member operators governs the association and provides strategic direction to the HAI staff. Each year, board members elect a set of officers. Initially, the top elected position was titled the president of the association, while the person leading the professional staff was known as the executive director. In 1985, the top elected position was renamed as the chair of the board of directors, and the staff leader's title was changed to president and, later, president and CEO. A complete list of all board chairs can be found at rotor.org/past-board-chairs.



The agreement brokered by HAI in 2005 between the FAA, offshore operators, and energy producers in the Gulf of Mexico to test ADS-B technology substantially improved the safety of flight operations in that sector. | Mark Bennett Photo

#### Speaking Up for Vertical Aviation

Providing the vertical aviation perspective to regulators, legislators, standards boards, safety organizations, and business and community leaders was a major reason HAI's founding members organized as a group.

Looking back over the years, many of the issues that confronted our industry are still present today. In 1950, HAI won its first legal battle protecting operators from unfair invalidation of their insurance coverage. The next year, HAI publicly opposed a proposed ordinance prohibiting helicopters from landing in Atherton, California, an early example of local government attempting to override federal administration of aviation.

"In advocacy, you have to take a very long view," says Cade Clark, HAI's chief government affairs officer. "For example, we started working on the issue of 5G communications and their interference with safety-critical aviation equipment in 2017, more than four years before those systems were slated for implementation. But when you're dealing with a regulatory issue that involves multiple government agencies, it takes time to turn that ship."

HAI staff led a technical working group with other aviation stakeholders that analyzed the effect of 5G implementation on flight safety, reviewing proposals by the telecommunications industry and recommending mitigation solutions. The HAI Government Affairs team was also instrumental in raising awareness of the implications of 5G deployment in both the legislative and executive branches of the US government, becoming part of a standing meeting on the issue with members of the FAA, the National Economic Council, and the Federal Communications Commission.

"In this era of rapid technological advancement, disruption is inevitable, no matter what industry you're in. 5G had been on the horizon for years, and we knew there would be implications for vertical aviation," says John Shea, HAI senior director of government affairs. "We raised our concerns throughout the Washington, D.C., ecosystem—with regulators, legislators, and those looking at the economic impact. To get the results you want, you have to present your fact-based, solution-oriented case in multiple meetings, to multiple stakeholders, and you have to sustain that effort over months or, often, years."

Ultimately, HAI's advocacy for the vertical aviation industry led to exemptions that allowed Parts 91 and 135 operations to resume, including those performing helicopter air ambulance, law enforcement, firefighting, and other essential services.

Community compatibility continues to be an issue. At the 1963 association convention and trade show in Palo Alto, California, complaints by local residents prompted the move of demonstration flights to an airport 4 miles away, and 60 years later, the sound produced by helicopters continues to be an issue.

"I like to remind people that when they hear a helicopter flying, they are often listening to the sound of service," says James Viola, HAI president and CEO. For example, public-sector agencies, including law enforcement, firefighting, and search and rescue, account for the majority of helicopter operations in the Los Angeles area. Similarly, national security flight restrictions in the Washington, D.C., area mean that all helicopters overhead are either flying military or public-service missions.



HAI recently worked with the office of US Rep. Don Beyer (D-Va.-08), the FAA, and the Eastern Region Helicopter Council to adjust altitudes and routes that reduced aircraft sound in the Washington, D.C., area, allowing air ambulance, law enforcement, and military aircraft to continue their public service missions with no effect on flight safety. | Mark Bennett Photo

However, HAI also cautions its members to "fly neighborly" and mitigate the effect of helicopter operations on the communities they fly over. Begun in 1982, under the leadership of Frank Jensen, then association president, the HAI Fly Neighborly program provides pilots and operators with noise abatement procedures, including model-specific recommendations, as well as advice on creating a constructive dialogue with their neighbors. For its efforts, HAI was recognized with the FAA Silver Award for Distinguished Service.

Former HAI Chair Jeff Smith, who worked with the Eastern Region Helicopter Council, the FAA, HAI, and Washington, D.C., community leaders to resolve sound complaints in the National Capital Region, said that effort's successful resolution "illustrates how well we can all work together toward mutually beneficial results when communication and collaboration are involved."

Protecting aviation infrastructure, identifying regulatory overreach, creating workforce development programs—the number of issues that HAI is working on is staggering. In 2022 alone, HAI government affairs staff tracked more than 600 bills, successfully stopping a number of burdensome and anti-industry regulations. But one of the association's proudest moments was a positive one: obtaining \$396 million in COVID relief funds for its Part 135 operator members.

"The pandemic was such a difficult time for everyone, and no one could predict where or when we would come out the other side," says Viola. "When HAI was able to add Part 135 operators to the class of businesses eligible for relief funds, it was a great example of why our advocacy efforts add such value to our members."

Speaking for the vertical aviation industry is only half of the advocacy equation, however. Listening to members is also key, and HAI is expanding its slate of regional representatives, whose job it is to work with operators and represent their concerns with state and local government officials and organizations.

#### Safety: The Key to Industry Success

Vigorous support for operational safety has been at the core of HAI's mission since its inception. The association held its first accident briefing on May 15, 1949, and it continues to dedicate substantial resources to elevating safety policies, practices, and tools throughout the industry, regardless of membership status.

One example of HAI leadership on safety came with the 2005 launch of a campaign to lower helicopter accident rates worldwide. In September of that year, HAI was one of the sponsors of the first International Helicopter Safety Symposium in Montreal, Quebec, Canada. More than 250 people from 13 countries and 5 continents attended, representing the breadth of the industry—operators, manufacturers, regulators, maintenance organizations, safety advocates, and associations. Using the model of data-driven analysis and mitigation successfully employed by the Commercial Aviation Safety Team to make significant

improvements in Part 121 air carrier safety, attendees agreed to form the International Helicopter Safety Team (IHST).

The IHST was launched in 2006, with HAI President and CEO Matt Zuccaro as its industry cochair. The all-volunteer IHST laid out an ambitious goal of an 80% reduction in civil and military helicopter accidents by 2015. The premise was that the team would first identify the most prominent accident categories and then drill down on the root causes of such accidents before developing the means of reducing or eliminating them. An additional challenge for the helicopter industry was its 44 distinct missions, many of which carry elevated risk profiles. Unlike the relatively homogenous missions of Part 121 air carriers, this diversity of missions complicated the task of determining and addressing accident causes.

Although the IHST fell short of its 10-year goal, it succeeded in helping the industry adopt the data-driven accident-prevention approaches that we take for granted today. Recognizing that stakeholders from the local helicopter community should lead the data analysis and resulting efforts to improve safety, the IHST also spurred the creation of national or regional safety teams around the world that have generated a multitude of safety kits and learning tools to help helicopter pilots and operators work toward becoming safer in the air.

In 2021, recognizing that the vertical aviation fleet, while becoming more diverse, shared similar safety issues, Zuccaro's successor, James Viola, supported transitioning the IHST into the Vertical Aviation Safety Team (VAST). The group provides a central source where regional safety teams can come together to collaborate and coordinate safety initiatives so that information can flow freely globally.

HAI's free tools and resources include an online flight risk assessment tool and monthly Spotlight on Safety poster, video, and article on a safety topic. HAI also offers a Framework for Safety that is scalable down to "one pilot, one mechanic who needs a framework ... to get home safely every day."

HAI members have access to a range of safety tools and programs, including an Aviation Safety Action Program and safety awards for pilots, operators, and maintenance technicians. They are also eligible for steep discounts on services that will help them implement a safety management system for their flight operation or maintenance operation.

"The diversity in our industry—everything from aircraft and mission to the type and size of the operation—is huge, and HAI's safety program recognizes that diversity. We have something that will help every pilot, operator, and maintenance technician," says Chris Hill, HAI's senior director of safety.

#### Coming Together to Learn and Grow

Through education programs and events, HAI has sought to help industry professionals connect and grow since its first meeting. The group's major event, a trade show coinciding with the annual meeting, got off the ground in 1960. By January 1967, the HAI Annual Meeting,

Convention and Industry Showcase, held in Palm Springs, California, included 44 exhibitors with 61 booths. The yearly meeting and exposition became HAI HELI-EXPO® with the February 1989 event.

HAI HELI-EXPO is now an essential industry event that each year brings together the vertical aviation industry to connect, learn, and conduct business. The last edition, held in March 2023 in Atlanta, Georgia, hosted 12,400 attendees from 97 countries. An estimated \$2 billion in business was conducted by the 639 exhibitors, which ranged from airframe manufacturers to the small businesses that are the backbone of the industry.

Besides the show floor, attendees could take advantage of 116 safety education sessions, professional education courses, manufacturer technical briefings, and industry meetings and forums. The event also featured an industry career fair and a Mil2Civ workshop, where military veterans who have successfully made the transition to the civil industry shared their lessons learned.

"We're very proud of each year's show," says Charlotte Zilke, HAI senior director of membership and conventions. "But our industry is dynamic and evolving, and that means HAI has to do the same. We know how important HAI HELI-EXPO is to our attendees, and we try each year to give them something new to experience."

HAI's education initiatives and events go far beyond HAI HELI-EXPO and include a quarterly magazine, a daily e-newsletter, and monthly webinars. The HAI Online Academy offers on-demand courses for pilots, maintenance technicians, and managers on safety, operations, uncrewed aerial systems, and personal and professional development. In addition, HAI organizes and conducts forums on developing operational and policy issues that bring together operators, regulators, safety agencies, and government leaders to discuss urgent matters.

#### For the Benefit of All

As the leading global helicopter association, HAI is able to connect the entire industry ecosystem of operators, manufacturers, and regulators. For example, when the FAA was preparing to roll out automatic dependent surveillance-broadcast (ADS-B) as a key element of its Next Generation Air Transportation System, HAI saw an opportunity. Staff members worked with the Helicopter Safety Advisory Conference, an organization coordinating safety efforts among companies and organizations involved in offshore energy production in the Gulf of Mexico, including operators and owners of offshore rigs. Brokering an agreement between all parties, HAI

persuaded the FAA to fund placement of ADS-B units on oil rigs. In exchange, rig owners would cover the cost of the space occupied on the rigs and supply power to the FAA units. Helicopter operators would outfit their aircraft to take advantage of the more precise surveillance coverage.

The multiparty, multiyear agreement allowed the FAA to test ADS-B's greater surveillance capabilities and provide coverage of low-level traffic where little was possible before. Air traffic controllers could refine their procedures and practices to optimize ADS-B's application in their airspace. Operators were able to substantially close the separation between aircraft, from 100 nautical miles to 5, thereby increasing the number of flights while improving the level of safety.

At a 2010 joint press conference with FAA Administrator Randy Babbitt to announce the implementation of ADS-B services in the Gulf of Mexico, HAI President Matt Zuccaro said of the successful collaboration between industry and regulators, "This is the way the system is supposed to work." The operating agreement between the operators and the FAA was renewed several times before ADS-B was mandated for most aircraft flying in the US National Airspace System.

In 1983, HAI and the European Helicopter Association (EHA) formed the International Federation of Helicopter Associations (IFHA) to bring together industry stakeholders from around the world to coordinate on international regulations. The International Civil Aviation Organization (ICAO) granted the IFHA status in 1998 to observe and join in specific meetings relating to rotorcraft operations, putting it on par with other nongovernmental organizations, such as the Flight Safety Foundation and RTCA (formerly the Radio Technical Commission for Aeronautics).

As IFHA representatives, HAI staff regularly represent the global vertical aviation industry at ICAO meetings. They also serve on several ICAO advisory panels and working groups that address issues such as standards relating to crew fatigue, instrument flight procedures, and heliport/vertiport design. In all, HAI staff serve on 34 regulatory or standards groups, including 10 international ones, often as the only voice of the vertical aviation industry.

HAI's actions to foster industry collaboration have been frequent and widespread, ranging from addressing member concerns about insurance cost burdens and proposed equipment certification changes to HAI joining with nearly a score of other aviation and transportation industry associations in urging the US Congress to address pressing workforce development and infrastructure issues. In the same way, HAI coordinates and consolidates industry responses to regulators in the development of standards



The development of advanced air mobility has focused welcome attention on the need to strengthen and expand vertical aviation infrastructure and preserve our industry's access to airspace. | Wisk Aero LLC

and rules in a range of operational areas, from heliport design to aircraft performance and flight crew qualification for new categories of vertical aviation aircraft.

In addition to the operators elected by their fellow members to the HAI Board of Directors, the association has 14 working groups composed of member volunteers. Some groups are sector-specific, such as aerial tours or air ambulance operations; others focus on issues familiar to all in the industry, such as safety or workforce development.

The late Jim Wisecup, HAI's board chair for 2018–19, reminisced in a 2018 article about working with fellow HAI members on changes for the 2004 Heliport Design Advisory Circular. "It wasn't always fun in those rooms, but we did get a lot of good things done, and it's nice to think that I played a part in that," he said. "I've gotten a lot out of the industry, and I think being active in HAI is a way to put something back in."

HAI has expanded its outreach to other international rotorcraft associations, including working with the European Helicopter Association to produce its annual show, EUROPEAN ROTORS, and forming the International Partnership Program (IPP) in 2020. Spurred by the need to share information during the first weeks of the COVID-19 pandemic, HAI organized regular virtual meetings with other rotorcraft associations. Topics included protocols for cleaning aircraft and vaccine distribution. The emergency created by the pandemic may have passed, but IPP participants, which now comprise 17 national or regional helicopter associations, still participate in regular quarterly meetings.

HAI also has organized three councils where members can raise concerns and receive updates on how HAI is supporting their sector: one for airframe and powerplant manufacturers, one for advanced air mobility stakeholders, and one for small-business members. And every member has direct access to the technical and operational expertise of the HAI staff.

"Helping our members cope with their challenges is why HAI exists," says Viola. "So when we make a positive difference for them when our advocacy helped keep the Indianapolis Downtown Heliport open or when we worked in 2018 with human external cargo operators caught in a regulatory gap to obtain a waiver and continue operations—that makes our day!" Viola recommends that HAI members write to president@rotor.org for assistance with their regulatory, legislative, and technical issues.

#### The Next 25 Years

As HAI moves into its fourth quarter century, the association and its members are looking ahead to dramatic expansion of the industry. Vertical aviation is experiencing a wave of innovation and experimentation not seen since its early days. There are more than 900 companies working to bring their version of electric and hybrid-electric vertical takeoff and landing (eVTOL) aircraft to market. Companies are experimenting with a variety of powerplant types, including all-electric, electric hybrids, and hydrogen fuel cells. The promise of advanced air mobility (AAM) is bringing welcome attention to vertical aviation infrastructure and airspace.

Helicopter manufacturers are also innovating. Health and usage monitoring systems (HUMS) and flight data monitoring (FDM) are joining the art of aircraft diagnostics with the science of data analysis, turning tasks such as rotor track-and-balance from a delicate dance to a straightforward input on a control panel. While the Bell V-280 Valor tiltrotor was selected for the US Army's Future Vertical Lift program, a leading contender was the Sikorsky S-97 Raider, a compound helicopter with two coaxial rotors and a single pusher propeller capable of speeds in excess of 220 kt. If the past can predict the future, these military technologies will migrate, sooner or later, to the civil industry.

In short, the skies of 2048 will most likely look very different. And HAI will look different too as it adapts to serve an expanded, diversified industry. But its mission—to connect, educate, and advocate for the global vertical aviation industry, to elevate safety within it, and to promote its prosperity and sustainability—will never change. "The core of why HAI exists remains the same: to help our members learn, grow, connect, and succeed," says Viola. 😯



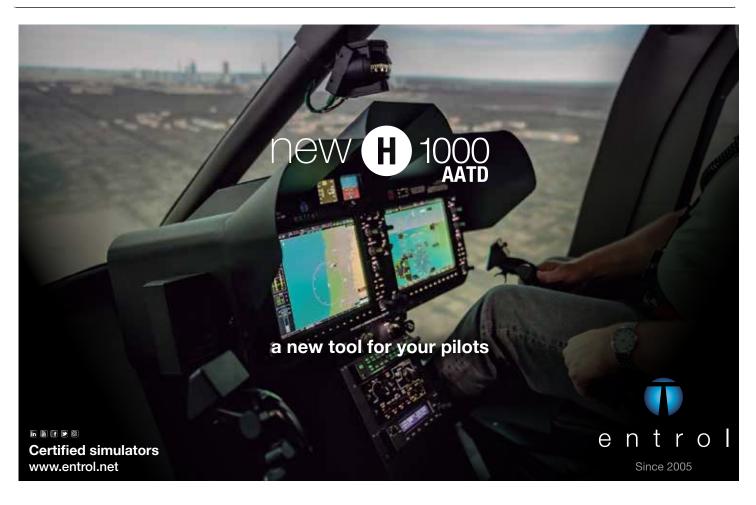
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HAI has identified 44 distinct missions that helicopters perform, many of which are conducted only by helicopters or other vertical lift aircraft.





#### WHY ARE HELICOPTERS SPECIAL?

Compared with their fixed-wing cousins, vertical aviation aircraft have unique abilities. They can take off from and land almost anywhere, requiring no infrastructure. They can also take advantage of considerably smaller landing zones than airplanes.

While airplanes need to maintain a minimum forward airspeed to stay aloft, helicopters do not. These highly maneuverable aircraft can fly fast, slow, very slow, sideways, and even backward. They can also maintain a fixed position while airborne or hovering.

With these capabilities, the vertical aviation industry accomplishes a wide variety of missions. Yes, our aircraft pick up passengers and cargo at an airport or heliport, and fly them to another. They also harvest trees, carry and place electrical transmission towers, rescue stranded hikers off cliffs, and help communities control disease-carrying insects.

We like to think of the helicopter as the Swiss Army knife of aviation: Put on a Bambi Bucket, and a firefighting aircraft can drop more than 10 tons of water on a wildfire. Install a hoist, and a helicopter can find and pick up a sailor adrift in the ocean. Equip with a—well, you get the idea.

In the following pages, you'll see helicopters performing 44 distinct missions in the service of communities around the world. Enjoy!



#### **AERIAL DEMONSTRATION**

For TV and film productions and air shows—and only after many hours of planning and practice to mitigate the risks—helicopter pilots perform aerial stunts that deserve the warning, "Don't try this at home!"









#### **AGRICULTURE APPLICATION**

Farmers use helicopters equipped with aerial-spray devices to control pests and diseases and deliver nutrients to their crops.



Kamov Ka-26 | Simon Iglesia Photo



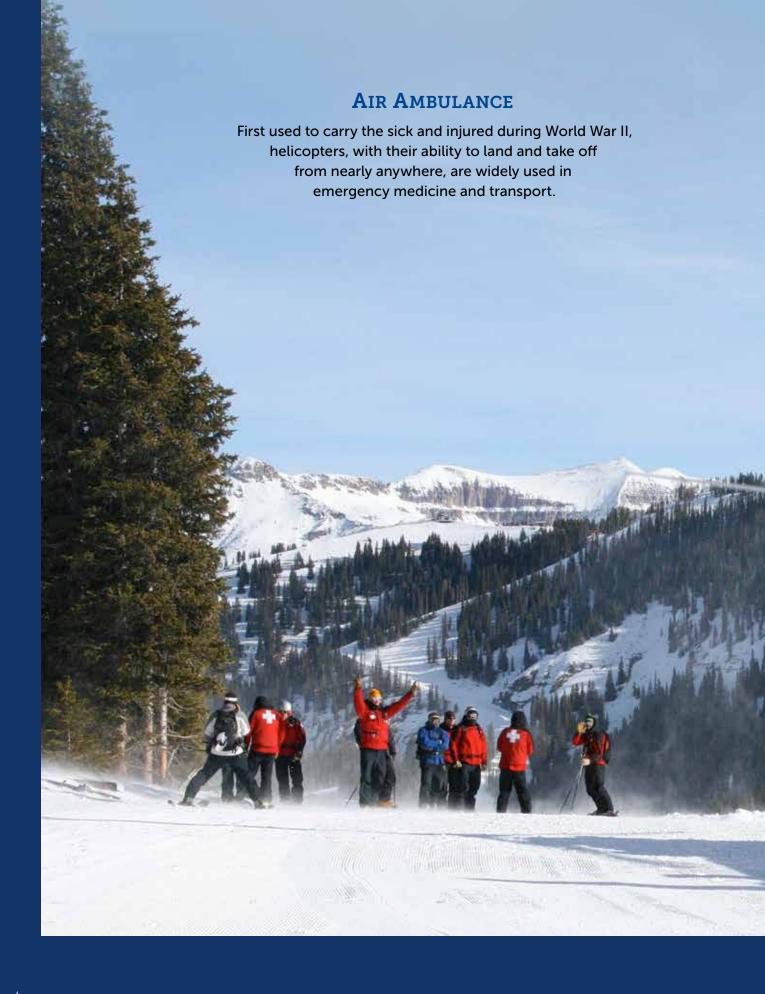
#### **A**GRICULTURE **M**ANAGEMENT

Helicopters perform a variety of functions for farmers, ranging from drying cherry crops to collecting multispectral images that enable precision application of resources.

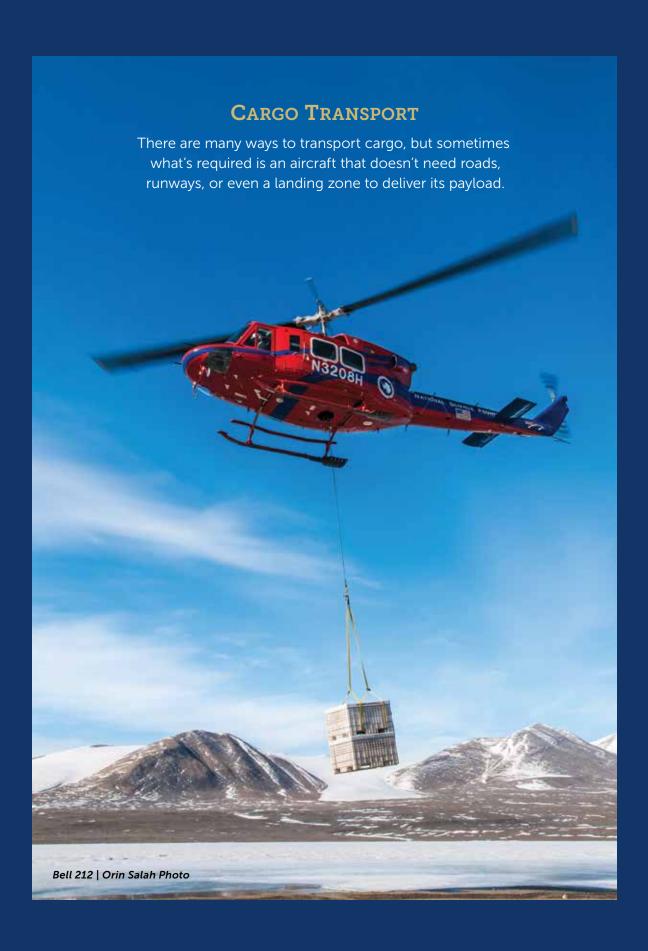


















## CONSTRUCTION AND HEAVY LIFT

When a crane isn't the right solution—when it isn't tall enough, can't place the load correctly, or can't even reach the intended site—it's time to call in the helicopter.



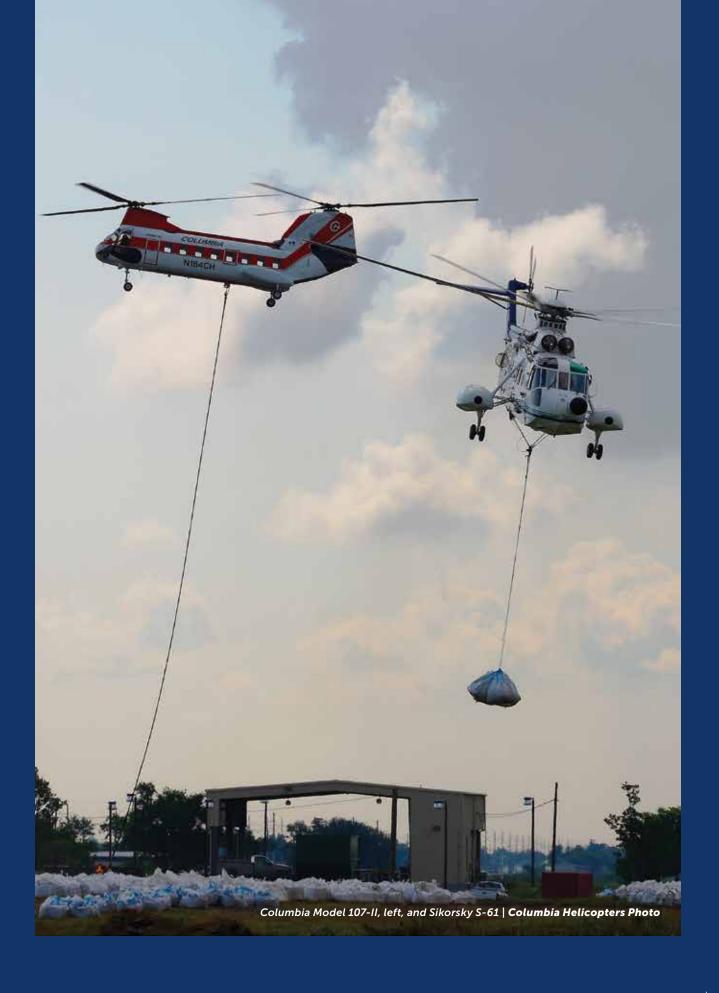




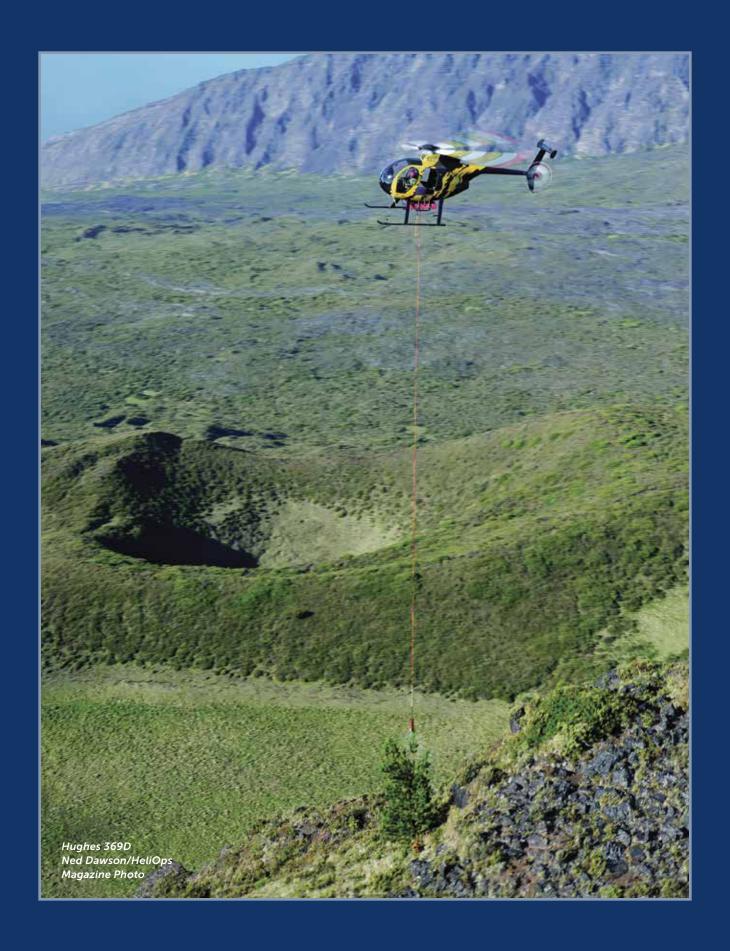
#### DISASTER RELIEF AND RECOVERY

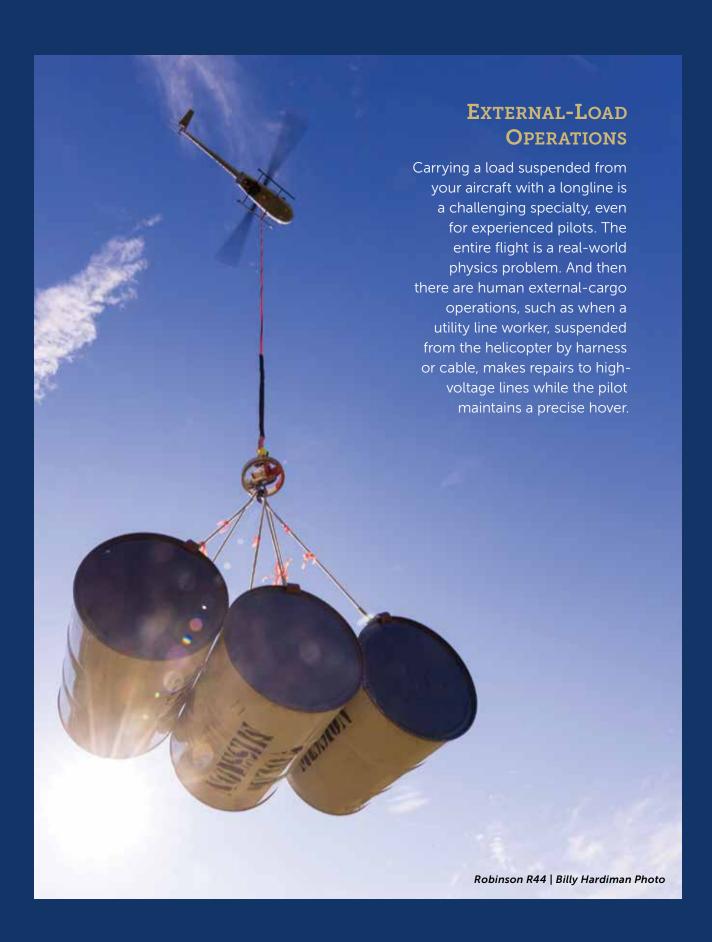
Floods, earthquakes, infrastructure failures, civil unrest—both natural disasters and human-caused adverse conditions can make ground transport difficult or impossible. Helicopters are sometimes the only way to reach those in need, especially when conditions have rendered roads impassable and airports unusable.









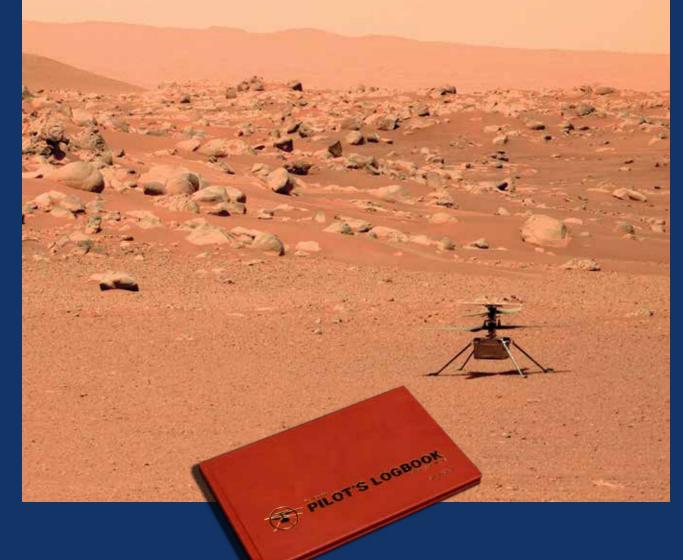




Jet Propulsion Laboratory Mars Helicopter Ingenuity NASA/JPL-Caltech/MSSS Photos

## EXTRATERRESTRIAL **EXPLORATION**

There's currently only one example of an aircraft that has made a powered, controlled extraterrestrial flight—the Mars Helicopter—but based on its performance, it won't be the last. Designed as a technology demonstrator, Ingenuity's success has delighted scientists at NASA's Jet Propulsion Laboratory, logging more than 70 flights and more than 2 hours of flight time. And yes, NASA keeps a logbook for the aircraft.





#### FISHERY SUPPORT

Finding schools of fish in the ocean is much easier from the aerial perspective, so many commercial fishing boats are equipped with helidecks, where pilots must perfect their skill at landing on a moving, rolling platform.







#### GEOMAPPING AND SURVEYING

Helicopters equipped with modern detection and imaging tools, including high-definition cameras, lidar, and sonar, capture precise data about geographic features visible—and invisible—to the naked eye.





## HARBOR PILOT **TRANSFER**

Many harbors employ helicopters to fly marine pilots experienced with that location's currents and hazards onto incoming ships so that they can safely guide ships in from deeper waters.



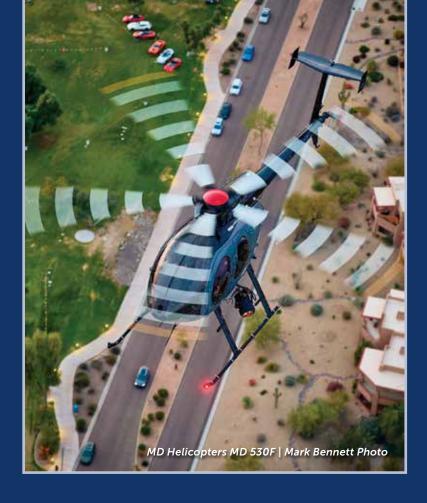












# LAW ENFORCEMENT AND PUBLIC SAFETY

When asked what's so special about airborne law enforcement, one police officer said, "It's the aerial perspective—you see things from the air that you could never see from the ground, and you see them in a different way."



















#### NATURAL RESOURCES MANAGEMENT

Helicopters are the perfect tool to help manage, preserve, and repair natural resources. This mission can include everything from transporting scientists and their gear to remote, roadless areas (like the volcano in Hawaii shown below) to moving tons of rock to prevent rockslides or streambank erosion.





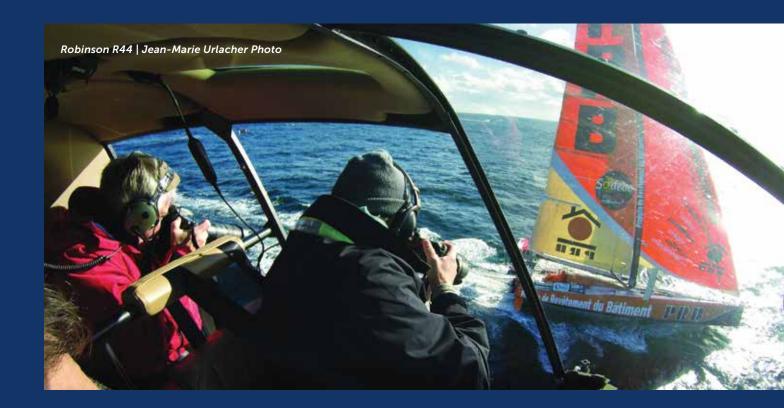
#### **News-Gathering**

Helicopter-based journalists cover more memorable news than traffic jams: New York traffic reporter Tom Kaminski was the first person to broadcast news of the Sep. 11, 2001, World Trade Center attacks, having just wrapped up coverage of that morning's commute.



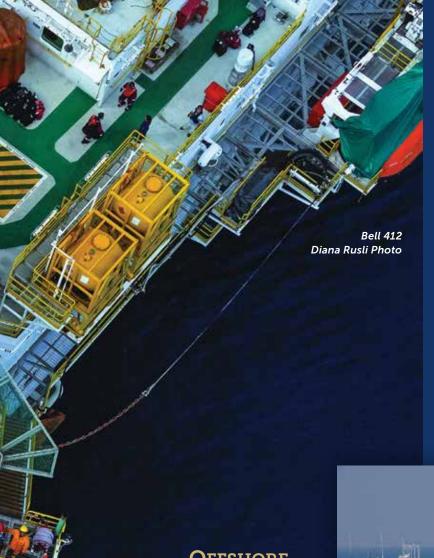
#### **PHOTOGRAPHY**

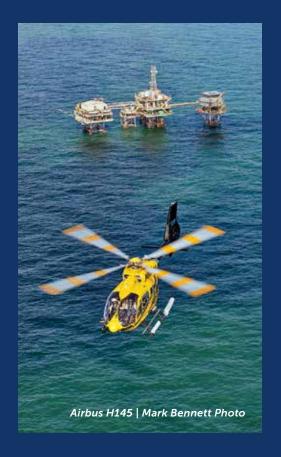
The helicopter's maneuverability and ability to vary speed makes it a favorite of photographers trying to capture the aerial perspective.











# **OFFSHORE ENERGY INDUSTRY** TRANSPORT AND **SUPPORT**

Helicopters transport personnel, equipment, and materials to offshore energy production platforms, which now include wind turbines in addition to petroleum and natural gas rigs.



# On-Demand Transport

Helicopters provide direct, point-to-point travel, providing customers with convenient, customized travel options, like office to office, airport to home, or airport to airport.

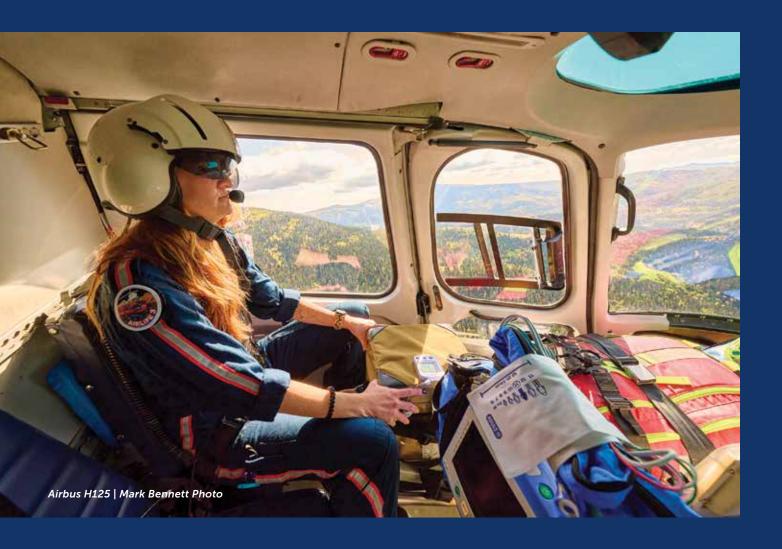




## **ORGAN AND BLOOD TRANSPORT**

When an item absolutely has to get there in a short time? Medical providers turn to helicopters to move highly perishable, precious medical supplies over long distances or above rush-hour traffic.





### PETROLEUM AND MINING SUPPORT

Mining and oil exploration and production usually occur in remote areas. In some cases, the operation starts by lowering a team from a helicopter to clear enough space to construct a landing zone. This enables other helicopters to arrive with the personnel and materials necessary to construct whatever is needed to begin production.



# **POLLUTION DETECTION** AND MONITORING

Helicopters enable personnel and monitoring equipment to cover large geographic regions or access difficult-to-reach areas, providing a rapid and effective means to gather data about environmental conditions.



Leonardo AW119 Kx | Vertical Magazine/Anthony Pecchi Photo

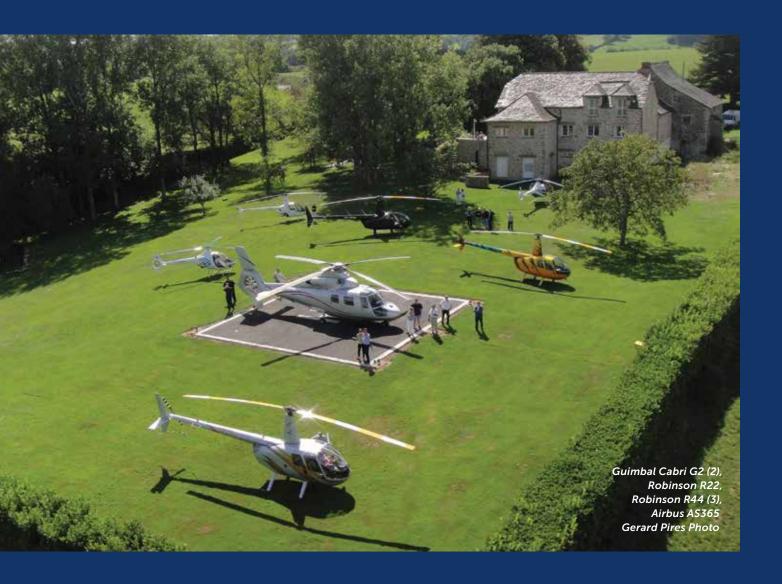


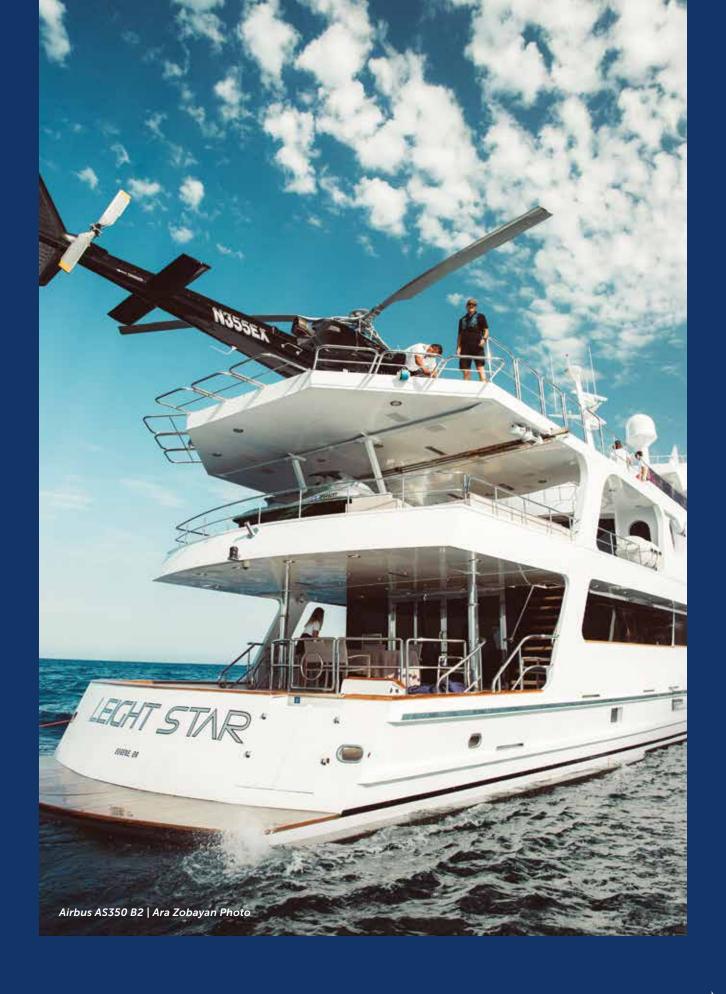
#### PRIVATE OWNER/ PERSONAL USE

Some people fly their personal helicopters to accomplish a task—maybe they have a large ranch to manage or an hours-long commute. And some people just love to fly!



Composite-FX XET | Phillip N. Blaha Photo





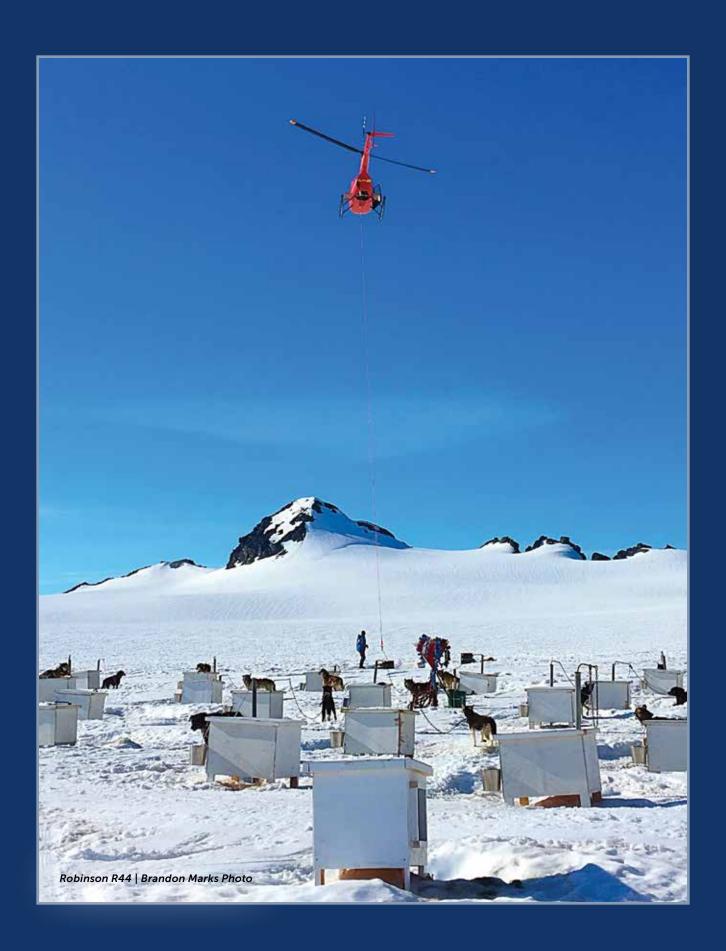




#### REMOTE-AREA Access, Transport, AND SUPPLY

When roads are few or treacherous, or when there are no roads at all, going by air is the smart choice—and in some cases, the only choice.

Airbus H145 Vertical Magazine/Anthony Pecchi Photo



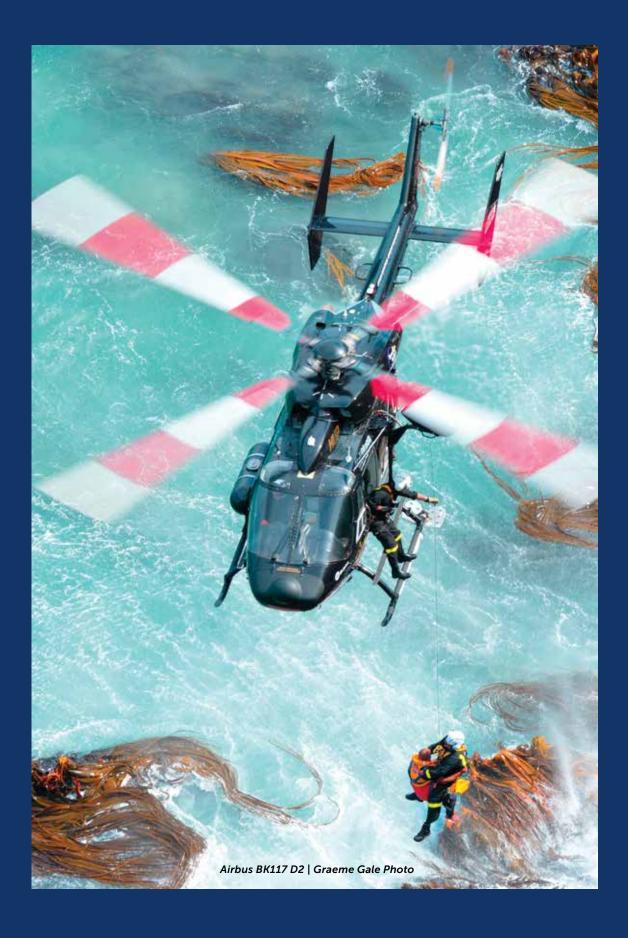




#### SEARCH AND RESCUE

Creating an aircraft that could hover over an injured or stranded person and hoist them to safety was one of Igor Sikorsky's proudest accomplishments. The Igor I. Sikorsky Historical Archives estimates that helicopters had saved close to 2 million lives as of 2010. That number continues to grow each day.



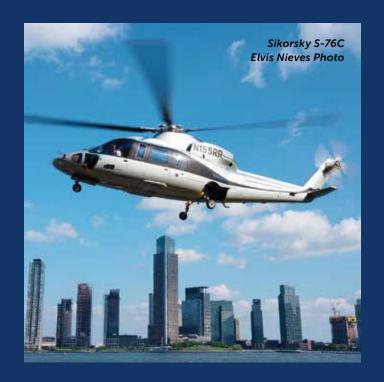






#### **S**ECURITY MONITORING AND **SURVEILLANCE**

The helicopters performing these missions are often deployed during large, high-profile events. What their crews can observe with their own eyes is amplified by modern technology, including infrared cameras and devices that scan for chemicals or explosives.

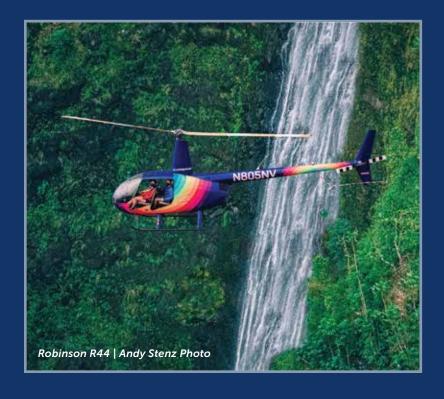


#### **SCHEDULED TRANSPORT**

Helicopters have been carrying people from here to there since the 1940s, but in this mission, they do it via a regularly scheduled service. The reasons why are varied: some want to evade city traffic, and others travel over water or long distances.



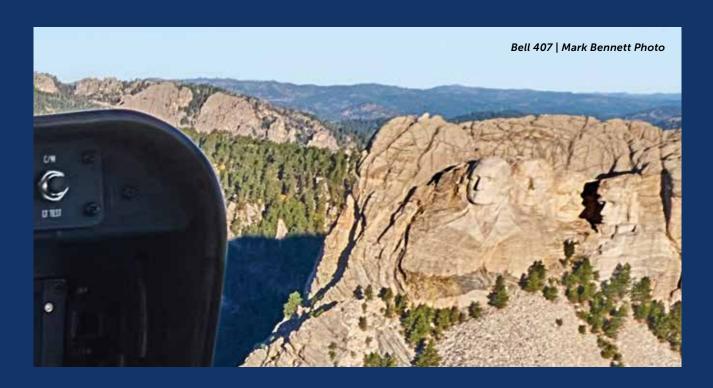




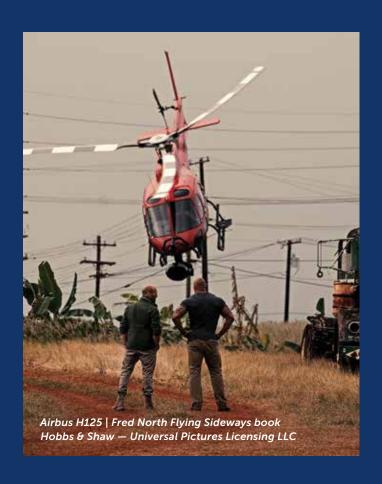
#### **S**IGHTSEEING AND TOURS

Aerial tours give familiar sights a brand-new perspective and provide opportunities for the young, the old, and persons with disabilities to see them as well, all while leaving these landmarks and wild areas untouched.





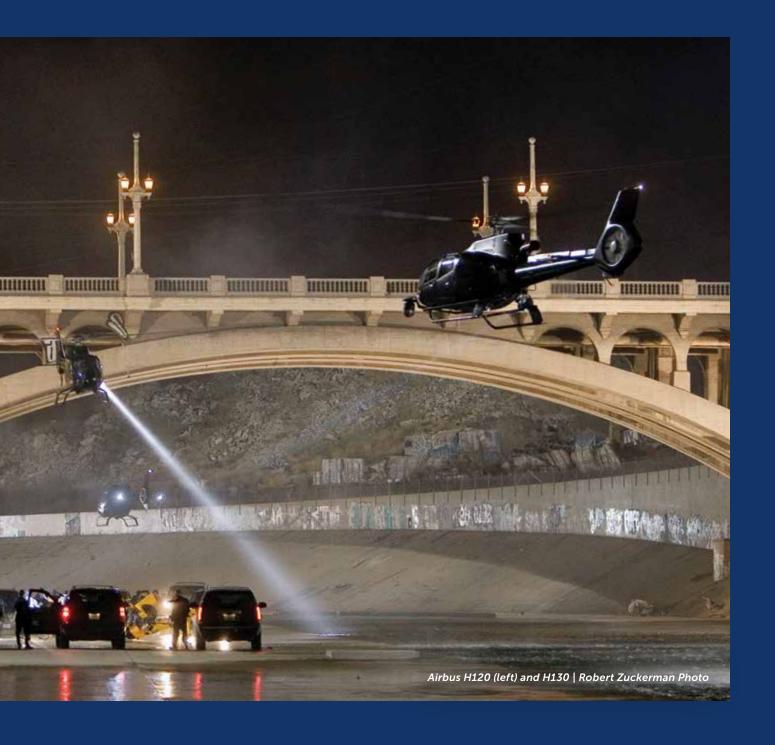






#### STUNT FLYING AND MEDIA PRODUCTION SUPPORT

Besides carrying cast, crew, and supplies to remote locations, helicopters can be outfitted with cameras to deliver the aerial shots expected by modern audiences. And in some productions, you'll see a helicopter being used on screen, sometimes in ways that make industry professionals wince, such as pairing film of an S-76 flying with the sound of a Huey in flight.

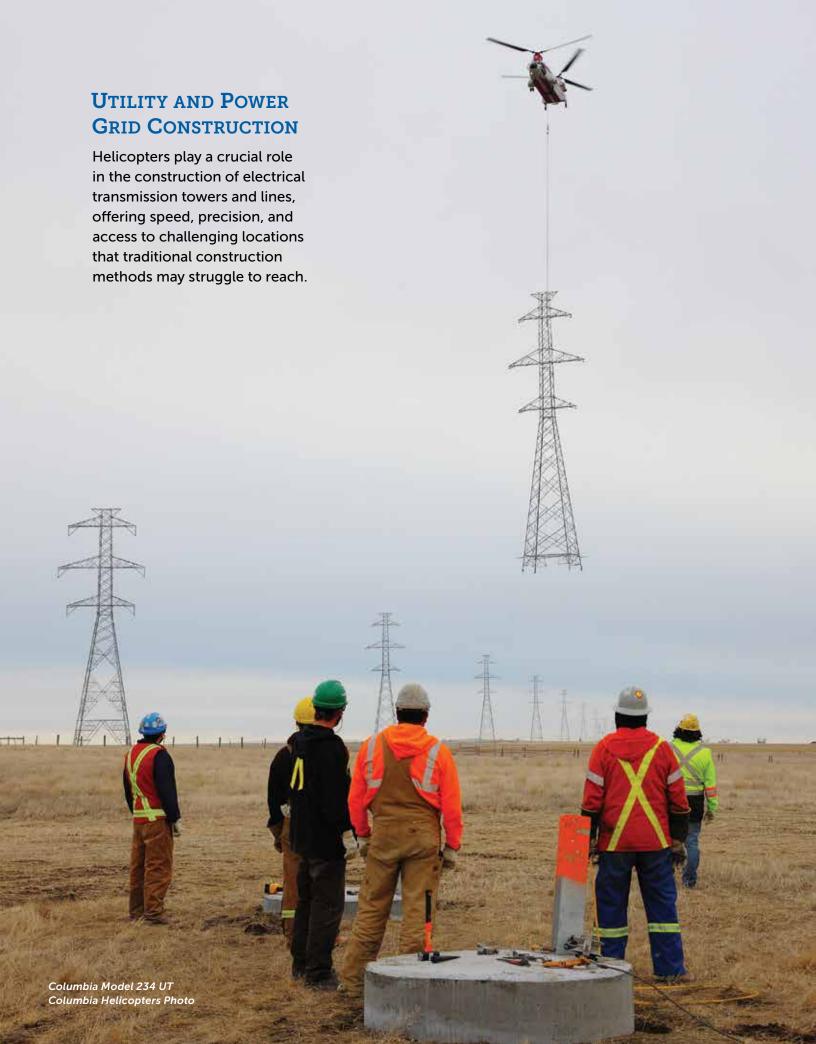


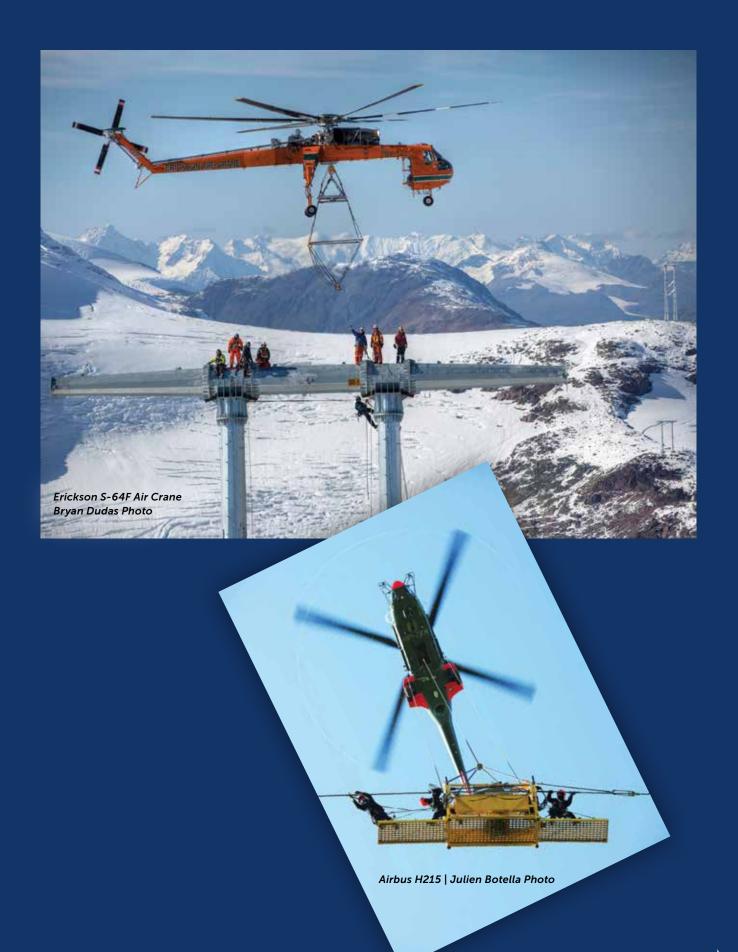


#### TRAFFIC SURVEILLANCE

If you have lived in a big city, you can most likely name the helicopter traffic reporter who steered you through your daily commute, someone like HAI's West Coast regional representative, "Commander Chuck" Street, shown below, who reported on Los Angeles's notorious traffic for 29 years.









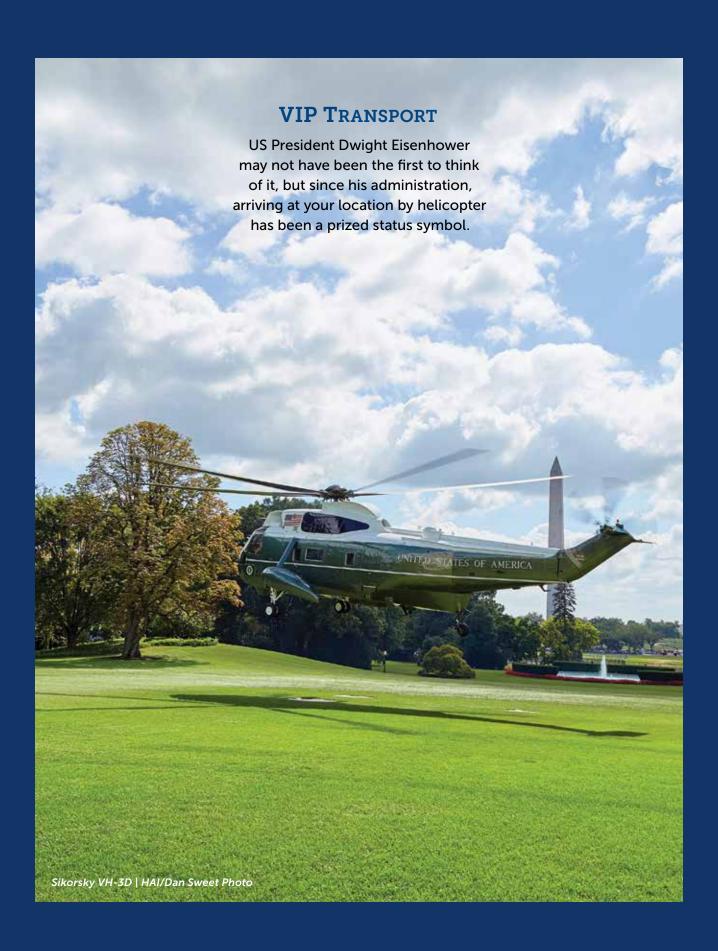
#### UTILITY AND POWER GRID MAINTENANCE

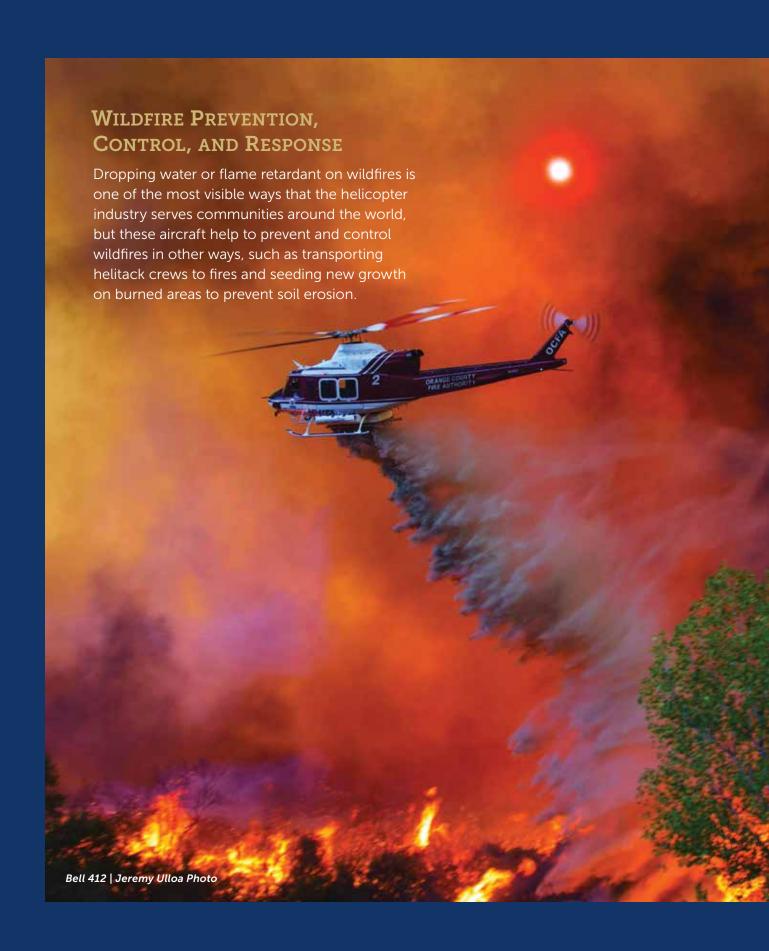
Helicopters provide line workers with quick access to transmission lines and towers that need attention, but they also conduct the surveys, sometimes with special optical tools, that identify the issue in the first place.



MD Helicopters MD 530F | Mark Bennett Photo











#### WILDLIFE MANAGEMENT

Conservation workers use helicopters to conduct aerial surveys to track the numbers and movements of wildlife populations. Helicopters also provide transportation for personnel and supplies—and sometimes wildlife too.





elicopters are amazing aircraft, as the preceding 73 pages show. And those photos cover only the most common missions, which are listed below.

Helicopters also take on some very specific missions. Deliver Santa Claus? Check! Take a happy couple to a secluded spot for a romantic marriage proposal?

They do that too. Fly a prescribed path low over a jungle while a computer-controlled magazine ejects dead mice laced with poison that will control invasive snakes? Yep.

With the ability of helicopters to reach places others can't go and complete missions that others can't do, there's no limit to what the vertical aviation industry can accomplish!

#### -THE 44 MOST COMMON HELICOPTER MISSIONS -

- Aerial Demonstration
- Agriculture Application
- Agriculture Management
- Air Ambulance
- Avalanche Control
- Cargo Transport
- Construction and Heavy Lift
- Corporate and Executive Transport
- Disaster Relief and Recovery
- Environmental Protection and Restoration
- External-Load Operations
- Extraterrestrial Exploration
- Fishery Support
- Flight Training
- Geomapping and Surveying
- ▶ Harbor Pilot Transfer
- Heli-Skiing
- Infrastructure Surveillance, Monitoring, and Inspection
- Law Enforcement and Public Safety
- Livestock Management
- Mosquito Control
- Natural Resources Management

- News-Gathering
- Photography
- Offshore Energy Industry
  Transport and Support
- On-Demand Transport
- Organ and Blood Transport
- Petroleum and Mining Support
- Pollution Detection and Monitoring
- Private Owner/Personal Use
- Remote-Area Access, Transport, and Supply
- Search and Rescue
- Security Monitoring and Surveillance
- Scheduled Transport
- Sightseeing and Tours
- Stunt Flying and Media Production Support
- ▶ Timber Harvesting
- Traffic Surveillance
- Utility and Power Grid Construction
- Utility and Power Grid Maintenance
- Vegetation Management
- ▶ VIP Transport
- Wildfire Prevention, Control, and Response
- Wildlife Management





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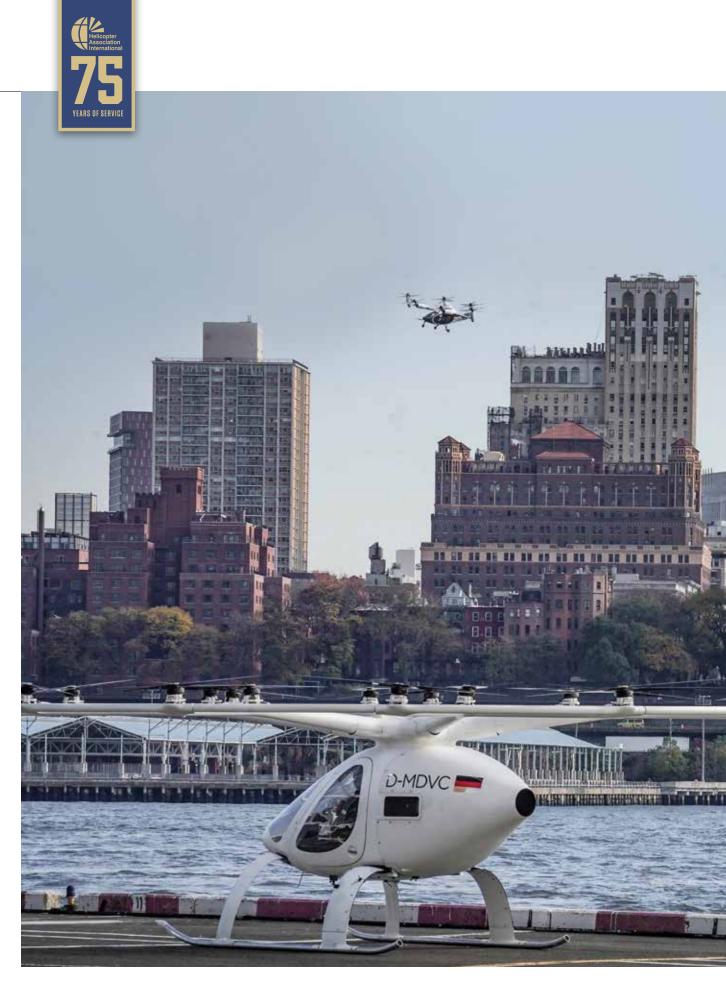
EnstromHelicopter.com/careers
to see all of our current opportunities.

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# VERTICAL AVIATION

## Media coverage tracked rotorcraft's transition from novelty to essential technology.

GOR SIKORSKY'S FIRST SUCCESSFUL TETHERED FLIGHT made headlines in the Bridgeport, Connecticut, Times-Star on Dec. 1, 1939. Not until he made the first free flight on May 13, 1940, would *The New York Times* report the achievement, buried on page 23 with other news items.

As US manufacturing at that time concentrated on war production, the military was first to utilize the helicopter. But it didn't take long for aircraft manufacturers to bring civil versions of those aircraft to market.

By the end of 1946, the first helicopter operation was up and running. Helicopter Air Transport (HAT), based in New Jersey, was operating three Sikorsky S-51s and three Bell 47s. A HAT executive told reporters that Filene's Department Store in Boston, Massachusetts, would use one for delivering merchandise in New England. The others HAT would use in power-line inspections or pilot training.

The number of helicopter missions has grown since then (see "How We Serve," (pp. 22–95), and the public conversation around helicopters has moved from "What can helicopters do?" to "What *can't* helicopters do?"

The Volocopter 2X, an electric vertical takeoff and landing (eVTOL) aircraft, prepares for flight while the Joby eVTOL aircraft flies above during a demonstration of eVTOLs in a test flight, Monday, Nov. 13, 2023, in New York at Manhattan's downtown heliport. | AP Photo/Bebeto Matthews



# FROM NOVELTY TO MAINSTREAM

Igor Sikorsky not only envisioned an aircraft that could take off and land vertically, he also envisioned how an aircraft with such capabilities could be used. Some of his predictions about this new aircraft may never be realized, such as Sikorsky's belief that helicopters would one day replace the family car "to some extent."

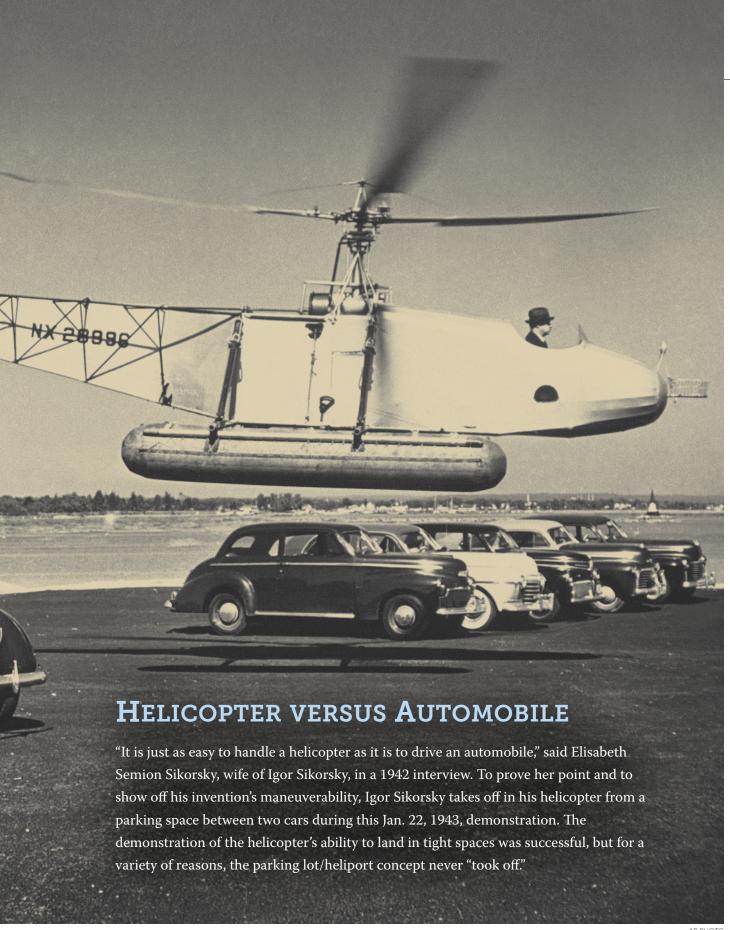
But Sikorsky wasn't the only one with that vision. Dr. Gerald Wendt, director of science at the 1939 World's Fair, told an audience at the New York State College for Teachers at Buffalo in 1942, "The helicopter will be small, fool-proof and cheap. If you're building a house now, don't put it in the center of the lot, but on the side, so you'll have a landing field."

As the years passed, helicopters transitioned into the all-round aviation workhorse they still are today, trusted to transport world leaders, cherished national symbols, and weary commuters.

of While helicopters represent a relatively small portion of our general aviation fleet—about 6%—their impact is significant and even disproportionate compared to other forms of aviation—particularly when you count the benefits to society from medevac, search and rescue, police, infrastructure inspection, and air taxi operations, to name just a few.

- Stephen M. Dickson, FAA administrator, Jan. 28, 2020





AP PHOTO



This iconic aircraft remained in production until 1974. The type certificate was purchased from Bell Helicopter in 2009 by Scott Churchill, whose company, Scott's – Bell 47, provides support for the 1,000-plus Model 47s still flying today.

## A WORLD-FAMOUS HELICOPTER

US presidents have traveled by helicopter since the Eisenhower administration, and Marine One, the call sign for the helicopter when the president is aboard, is one of the most famous aircraft in the world. Here, President Dwight Eisenhower (right) and a crew member (center) show the way to Soviet Premier Nikita Khrushchev as they prepare to board a helicopter on the White House grounds on Sep. 25, 1959, for a flight to the Camp David, Maryland,

presidential retreat during Khrushchev's 12-day visit to the United States.

Travel by helicopter was still relatively rare in the 1950s, and Eisenhower took Khrushchev on a helicopter sightseeing tour of Washington, D.C., in part as a display of US technical might. In his autobiography, Eisenhower wrote that Khrushchev initially turned down the invitation until the president reassured the Soviet premier that both world leaders would be on the flight.



AP PHOTO

#### **ADVANCING AIR MOBILITY**

The 1950s began with 40 million automobiles registered in the United States, according to the US Federal Highway Administration. By the end of the decade, that number had increased to 59 million. With ground transportation increasingly snarled, helicopter operators began providing shuttle service within the cities of Chicago, Los Angeles, San Francisco, and New York. Chicago Helicopter Airways at one point was carrying 25,000 passengers each month to

points around the city.

Today, advanced air mobility is once again making headlines as that sector experiences an explosive wave of development, spurred by advances in lightweight materials, electric propulsion, and autonomous systems. The Vertical Flight Society is tracking more than 900 concepts for electric vertical takeoff and landing (eVTOL) aircraft, and several models are being flight-tested.





JEFF EVANS PHOTO



## TRADING UP TO A HELICOPTER

Purchasing a helicopter for personal use was a marketing strategy Hughes Helicopters employed in the 1960s for its 269A model, which retailed for \$22,500—"a price substantially below that of many helicopters." (For comparison, Chevy's top-of-theline 1963 Impala SS convertible started at \$3,186.) A Silver Spring, Maryland, Chevrolet dealership took the strategy one step further, becoming a Hughes Helicopter sales and service outlet in 1963.



The removal of the statue occurred in May 1993. A little more than five months later, on Oct. 23, a Sikorsky S-64F Skycrane nicknamed "Bubba" lifted the 19-ft. 6-in. bronze female warrior statue up to the top of the US Capitol dome, demonstrating the aircraft's heavy-lift and precision placement capabilities to an audience that included President Bill Clinton, other dignitaries, and the world media.



# IN TIMES OF CONFLICT

Helicopters entered Allied military service toward the end of World War II, primarily to evacuate wounded or stranded troops. Their use was expanded during the Korean War, providing troop and supply transport, reconnaissance, and, most famously, medical evacuations, as portrayed on the long-running 1970s television program M\*A\*S\*H.

However, it was during combat operations in Vietnam when the US Army exploited the aircraft's abilities to provide rapid troop transport and close air support. While the helicopter remains an iconic symbol of the Vietnam War, a variety of rotorcraft—including helicopters, autonomous helicopters, and uncrewed aircraft systems (UASs)—now support ground troops.

The influence of military technology and training continues to be felt in the civil industry. A 2023 *Washington Post* article estimated that one-third of US commercial pilots learned to fly in the military, and new technology often appears first in military aircraft before migrating to the civil industry.

M Helicopters become almost like a person to you. They all have different personalities, little quirks that are unique to them. Pilots and crew chiefs and maintainers alike have aircraft that they will never forget.

 Command Sgt. Maj. James D. Wilson, a nonrated aircrew member who served in 23 combat deployments, including Afghanistan and Iraq, with the US Army's 160th Special Operations Aviation Regiment



# RUSHING WOUNDED TO MEDICAL CARE

A Sikorsky R-5 helicopter from the US Air Force 3rd Air Rescue Squadron is shown as it settles down to take on an injured soldier before transporting him to one of the Mobile Army Surgical Hospital (MASH) units at the rear. According to the 2003 book *Whirlybirds: U.S. Marine Helicopters in Korea*, "the mortality rate in Korea fell to a new low of only 2%, less than half the rate of World War II and far below the nearly 50% rate prior to the American Civil War, due in large part to the rapid evacuation of the seriously wounded and the immediate availability of helicopter-provided whole blood at forward medical stations."

# PUTTING INFANTRY IN THE AIR

US Army Sgt. First Class Herman Stern of Brooklyn, New York, pilots a one-man helicopter called an "aerocycle" as the army tests the new flying machine at Camp Kilmer, near New Brunswick, New Jersey, on Dec. 29, 1955. Designed to greatly improve the battlefield mobility of combat infantrymen, the 200-lb. machine was powered by a 44-horsepower motor. Top speed was estimated at 65 mph, with an estimated range of 150 miles.

The pilot guided the aircraft by leaning in the direction he wished to travel while using the handlebars to control vertical motion. This model of personal rotorcraft was never put into production, even though many future pilots would have joined just for the opportunity to fly it.



# Proving New Technology

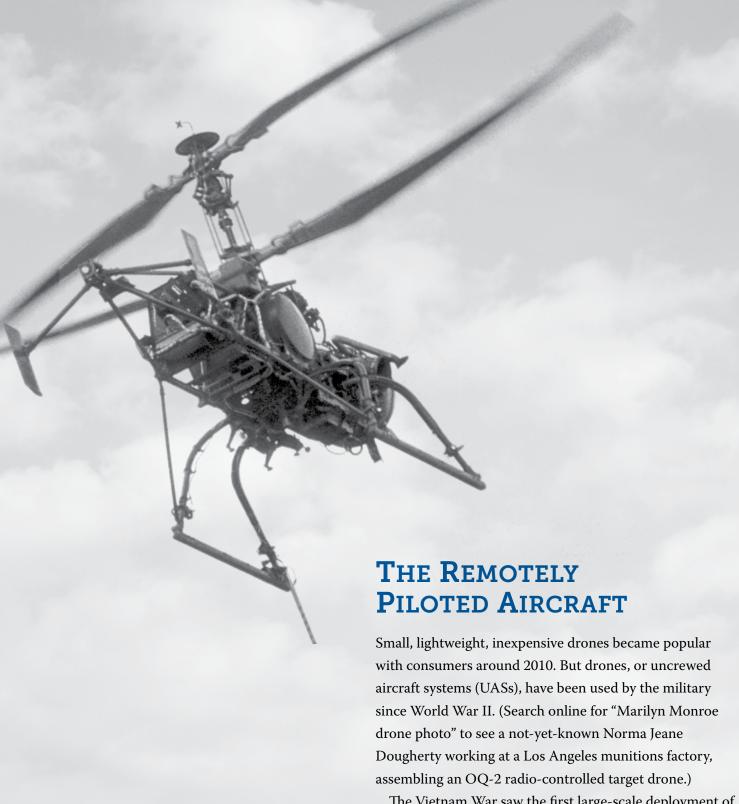
Seen with the distinctive monochrome green of a night-vision device, an AH-64 Apache helicopter from 1st Battalion (Attack), 10th Combat Aviation Brigade, Task Force Tigershark, departs Forward Operating Base Fenty, Afghanistan, on Oct. 17, 2013, to conduct a security and reconnaissance mission.

Night-vision goggles (NVGs) and other types of enhanced vision systems improve situational

awareness for pilots. First used by the military, NVGs have become common in the civil industry, particularly in sectors such as helicopter air ambulance, where night operations are common. Other now-common technologies that were first utilized by military aircraft include GPS, forwardlooking infrared (FLIR) vision systems, health and usage monitoring systems (HUMSs), and wirestrike protection systems.



US ARMY PHOTO BY CAPT. PETER SMEDBERG/RELEASED / THE APPEARANCE OF US DEPARTMENT OF DEFENSE (DOD) VISUAL INFORMATION DOES NOT IMPLY OR CONSTITUTE DOD ENDORSEMENT

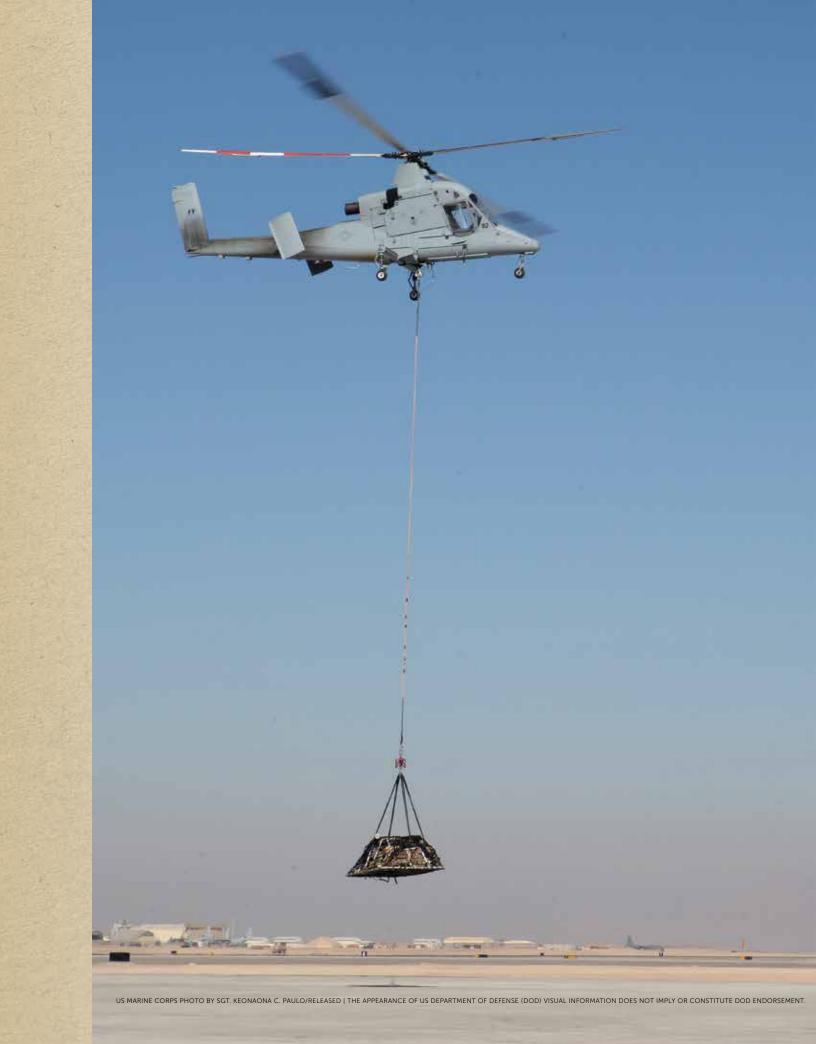


The Vietnam War saw the first large-scale deployment of drones in combat, and their missions were expanded from simply observation. In this March 1967 photo, a drone anti-submarine helicopter (DASH) capable of carrying two remote-controlled torpedoes is being deployed during a NATO exercise in the North Sea.

# THE HELICOPTER WAR

UH-1 Hueys of the 1st Air Cavalry Division fill the sky over South Vietnam during Operation Pershing in 1967. The Vietnam Helicopter Pilots Association estimates that over 4,800 helicopter pilots and crew members were killed in action, out of the more than 100,000 who served. Many veterans returning from the war elected to stay in aviation, and the influx of thousands of highly trained and experienced veteran pilots and maintainers affected the civil industry for decades to come.





## THE AUTONOMOUS HELICOPTER

Unlike remotely piloted aircraft, where a human pilot who is not on board controls the aircraft, autonomous aircraft are controlled by automatic systems that execute stored programs. Under the "command" of these systems, the aircraft can take off and fly to a destination without additional human input, all while aviating, navigating, and communicating.

Proponents of both autonomous aircraft and remotely piloted aircraft point out that these technologies are well suited for "dirty, dull, and dangerous" missions. The US military has already field-tested autonomous helicopters successfully, as shown in this 2012 photo (left) of an autonomous K-Max taking off from Camp Bastion, Helmand Province, Afghanistan. Over the course of the program, these

aircraft delivered 4.8 million lb. of materiel to remote bases. One analyst calculated that, with one warfighter lost for every 100,000 lb. moved in ground convoys, the autonomous K-Max program in Afghanistan saved 48 lives.

Autonomous aircraft are often cited as a key element of mature advanced air mobility (AAM) operations, and Wisk, for example, intends its aircraft to be fully autonomous from the beginning. Other aircraft may be built as optionally piloted aircraft, with the ability to fly autonomously and, with the flip of a switch, accommodate pilots on board, as demonstrated by the 2022 test flight of a Sikorsky Black Hawk (below) equipped with automation software developed by the US Defense Advanced Research Projects Agency.



TED CARLSON / SIKORSKY AIRCRAFT, A LOCKHEED MARTIN COMPANY



# EXPLORING THE EARTH AND BEYOND

The introduction of the helicopter—an aircraft that could travel above difficult or roadless terrain, as well as land and take off from practically anywhere—meant that scientists and explorers had a new tool at their disposal.

As early as 1947, the Canadian Institute of Mining Engineers was using helicopters to explore for ore in Canada, the United States, and Central and South America. The helicopters saved time and staff resources: a ground survey could take two engineers and two assistants 70 days, whereas surveying the same area by helicopter took an hour and required only one engineer-observer and the pilot, reported a Seattle, Washington, paper.



STOCK.ADOBE.COM / OLIVIER VANDEGINSTE



# AT THE ENDS OF THE EARTH

Helicopters both military and civil have supported scientific research programs in Antarctica. In this 1961 photo, a US Navy Sikorsky H-34 assigned to US Navy Task Force 43 takes off after dropping off observers for a tour of Cape Royds, some 30 miles from McMurdo Station, site of an Adélie penguin rookery and a hut built by explorer Ernest Shackleton.

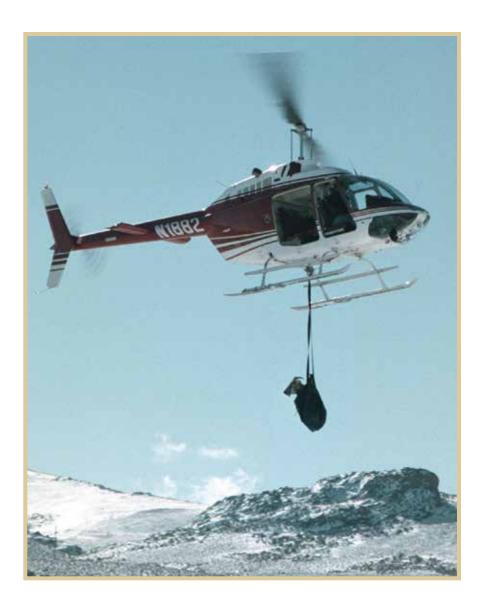
Remote missions such as these require extraordinary planning and preparation to maintain operational readiness. With punishing weather—Antarctic temperatures are usually below freezing, even in summer—and extended supply lines, maintenance needs must be forecast down to the smallest part, including triple redundancies for essentials.

# WRAPPING UP THE APOLLO MISSIONS

Millions of television viewers watched the Apollo 11 crew being picked up by US Navy Helicopter 66, a Sikorsky SH-3 Sea King, after returning to Earth following their historic moon landing in July 1969. The Helicopter 66 crew performed hoist recoveries for the astronauts of five Apollo missions following the splashdown of their spacecraft in the Pacific Ocean. Those missions weren't really over-and the astronauts weren't safely home—until the helicopter crews completed their mission.







# ARE WE THERE YET?

A Rocky Mountain bighorn sheep hangs in a pouch by a 10-ft. strap on Feb. 18, 1998, from a Bell 206B JetRanger on its way to a new home. In an operation funded by a private conservation group, Bighorns Unlimited, Nevada Department of Wildlife personnel captured several bighorn sheep and flew them to an area 30 miles away.

Moving wildlife to new locations can stimulate population growth and promote genetic diversity in the herd, and the unique capabilities of helicopters make them well suited for that purpose. Wildlife managers also use helicopters to access hard-to-reach areas, conduct censuses, and assess food supplies and the health of populations.



# GOING WHERE OTHERS CAN'T

When the subject being studied is inherently dangerous—with possible exposure to dangerous gases, shifting terrain, and lava flows—helicopters provide researchers with access at a safe distance. The eruption of Kilauea Volcano on Mar. 8, 2011, is visible through the cockpit of a helicopter piloted by David Okita of Volcano Helicopters.

In a 2016 report, the US Geological Survey described helicopters and the pilots and the mechanics who maintain them as crucial to the safety of its scientists and their ability to reliably assess the status of Hawaii's active volcanoes.

# A WRIGHT BROTHERS MOMENT ON MARS

The first aircraft to achieve powered, controlled flight on another planet, the Mars Helicopter, Ingenuity, is actually an autonomous drone (but, we have to admit, "Mars Helicopter" sounds better).

Launched from Earth on Jul. 30, 2020, the 4-lb. aircraft made its historic maiden voyage on Apr. 29, 2021. As of press time, the Mars Helicopter's logbook had recorded 71 flights, a total distance of 11 miles flown, and a combined flight time

of about 128 minutes.

As a proof of concept for flight operations on Mars, "the Ingenuity technology demonstration has been a resounding success," says Thomas Zurbuchen, former associate administrator for NASA's Science Mission Directorate. The aircraft now flies to demonstrate how aerial scouting and other functions could benefit future exploration of Mars and other worlds.



NASA/JPL-CALTECH/MSSS



# IN TIMES OF TROUBLE

Beginning in the 1960s, news coverage of helicopters gradually shifted from reporting on their novelty to stories about helicopters doing the work they still do today, such as aerial firefighting, disaster response and relief, and search and rescue. These lifesaving missions illuminate the unique capabilities of the helicopter. They also offer dramatic confirmation of the commitment to public service by the people of vertical aviation, who often must perform as though lives are on the line—because they are.

66 If you are in trouble anywhere in the world, an airplane can fly over and drop flowers, but a helicopter can land and save your life. 33

- Igor Sikorsky





# PROVING THE CONCEPT

On Nov. 29, 1945, in a fierce storm, an oil barge with a captain and one crew member ran aground on Penfield Reef in Long Island Sound, not far from the Sikorsky Aircraft plant in Bridgeport, Connecticut. Responding to the call for help, Sikorsky chief pilot Jimmy Viner and US Army Air Corps Capt. Jack Beighle reconnoitered the scene, returned to the hangar, and readied a Sikorsky R-5, newly equipped with a hoist intended—but not yet tested—for rescue missions.

Flying back to the barge in the R-5, the Sikorsky team conducted the first civilian hoist rescue, successfully transporting the two sailors to the beach. A photo of the barge's captain, Joseph Pawlik, being lowered to safety circulated in newspapers worldwide. Igor Sikorsky regarded the helicopter's ability to conduct lifesaving missions such as this as his "greatest source of comfort and satisfaction."



# A WAY OUT

In April 1976, as the People's Army of Vietnam prepared to take Saigon, the capital of South Vietnam, an Air America helicopter crewman helps evacuees up the ladder on top of an apartment building, one of the many evacuation sites in the downtown area.

Saigon's Tan Son Nhut Air Base was no longer secure, and helicopters were the only way out for more than 7,000 Americans, foreign nationals, and at-risk Vietnamese who were flown to waiting US Navy ships off the coast. It was a fitting end, some said, to a conflict known as the "Helicopter War."





# HEROES OF THE WORLD

The damaged Reactor No. 4 of the Chernobyl nuclear power plant after the explosion and fire on Apr. 26, 1986, is seen from the open door of a helicopter. Dosimetrists on board were gauging radiation to draw a contamination map of the site. In addition to survey and inspection flights, helicopters were used to deposit tons of materials aimed at limiting the spread of radiation from the reactor core.

American pilot Cap Parlier, director of helicopter testing for McDonnell Douglas, arranged for Anatoly Grishchenko, a Soviet pilot who had flown five flights over the damaged plant, to receive treatment for acute leukemia in a Seattle hospital in 1990.

In a Jul. 3, 1990, Seattle Times obituary for the doomed pilot, Parlier said what Grishchenko and other Soviet helicopter pilots did "was not only good for the Soviet Union, but for all of mankind.

I call him a hero of the world."

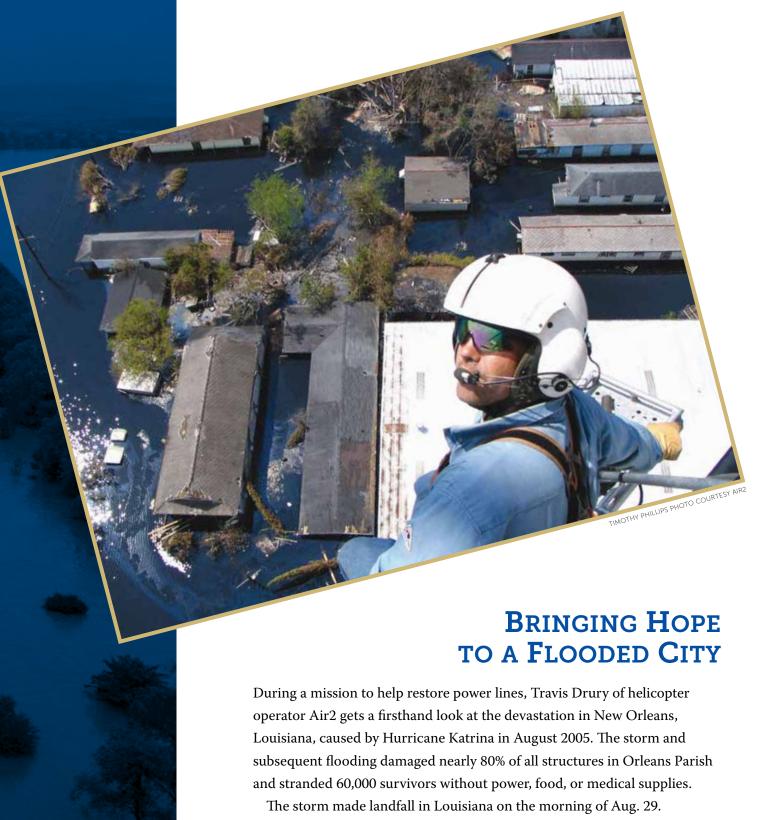




us coast guard photo by petty officer russ tippets. The appearance of u.s. department of defense (dod) visual information does not imply or constitute dod endorsement.



US COAST GUARD PHOTO BY PETTY OFFICER 2ND CLASS NYXOLYNO CANGEMI. THE APPEARANCE OF U.S. DEPARTMENT OF DEFENSE (DOD) VISUAL INFORMATION DOES NOT IMPLY OR CONSTITUTE DOD ENDORSEMENT.



That afternoon, as soon as winds dropped to below 60 kt., US Coast Guard helicopters began flying reconnaissance and rescue missions. The skies above the flooded city were soon filled with more than 400 helicopters including military, commercial, and privately owned—rescuing survivors and providing essential supplies.







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# **Vertical**





INSIGHT



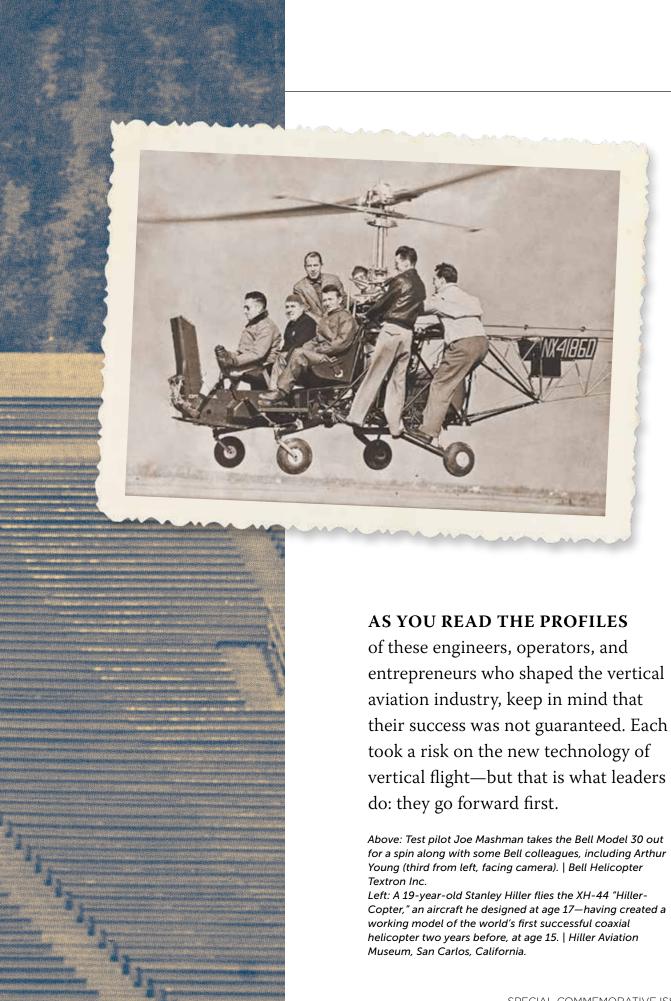




# VERTICAL AVIATION LEADERS

They pursued their dreams ... and built an industry.







# IGOR SIKORSKY

### Designer of the world's first production helicopter.

Igor Sikorsky is recognized for various achievements in aviation, including building the first successful fourengine airplane and creating the flying boat, but he is best known for developing the first practical, massproduced helicopter.

Sikorsky was born May 25, 1889, in Kiev, then part of the Russian empire. He was 14 years old in 1903 when the Wright brothers flew the first motorized aircraft in Kitty Hawk, North Carolina, inspiring him to pursue a career in aviation.

He first worked on designing a helicopter in 1909, but the engines available at that time lacked sufficient power to lift both aircraft and pilot. Sikorsky then turned his attention to airplanes, making his first solo flight in 1910 in an aircraft that he designed and built. By his mid-20s, he led a company manufacturing bombers for the Russian military.

With Russia in turmoil following the 1917 Bolshevik Revolution and ensuing civil war, Sikorsky moved to the United States in 1919. Four years later, he was once again in the business of designing and manufacturing aircraft, launching the Sikorsky Aero Engineering Corp. with a group of Russian immigrants on a Long Island, New York, chicken farm. His first design was the Sikorsky S-29-A, and numerous other aircraft followed, including the S-38 amphibian.

The company became part of United Aircraft Corp. in 1929 and built the first Flying Clippers in 1931, followed by the first transoceanic flying boat, the S-42, later that same year. In 1938, with no new contracts on the horizon, Sikorsky returned to the problem he had tried to solve 30 years earlier: designing a practical helicopter.

Several others had contributed to vertical aviation in the interim, including Juan de La Cierva, inventor of the autogyro; Paul Cornu, who designed and flew the first helicopter to fly in free flight; and Harold Pitcairn, whose articulated rotor-head design was licensed by Sikorsky for his new design.

On Sep. 14, 1939, in Stratford, Connecticut,



HM Coastquard Sikorsky S-92 | © Lockheed Martin Corporation. All rights reserved.

Sikorsky's persistence paid off and the VS-300, the first practical helicopter, achieved tethered flight, followed by a free flight on May 13, 1940: Refinements to that aircraft would lead to the R-4, the first mass-produced helicopter, which first saw service in the US military.

The development of the VS-300 and subsequent Sikorsky helicopters led to numerous aviation awards for the inventor, including the Daniel Guggenheim Medal in 1951, a US National Defense Transportation Award in 1952, and the National Aeronautical Association Wright Brothers Memorial Trophy in 1967.

At the age of 83, Sikorsky, learning of a rescue where 20 helicopters rescued 400 people from a burning high-rise in Brazil, wrote, "I always believed that the helicopter would be an outstanding vehicle for the greatest variety of life-saving missions and now, near the close of my life, I have the satisfaction of knowing that this proved to be true." He died the next day, Oct. 26, 1972. That letter and other materials on his life and legacy can be found in the Sikorsky Archives.

# LAWRENCE BELL, ARTHUR YOUNG, AND BARTRAM KELLEY

Developers of the world's first certificated civilian helicopter, the Bell 47.



Lawrence Bell

Lawrence D. "Larry" Bell was among the first generation of leaders of powered flight.

In 1912, at the age of 18, he worked as an aircraft mechanic for a pair of barnstormers who included his 28-year-old brother Grover. Grover's fatal crash in 1913

dimmed Bell's early passion, but by the time Bell turned 20, he'd joined the Glenn L. Martin Co. (which later became Lockheed Martin), where he rose to become general manager. Along the way, he hired a young aeronautical engineer from the Massachusetts Institute of Technology (MIT) named Donald Douglas to be his chief engineer. (Douglas would later establish Douglas Aircraft Co.)

In 1928, at the age of 34, Bell joined Consolidated Aircraft in Buffalo, New York. When the company relocated to San Diego, California, Bell remained in Buffalo, founding Bell Aircraft Corp. seven years later.



In this undated photo, Larry Bell (right) escorts US President Harry Truman on a tour of the Bell factory. Bell Helicopter Textron Inc.

After the United States entered World War II, Bell Aircraft helped build the air armada that supported the Allied victory. His company assembled nearly 13,000 P-39 Airacobra and P-63 Kingcobra fighters and more than 650 Boeing B-29 Superfortress bombers.

Prior to the start of World War II, Bell was sent on a mission to assess Germany's technological prowess. There, he was intrigued by the advances in vertical aviation. He described the twin-rotor Focke-Wulf Fw 61 as the most impressive thing he saw on the trip.

#### Three years later, Larry Bell met Arthur M. Young.



**Arthur Young** 

Born in 1905, Young had spent 14 years investigating the design and development of the helicopter. He studied German engineer and inventor Anton Flettner's work, patents, and other resources and built his own small, remote-controlled models in the barn of his family's

suburban estate in Philadelphia, Pennsylvania. This research taught him, among other things, how to build precise components (including transmissions), calculate stresses, and develop tools to measure phenomena such as rotor lift and propeller efficiency.

A Bell gear supplier shared Young's work with Bell Aircraft. The company invited Young to Buffalo to demonstrate his technology. On Sep. 3, 1941, Young unpacked his one-sixth model from a suitcase, flying and hovering it indoors with complete control. He also showed a film on helicopter stability principles that illustrated his methodical, scientific research.

A key breakthrough was Young's inclusion of a stabilizer bar on the rotor mast, which greatly improved the control of his helicopter. (This would become a common Bell design feature that can still be seen on their two-bladed models.)

Bell hired Young to move to Buffalo and—with a \$250,000 budget—build two prototypes for a commercially viable, twoseat helicopter.

### As a part of Young's hiring, the new employee demanded that Bell hire Bartram "Bart" Kelley, too.



Bartram Kelley

Kelley was four years younger than Young. The pair had grown up together in Pennsylvania, with Kelley idolizing Young, who'd taught him about amateur (ham) radio and Morse code, as well as mechanics, helicopter aerodynamics, and other technical knowledge.

Bell Aircraft and the team supporting Young's work tussled over how to build a helicopter. Bell's

folks thought Young's team would draw plans, which they'd then take to the factory for production. "They didn't understand that the whole thing was in the doing of it and not just drawing a picture," Kelley recalled in 1995.

After six months working together to sort things out, Young's team set up shop in a former Chrysler auto showroom in Gardenville, New York, about 20 miles southeast of the Bell Aircraft plant. Starting small with 7 individuals, the team never got much bigger than 30 people. "We had to be jacks of all trades," said Kelley.

Construction of Bell's first helicopter, the Model 30, began in June 1942. The single-seat Ship 1 prototype rolled out six months later. The Model 30 flew untethered for the first time on Jun. 26, 1943.

Keen to beat Sikorsky Aircraft to market, Bell Aircraft pushed forward with its two-seat configuration. The resulting Bell Model 47 received the first US Civil Aeronautics Board (CAB) helicopter type certificate on Mar. 8, 1946. The first Bell 47s had sheet-metal cabins; salesmen said helicopters that looked like an automobile would be more appealing to buyers.

The Bell 47 saw extensive use in the Korean War, and its bubble canopy and metal-tube tail boom became famous, in part through roles in movies and television shows, including the hit show M\*A\*S\*H.

Outside of its success in casualty evacuations and cargo missions in the Korean War, the Bell 47 proved its civilian



Bell Helicopter contributed several iconic models to the civil fleet, as shown in this vintage Bell ad. | Bell Helicopter Textron Inc.

capabilities in agricultural and oil-field work. "It took more than 10 years to soundly establish a helicopter market," Young noted. "It wasn't until the Vietnam War that the helicopter really took off."

Larry Bell wasn't around to see that evolution. Resigning as company president in mid-September 1956, he passed away Oct. 20 of that year.

In Young's mind, his helicopter research was part of a larger plan. "I took up the helicopter program as an apprenticeship in how to do things," he said, "sort of a 'how does nature work' effort." Achieving type certification on the Bell 47 completed his work. He left Bell in 1947.

Young turned his attention to philosophy, parapsychology, and metaphysics. But he wasn't done with rotorcraft. In the 1960s, he fleshed out an old idea for a variable-diameter proprotor for a tiltrotor, a 25-ft. version of which was ground-tested at Bell's then-new headquarters in Fort Worth, Texas. Young died on May 30, 1995.

Kelley continued to carry the torch. Becoming Bell's chief helicopter engineer in 1947, he flew every helicopter model the company produced through his retirement in 1974. He was instrumental in designing and developing the UH-1 "Huey" and supervised development of the XV-3 convertiplane, the 206 JetRanger, and the XV-15 tiltrotor. At the time of his retirement, the American Helicopter Society (now the Vertical Flight Society) stated that two-thirds of all the world's helicopters had been designed by his department.

Kelley passed away on Dec. 17, 1998.

## STANLEY HILLER

### Designer of innovative, influential helicopter concepts.



Stanley Hiller Jr. was born Nov. 15, 1924, in San Francisco, California. His father, Stanley Hiller Sr., owned a shipping company and was an inventor and pilot who built his own aircraft in 1910. Hiller Jr. shared a passion for aviation and engineering

with his father, and the pair created a business to build aluminum parts for fighter aircraft during World War II.

At the age of just 15, Hiller Jr. designed and produced a working model of the world's first successful coaxial helicopter, with two rotors mounted on one mast, but turning in opposite directions. At 17, he founded Hiller Industries and presented his design for the XH-44 "Hiller-Copter," a coaxial helicopter that used metal rotor blades and a rigid rotor system, to the US Army in Washington, D.C. The army approved his presentation as well as a draft deferment during World War II. On Jul. 4, 1944, the 19-year-old Hiller tested the XH-44 at the University of California at Berkeley.

In 1945, Hiller Industries became United Helicopters through a partnership with industrialist Henry J.

Kaiser. Three years later, the company was renamed Hiller Helicopters, and then Hiller

Aircraft Co., becoming the fourth US helicopter company and the first to go into production without government funding. The company received a production certificate for its Model 360, a multipurpose light helicopter, in 1948.

Renamed the UH-12, that aircraft became the first helicopter to make a transcontinental flight from California to New York.

The company went on to manufacture more than 3,000 Hiller Model 360/UH-12 helicopters and numerous variants for commercial operators and militaries worldwide. Perhaps the most widely recognized version was the

OH-23 Raven, which was used as a military utility, observation, and medevac helicopter, beginning in French Indochina and the Korean War.

In 1964, Fairchild Aircraft acquired Hiller's company, changing the name to Fairchild Hiller, while Stanley Hiller remained on the board of directors as executive vice president. In 1966, Hiller left the company and started a new business, the Hiller Investment Co., using his management skills and techniques to become a turnaround specialist helping struggling companies improve their productivity, market share, and profits. In 1998, he founded the Hiller Aviation Museum at San Carlos Airport (KSQL) in San Carlos, California.

In 1944, Hiller became the youngest recipient of the Fawcett Aviation Award. He was also a charter member of the American Helicopter Society (now the Vertical Flight Society), receiving the organization's Alexander Klemin Award in 1991. In 2002, he received the National Air and Space Museum Trophy (now the Michael Collins Trophy) for lifetime achievement. The following year, Helicopter Foundation International awarded Hiller its Heritage Award. Hiller died on Apr. 20, 2006.



Hiller Aviation Group Hiller UH-12E | Mark Bennett Photo

## ANTON FLETTNER

### Inventor of the intermeshing-rotors design.



Library of Congress, Prints & Photographs Division, LC-DIG-ggbain-37770

Born in Germany in 1885, Anton Flettner was a prolific inventor who contributed to armoredvehicle, automotive, aviation, and marine technology. While working for the German military during World War I, his efforts on remotely controlled air, land, and marine vehicles led to the servo tab, or trim tab, which is

used on many airplanes to this day.

In the 1920s, he developed the Flettner rotor, a vertical cylinder that harnesses wind to create horizontal lift to propel and steer a ship. (These types of ships are still sailing today.) This spurred development of the Flettner ventilator. Today, that ventilator aerates hundreds of thousands of boats, buildings, buses, delivery trucks, fire engines, and trains.

Royalties from trim tabs and ventilators built a fortune that funded Flettner's pursuit of his vision: a vertical lift aircraft with an extended service life.

A drawback of the helicopter's design was gearboxes that required overhauling after a few hundred hours. Flettner, however, believed that service intervals could be increased to thousands of hours by reducing the gearbox load. His solution: intermeshing rotors, offset from the vertical mast and driven by a single gearbox to lessen gear loading, without tail-rotor torque control.

The Fl 184, an autogyro with cyclic pitch control that Flettner designed, first flew in 1935, and the intermeshing Fl 265 took to the air in 1939, months before Sikorsky's VS-300 took flight.

Flettner kept improving on his designs and two years later the Fl 265 transitioned from autorotation back to helicopter flight—a significant achievement at the time. In 1955, Flettner told Aviation Week that that functionality "established the helicopter as a practical aircraft."

Flettner's Fl 282 Kolibri (Hummingbird), an improved version of the Fl 265, had its first flight in 1941 and was flown by the German Navy and Air Force, marking the first military use of a helicopter.

Flettner's intermeshing-rotors design is still in use today, as it is the foundation for several of Kaman's products, including the HH-43 Huskie and the K-Max.



Mountain Bladerunner Kaman K-Max | Mark Bennett Photo

Flettner came to the United States in 1947 as part of Operation Paperclip, a postwar program that brought German scientists, engineers, and technicians to the United States to consult for the US military. In 1949, he set up Flettner Aircraft Corp. in Queens, New York, where he conducted research for the US military.

He died on Dec. 29, 1961.

## JIM RICKLEFS

### HAI's first president and one of the first commercial helicopter operators.

Born on Mar. 9, 1914, in Monticello, Iowa, James Ricklefs learned to fly airplanes in 1933 while studying at Stanford University in California. After graduating, he spent a couple of years working for an investment firm before attending West Coast University in Southern California, where he earned a bachelor's degree in aeronautical engineering. The experience, he said in an interview with HAI in 2007, "basically started me on my career in aviation."

After working as an engineer and teacher, Ricklefs became the VP of Landgraf Helicopter Co. in 1944. Soon after his first solo helicopter flight in 1947, he left Landgraf and purchased a pair of Bell 47s and founded Rick Helicopters. He also went on to establish Alaska Helicopters.

At one point during the early 1950s, Rick Helicopters was one of the largest commercial operators of helicopters in the world. The company's fleet of 40 helicopters was bigger than those of the US Navy, US Marine Corps, and US Air Force—only the US Army fleet was larger.

Ricklefs's companies helped establish many operational standards for helicopters, including pilot protocols, cold-weather maintenance procedures, how to work with sling-load technology, and flight safety. It was



only natural, then, that Ricklefs would be 1 of 16 operators who, on Dec. 13, 1948, met at the offices of AF Helicopters in Burbank, California, to form a helicopter association for the collective benefit of the vertical aviation industry.

The group initially chose the name of Helicopter Council but changed it the following year to the California Helicopter Association, and then, in 1951, to the Helicopter Association of America

(HAA). Ricklefs served as the first president of the organization that today is known as HAI.

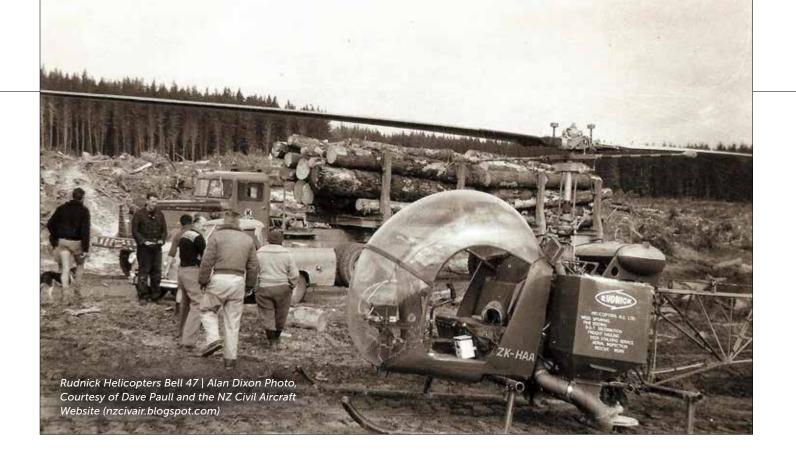
When asked about the group he helped form, Ricklefs marveled at how far the association had come over the years. "At our organizational meeting in Los Angeles, there were [about] 12 of us around the table, and so it always boggles my mind when I come to one of the HAI annual meetings and see something like 17,000 people there," he told HAI in 2007.

Ricklefs was also an avid restorer of classic aircraft—both fixed- and rotary-wing. Among those he restored were a Sikorsky R-4B, Sikorsky R-6As, Hiller ROE Rotorcycles, several Fairchild fixed-wing aircraft, and two World War I—era aircraft.

Ricklefs died on Nov. 11, 2015, at the age of 101.



Rick Helicopters and Alaska Helicopters Bell 47s | Photo Courtesy Jim Ricklefs



# **ELYNOR RUDNICK**

### HAI's first female president.

Elynor H. "Johnnie" Rudnick was born on Apr. 2, 1923, the fifth of 11 children raised by immigrant parents on a cattle ranch in Bakersfield, California. As Elynor grew up, she knew she wanted to pursue higher education, but her father refused to support her dream. To follow her ambition, Rudnick got a job on an assembly line at Douglas Aircraft in Los Angeles to pay for her tuition at the University of California, Los Angeles (UCLA). Through the job, building military aircraft, and taking courses in aviation maintenance at UCLA, Rudnick discovered her passion for aviation.

During her studies, Rudnick decided she wanted to apply for the Women Airforce Service Pilots (WASPs), a civilian corps of pilots that delivered aircraft and cargo during World War II. Because of her age, she couldn't join the WASPs without her parents' approval. While her father was once again resistant, her mother ultimately signed the application, and she was able to attend flight school, earning her pilot's license. By the time Rudnick completed flight school, however, World War II was ending, and the WASPs were disbanded before she could join.

Soon after, Rudnick and two of her brothers combined their



resources to purchase an air strip: the Bakersfield Airpark. The week of the airport's opening in 1945, the Bakersfield Californian wrote that Rudnick "represents feminine initiative in aviation development and has the courage to match her dreams."

Rudnick went on to become one of the world's first female helicopter pilots. She continued to build an impressive resume, serving as president of one of the first helicopter companies in the world, Kern Copters in Bakersfield, as well as

Rudnick Helicopters in New Zealand. In addition, she founded a flight school at Bakersfield Airpark in 1948. That same year, she trained a group of fighter pilots who would become the first Israeli Air Force.

Her dedication to the vertical aviation industry led Rudnick to join with 15 other helicopter professionals in 1948 to establish the Helicopter Council, which in 1951 became the Helicopter Association of America (HAA), HAI's predecessor. In 1955, Rudnick became HAA's first female president. She was also a member of the Ninety-Nines, the International Organization of Women Pilots. She died on May 25, 1996, at age 73.

## FRANK PIASECKI

### Pioneer of the tandem-rotor helicopter.

Born Oct. 24, 1919, in Philadelphia, Pennsylvania, to Polish immigrants, Frank Piasecki was fascinated at an early age with aviation technology. His career started in high school, working for an autogyro manufacturer. He later studied mechanical engineering at the University of Pennsylvania before graduating with a bachelor's degree from New York University's Guggenheim School of Aeronautics in 1940.

While still in college, Piasecki founded P-V Engineering Forum with a former Penn classmate, Harold Venzie. The company designed the PV-2, a single-seat, single-rotor helicopter that, on Apr. 11, 1943, became the second helicopter to fly in the United States (the first was the Igor Sikorsky—designed Vought-Sikorsky VS-300, which took flight in 1940). Piasecki was also the first person to obtain a US helicopter pilot's license without already possessing an airplane rating.

The PV-2 impressed the US Navy enough to win Piasecki a development contract in 1945 to design a large tandem-rotor helicopter capable of carrying heavy loads. The result was the HRP-1, nicknamed the "Flying Banana," the first tandem-rotor helicopter and the first helicopter designed for the US Navy. Piasecki's tandem-rotor design was the basis of many present-day rotorcraft, including the CH-47 Chinook.

Forum changed its name to Piasecki Helicopter Corp., which was bought by Boeing in 1960. Piasecki left the company in 1955 to form

In 1946, P-V Engineering



the company in 1955 to form Piasecki Aircraft Corp. in Philadelphia. He continued to advance vertical aviation with the development of the Airgeep flying car in 1958, as well as the world's first quadcopter drone, the Sea Bat.

From 1961 to 1966, Piasecki designed the first shaft-driven, high-speed compound helicopter, the 16H-1 Pathfinder. During the 1970s and 1980s, he developed and flew the world's largest vertical takeoff and landing (VTOL) aircraft, the PA-97 Helistat. In later years, Piasecki oversaw the resurgence of compound-helicopter technology with the successful test flight of the X-49A SpeedHawk, ushering in a period of VTOL innovation with the US Department of Defense's Future Vertical Lift (FVL) program. Frank's sons, John and Fred, are continuing their father's legacy at Piasecki Aircraft by working to develop a hydrogen-powered compound helicopter, the PA-890.

During his career, Piasecki obtained more than 20 patents and received numerous awards, honors, and

memberships, including being named a fellow of the Institute of Aeronautical Sciences and an honorary fellow of the American Helicopter Society (now the Vertical Flight Society), of which he was a founding member. He also received the Helicopter Foundation International (HFI) Heritage Hall of Fame Award. In 1986, then—US President Ronald Reagan awarded Piasecki the National Medal of Technology and Innovation. Piasecki was inducted into the National Aviation Hall of Fame in Dayton, Ohio, in 2002. He died on Feb. 11, 2008, at age 88.



#### HOWARD HUGHES

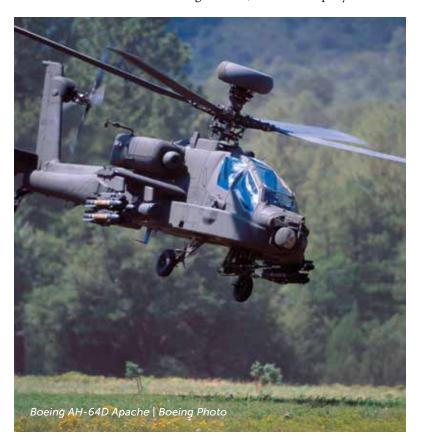
#### Developer of successful military, civil helicopters.

A teenage pilot from Texas who inherited an oil-drilling fortune, Howard Hughes Jr. became a billionaire with a wide-ranging business empire including aerospace companies that fielded cutting-edge technologies in fixed-wing aircraft, avionics, missiles, radar, satellites, deepspace exploration—and helicopters.

Born in Houston on Christmas Eve 1905, Hughes was flying by the age of 14, quickly gaining a reputation as a skilled

pilot. His father, Howard Hughes Sr., had developed a rotary bit for drilling oil wells, making a fortune in the process. After his father's death in 1924, Hughes, at age 19, took over Hughes Tool Co.

In 1932, Hughes founded Hughes Aircraft Co. as a division of Hughes Tool, and the company became a





major aerospace and defense contractor. An avid pilot, Hughes set numerous speed records during the 1930s and garnered many awards, including a US Congressional Gold Medal "for advancing the science of aviation."

During World War II, Hughes developed several military airplanes. Most failed. He then shifted his attention to rotorcraft. In 1948, he bought Kellett Autogiro Corp.'s XH-17 design. Flown in

October 1952, the world's largest helicopter at the time was designed to carry 10,284 lb. 30 miles, but the military wasn't interested.

Three years later, Hughes merged his companies to form Hughes Tool Co. Aircraft Division to focus on light helicopters. Its first product, the two-seat, piston-engine Model 269 received FAA certification in 1959 and was delivered to commercial operators starting in late 1961. The Model 269 achieved great success in civil helicopter markets, as did the three-seat Model 300.

Beginning in 1964, a modified version of the Hughes 269 would become the US Army's primary trainer as the TH-55 Osage. By 1988, the TH-55 had helped train more than 60,000 US Army aviators.

Hughes's company also developed the egg-shaped Model 369, which won a 1965 US Army contract for a light observation helicopter and was produced for the military as the OH-6 Cayuse. The success of the Cayuse led to the production of its civil variant, the Hughes 500.

Hughes died on Apr. 5, 1976, but his legacy in rotorcraft survives. That same year, the US Army selected the Hughes Tool Co. Aircraft Division (later Hughes Helicopters) Model 77/YAH-64 as its new attack helicopter. The aircraft that became the AH-64 Apache remains a pillar of US Army aviation.

Hughes Helicopter was bought by McDonnell Douglas in 1984, later merging with Boeing, which still produces the Apache. Versions of the Hughes 500 series are now produced by MD Helicopters.

#### **BOB SUGGS**

#### Creator of the helicopter offshore transport and support sector.



Before he helped found Petroleum Helicopters Inc. (PHI) in 1949, Robert L. "Bob" Suggs already knew a lot about the oil business. He had earned a master's degree in electrical engineering from the California Institute of Technology in 1933 and then spent four

years working as a geophysicist for Humble Oil and Refining Co. in East Asia, searching for oil.

Suggs returned to East Asia during World War II, serving with the US Army Air Corps as a colonel. In the war's late years, he was assistant chief of staff of the China Burma India Theater's Eastern Air Command, where he undoubtedly learned about the first Sikorsky R-4 rescues flown in Myanmar, then known as Burma.

After the war, in 1946, Suggs partnered with New Orleans native and lawyer Maurice Bayon to form Offshore Navigation Inc. The company provided radio-positioning services to petroleum industry companies from a houseboat.

Jack Lee, president of a seismographic company and an early convert to the technology, cofounded PHI with Suggs and Bayon in Lafayette, Louisiana, three years later with three Bell 47 helicopters.

Over the next 40 years, with Suggs as CEO, PHI helped create the commercial rotary-wing transportation sector.

The company was the

first commercial helicopter operator authorized by the FAA to conduct an instrument flight rules (IFR) off-airways flight in the Gulf of Mexico. PHI pioneered the concept of basing helicopters offshore, becoming the first designer and builder of helicopter refueling facilities on offshore rigs.

The company also established offshore flight-route structures, communications and weather services, and navigation techniques and procedures. Along the way, it became a critical evaluator of new helicopter models, technologies, and procedures for airframe, engine, and component OEMs.

Suggs, who in 1961 served as president of HAI, then known as the Helicopter Association of America, died on Sep. 4, 1989, at age 77. At the time, PHI was the largest, most experienced commercial helicopter operator in the world. Its more than 2,300 employees flew 300-plus helicopters in offshore support, air medical transportation, and other missions, from Alaska to Zaire.

His wife, Carroll Suggs, became PHI's chair and majority shareholder after his death. In 2008, she sold her family's stake to Louisiana businessman Al Gonsoulin. PHI continues to be a global provider of helicopter services.

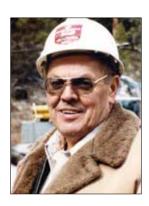


#### WES LEMATTA

#### Pioneer of heavy-lift helicopter operations.

Glenn Wesley "Wes" Lematta's goal of flying aircraft originated in a muddy foxhole in the Philippines during the waning days of World War II. After the war, he returned to his family in Washington State, where he acquired his pilot's license between stints working as a longshoreman and driving vegetable trucks.

During one drive, he heard a story on the radio about the need for helicopter





Columbia Helicopters Model 234 UT | Columbia Helicopters Photo

pilots. After Wes talked it over with his family, his older brother, Ed, sold his gas station to help buy a used Hiller UH-12B. Despite having only one aircraft, in 1957 Wes formed Columbia Helicopters, with great aspirations for both his company and himself.

Columbia started out selling helicopter rides from street corners and at county fairs. Nearly six months later, Wes's dramatic rescue of 17 sailors off the Oregon Coast gave him the exposure needed to expand his fledgling business.

One day, during a power-pole project, Wes used

the dual flight instructor controls so that he could fly the helicopter from the left seat, allowing him to see the load below the aircraft. The technique, known as direct visual operational control (DVOC), remains an industry standard in the utility sector today.

In the early to mid-1960s, Wes and his brothers Ed, Bill, and Jim acquired a Sikorsky S-61A, the first large helicopter purchased for the sole purpose of conducting external-lift operations, therein creating the heavy-lift helicopter sector. The Lemattas used the S-61A for firefighting and construction work and created another industry standard, the bubble window for utility pilots, after youngest brother Jim almost experienced hypothermia while placing towers at high altitudes in Colorado.

In the late 1960s and early 1970s, Wes began to acquire the tandem-rotor Boeing-Vertol 107-II helicopters that became synonymous with Columbia Helicopters. He also provided a helicopter for lumber company owner Jack Erickson, and the two developed the first financially successful helicopter-logging process. The

partners later split, and Erickson eventually built his own company using Sikorsky Skycranes. In the 1980s, Wes and his brothers expanded their fleet of Boeing-Vertols and added the much larger Boeing Chinook.

With just an eighth-grade education, Wes, who died on Dec. 24, 2009, at age 82, made his expansive business vision a reality by hiring the best people he could find and letting them do their jobs. Today, his company remains one of the largest, most respected heavy-lift helicopter operators, conducting missions around the world.

#### ELLING B. HALVORSON

#### Father of the helicopter tour sector.

Elling B. Halvorson was born in St. Paul, Minnesota, on Jan. 2, 1932. After high school, Halvorson attended college in Iowa and Idaho before graduating from Willamette University in Salem, Oregon, with a degree in economics and a minor in engineering. Following in his father's footsteps, he owned a construction company that specialized in geographically remote and difficult projects.

In 1960, for one particularly challenging project for the American Telephone and Telegraph Co. (AT&T), Halvorson bought his first helicopter, a Bell 47G-3B-1, to transport workers and construction materials up and down the Sierra Nevada mountains.

Another project brought Halvorson and his team to the Grand Canyon in Arizona. The company used their helicopter fleet to build an underground, 13.5-mile water pipeline connecting the North Rim with the South Rim of the canyon. During construction, Halvorson flew many guests, material suppliers, and engineers into the canyon. The scenery was so captivating that workers began to request helicopter flights during their off-hours.

Halvorson recognized the opportunity and created a helicopter tour business in 1965 known as Grand Canyon Helicopters, which he

renamed Papillon (French for "butterfly") Grand Canyon Helicopters in 1990.

A pioneer in advancing quiet technology for helicopter tours, he developed the Whisper Jet helicopter, a modified version of the S-55 that included a muffler using passive noise cancellation to reduce sound. In addition, Halvorson was a strong advocate for safety, co-founding in 1986 the Tour Operators Program of Safety (TOPS), a group that develops operating standards and best practices for its members.

Halvorson, who died on Apr. 16, 2020, at the age of 88, served two terms as chair of HAI's Board of Directors and was active in several other organizations, including the National Business Aviation Association, American Helicopter Society (now Vertical Flight Society), National Parks

Overflights Advisory Group, and US Travel Association. In 2016, he was inducted into the Vertical Flight Hall of Fame.

Still led by the Halvorson family, Papillon Grand Canyon Helicopters is the world's oldest and largest sightseeing company, flying an estimated 600,000 passengers each year on tours of the Grand Canyon and beyond.



Papillon Grand Canyon Helicopters Airbus H130s | Mike Reyno Photo

#### **ALAN BRISTOW**

#### Founder of one of the world's largest helicopter operations.

Born Sep. 3, 1923, in Balham, South London, England, Alan Bristow later moved to Bermuda, where his father managed the Royal Naval Dockyard, and then to Portsmouth, England. As World War II began, he joined the British India Steam Navigation Co. as a deck officer cadet at the age of 16.

In 1943, after having been aboard two ships sunk by Japanese and German forces, Bristow enlisted with the Fleet Air Arm—the naval aviation component of the UK Royal Navy—to train as a pilot. The following



Bristow Helicopters Sikorsky S-92 | © Lockheed Martin Corporation. All rights reserved.

year, he was sent to Floyd Bennett Field in Brooklyn, New York, where he learned to fly the Sikorsky R-4, the first large-scale mass-produced helicopter. In 1946, he became the first British pilot to land a helicopter on the deck of a naval frigate at sea.

Bristow was hired as the first helicopter test pilot for Westland Aircraft in 1947. He flew and later sold helicopters for the company and used his earnings to



set up his own business, Air Whaling Ltd., which used helicopters to spot whales in the Antarctic region.

While in French Indochina in the late 1940s, trying to persuade the French Air Force to buy Hiller helicopters for air ambulance work, Bristow rescued a group of French soldiers under mortar fire using one of his own helicopters. For his bravery, he was awarded the Croix de Guerre.

He formed Bristow Helicopters Ltd. in 1955 after receiving a Shell Oil Co. contract to supply helicopter crews to support rigs in the Persian Gulf. Over the next 30 years, Bristow expanded his business worldwide, providing services in the North Sea, Middle East, South America, Africa, Asia, India, Bermuda, Trinidad, Australia, and New Zealand. Bristow Helicopters grew to become one of the largest civilian helicopter companies in the world. In addition to supporting offshore energy production, Bristow Helicopters offers a wide range of services to governments and civil clients, including search and rescue, training, maintenance and repair, and multimission operations and support.

During his lifetime, Bristow received many awards and honors, including the Order of the British Empire (OBE) in 1966 for his contributions to aviation and the Royal Aeronautical Society's Silver Medal. He was elected a fellow of the Royal Aeronautical Society in 1967. Bristow died on Apr. 26, 2009, at age 85.

#### ROY MORGAN

#### Helicopter air ambulance innovator.

Roy Morgan was born in Monte Vista, Colorado, on Sep. 16, 1935, in the midst of the Great Depression. His early years were difficult. "By the time I was nine years old," he told HAI in a 2016 interview, "I found out that if you are hungry, you had better get a job." As a freshman in high school, he was living on his own, supporting himself with jobs at a grocery store, as a bus driver, and working part-time for Dow Chemical in the company's oil fields.

After graduating from high school, Morgan moved to Torrington, Wyoming, to work on an oil rig next to an airport. While there, he bought his first aircraft—a Piper J-3 Cub—for \$750 with no money down, a purchase that included flying lessons. His first solo flight took place on Jul. 17, 1955.



Air Methods - Mercy Air Airbus Eurocopter EC135 | @MarkMennie

Over the next 15 years, Morgan worked for Boeing, General Dynamics, and Key Aviation. His first solo helicopter flight took place on Mar. 17, 1965, in a Hughes 300.

During a shift as an on-call charter pilot, Morgan responded to a car accident in a remote part of Utah and rescued two people. "I swore if I could ever be involved with a first-class medical team in an aircraft

with the best medical equipment available, that is what I wanted to do," he told HAI.

By the time he left Key Aviation in 1969, Morgan



Over the next 11 years, Morgan worked for Public Service Corp. on power-line construction, patrol, and line-maintenance operations, flying as many as 1,000 hours a year. But he was drawn to the public benefits of medical helicopter service. So, in 1980, Morgan

founded Air Methods Corp. To raise the money to buy a helicopter and start the business, he mortgaged his home, emptied his bank account, and "sold everything we could do without," he said. The company, which was acquired by American Securities in 2017, today operates a fleet of more than 450 helicopters and fixed-wing aircraft with a staff of over 5,000 people, conducting more than 100,000 transports a year in 49 states.

Morgan was inducted into the Vertical Flight Hall of Fame in 2013 and the Colorado Aviation Hall of Fame in 2014, and he also received

the Living Legends of Aviation Award in 2014. Morgan has accumulated more than 12,000 hours flying helicopters.

When asked for his advice for the next generation interested in becoming helicopter pilots and maintenance professionals, particularly in air medical operations, Morgan told HAI, "Impossible isn't, if you do not know it is impossible."

#### FRANK ROBINSON

Designer of the world's best-selling general-aviation helicopter, the R44.



Frank Robinson, the son of a coal miner and a homemaker, was the youngest of four children. After reading about Igor Sikorsky hovering his VS-300 in 1939, the then-9-year-old Robinson's course was set. The idea of a machine flying in

place gripped him for life.

Raised on Whidbey Island, Washington, Robinson was bored by school, often leaving to work on US Merchant Marine ships in Alaska. A math teacher who saw his engineering potential convinced Robinson to visit the University of Washington, where he was accepted.

But with tuition unaffordable, Robinson enlisted with the US Army during the Korean War. After being honorably discharged, he returned to the University of Washington with the help of the GI Bill. Graduating in 1957 with a bachelor's degree in mechanical engineering, he studied graduate aeronautics at the University of Wichita (Kansas).

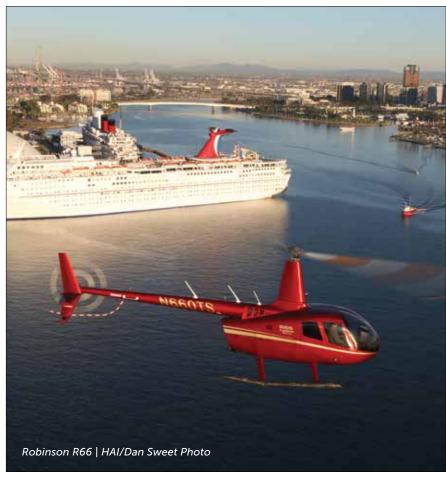
Early in his aviation career, Robinson worked at Cessna (on the CH-1), Umbaugh (on its gyroplane), McCulloch Motors (on inexpensive-rotorcraft design studies), Kaman (on gyrodynes), Bell (earning a tail-rotor expert's reputation), and Hughes (on projects including a quiet helicopter).

Unable to pitch a small, low-cost helicopter, the single father of three quit his job in 1973, mortgaged his Palos Verdes, California, home, and founded Robinson Helicopter Co. The shop? His garage. Corporate office? The living room.

Robinson's two-seat R22 was FAA-certificated in 1979 and the four-seat R44 in 1992 (the later Newscopter, Police, and fuel-injected versions

extended the line). The five-seat R66 Turbine gained certification in 2010. In its 50 years, the company has delivered more than 13,000 helicopters worldwide and continues to be a sales leader.

An honorary lifetime HAI member, Frank Robinson retired in 2010, leaving his son, Kurt, to assume the role of president and chairman of the company. Frank died on Nov. 12, 2022. His many honors include the 2012 American Institute of Aeronautics and Astronautics Daniel Guggenheim Medal, considered among the greatest honors for a lifetime of aeronautics work. He received the award "for conception, design, and manufacture of a family of quiet, affordable, reliable, and versatile helicopters."



**CW3 Jimmy Splichel** always emphasized the importance of keeping your "energy up" during autorotations or engine failures to land safely. Years later, I had to do a "for real, not practice" auto to the ground, and his teaching saved my life. Thanks, Jimmy!

– Harold Coghlan



Andy Aastad taught me that your central function was to remove any legitimate obstacles that prevented your staff from succeeding. Do that and they'll grow.

– Lou Bartolotta

**Carl Brady** taught me persistence—keep going until you make it happen the right way!

- Chuck Johnson

**Eber Wright** taught me "ol' school" flight, based on safety, planning, and continuous training over and over again.

- G. Leigh Foti II

Randy Rowles taught me this: fly the helicopter, and don't let the helicopter fly you.

- Frank Peck

From Frank Jensen,

I learned that HAI belongs to, speaks for, and takes no positions that are not grounded in the interests of HAI operator members.

- Joseph Corrao

**Vincent V. Colicci** told me, "Listen to the whispers to prevent the screams."

- Gregory A. Gouvin

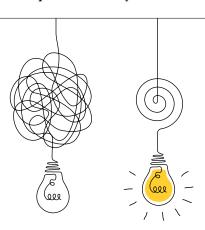


After I initially turned down an IFR course, **Jerry Fouts** from Condor Helicopters taught me to never pass up an opportunity to grow and learn. That resulted in me never passing up additional training and being able to be a Part 135 IFR check pilot for 38 consecutive years.

- Eugene Hill

When I was allowing my aircraft to drift, the exact words of **William Lionberger** were, "This thing will kill you!"

- Stephen S. Gormley



#### Robert C. (Bob) Burr Sr.

taught me it is better to seek solutions than to just identify problems.

- Jim Malarsie

**Pete Verrault** told me to "follow the book (flight manual, general operations manual, etc.) every time."

- Erik Thresher

**Richard Dillbeck** taught me to get back to basics, to the standards, and don't be focused merely on the dollar.

- Russell Goulden

My father taught me valuable decision-making. For example, when things get bad—stop. Better to be stranded on a beach than push on and die. These lessons have served me and my passengers well for over 30 years of flying.

- Anonymous



**Cliff Berry** instilled in me that learning is a lifelong process. Never stop!

- Steve Meeks

**Joe Mashman** taught me to prepare for the unexpected—all of the time.

- Pete Jensen

J Cullen (Cully)
Weadock taught me
to be humble and
learn to listen.

- Bruce Stoehr



**Barney Stutsman** shared with me many longline tips, especially, "If it were easy, everyone would do it."

- Dennis Beattie

**Roger Bauer** always said the best spot to land could be behind you.

- Mark Robinson

**Les Batman** taught me that the best lessons are often the hardest ones and to never give up.

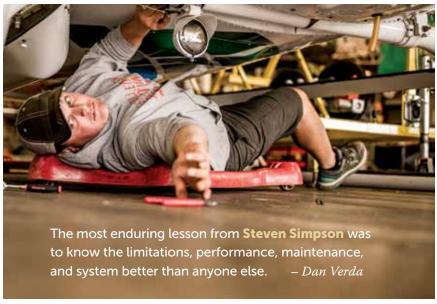
– David Brigham

**Bruce Webb** would tell me, "Festina lente (make haste slowly)." I used to have a tendency to want to get things done quickly. Now this phrase embodies how I operate and teach my students.

- Philipp Carl

**Verne Comstock** taught me to never give up when pursuing one's goals. I thank him for facilitating what became an exciting 50-year career flying both military and civil helicopters.

– John Michael Harris





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# REFLECTIONS

What unites us? Our passion for vertical flight.

The vertical aviation industry is more than the aircraft we fly or even what we do with those aircraft (although, to be clear, we LOVE our aircraft and what they can do). What makes our industry unique are the people who build, operate, fix, fly, and supply those aircraft—and their passion for vertical flight and dedication to doing it right. Here are some HAI members who shared their thoughts about being part of HAI and the industry it has served for 75 years.

#### THE FAMILY BUSINESS

Aviation companies are often family affairs. Once you've seen what Mom and Dad do every day, why settle for less?

#### **Andre and Kim Hutchings**

Andre and Kim Hutchings own and operate Volo Mission, a company that provides training, consulting, and advisory services to the longline and aerial firefighting industry.

**66** HAI continues to serve the industry and promote education in a way that benefits us all. We appreciate all you do and congratulate HAI on 75 years.

- Andre and Kim Hutchings





#### John and Martha King

John and Martha King are two of the most recognized experts in flight instruction. Their courses have helped millions of pilots worldwide learn to fly—more than any other instructors in history.

66 If it weren't for HAI's work with the FAA and various communities, we wouldn't have rotor flying as we know it today. HAI is a strong advocate in the educational environment for improvement in rotorcraft safety practices and a strong defender in the regulatory sphere for the flexibility and freedom of rotorcraft flight.

- John and Martha King

#### The Piasecki Family





Frank Piasecki started his first aviation company while still in college in the early 1940s. His passion and drive created a family legacy of

rotorcraft innovation now being carried on by two of his sons. John (left), president and CEO of Piasecki Aircraft, and Fred (right), the company's chairman and chief technology officer, are pioneering another innovation: the hydrogen-powered helicopter.

I remember Dad talking to me about his career and telling me what a special gift it was to have the opportunity to create something new: understanding a problem, developing innovative solutions to solve it, and proving those solutions in flight. You cannot fake flight. You either break the 'surly bonds of Earth' or you don't. - John Piasecki

#### The Robinson Family

Frank Robinson founded the Robinson Helicopter Company in 1973, developing first the R22 and then the R44—the bestselling general-aviation helicopter in the world. Frank retired in 2010 after design of the Robinson R66 Turbine was completed. His son Kurt now serves as company president and chairman.

**My fondest memories in the helicopter industry are from** going to HAI HELI-EXPO and seeing all of the other helicopters and learning about the industry as a whole, not just the microcosm of our own company. - Kurt Robinson



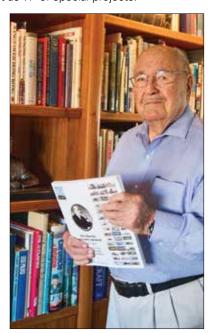


#### The Sikorsky Family

In 1940, aeronautical designer Igor Sikorsky added the first practical helicopter, the Vought-Sikorsky VS-300, to his already substantial list of sucessful designs, including the first fourengine airplane and the S-42 flying boat. His son Sergei grew up immersed in aviation and recalled helping out at the hangar during the design of the VS-300. While serving in the US Coast Guard, Sergei took part in some of the first hoist rescue demonstrations. He joined United Aircraft in 1951 and retired in 1992 from Sikorsky Aircraft as VP of special projects.

**Growing up in the** Sikorsky household was exciting. It was wonderful, especially if you loved aviation as I did. I think my love for aviation started by simply watching and listening as Father talked shop with his cohorts.

- Sergei Sikorsky



#### THE EDUCATORS

No one is born knowing how to hover or track and balance a rotor blade, so our educators are essential and the need to maintain and improve skills never goes away.

#### **Scott Burgess**



Scott Burgess, PhD, is chief of operations at the Embry-Riddle Aeronautical University-Worldwide (ERAU-Worldwide) Department of Flight. Burgess has 40 years of aviation experience in the civil and military sectors, with expertise in rotorcraft safety and flight operations and uncrewed aircraft systems (UAS)

operations. He has served on HAI's UAS Working Group for nearly a decade and was UAS Special Advisor to HAI Board of Directors in 2020-21.

ff The next generation will need to be flexible in a changing industry that will include more autonomy and complex systems with integrations between crewed and uncrewed operations in the same space. - Scott Burgess, PhD

#### **Michael** Mower

Michael Mower, executive director and chief flight instructor for the aviation program at Southern Utah University (SUU), started that school's aviation program in



2013 with a small staff and 30 students. Under his leadership, the program has grown to 75 instructors, 25 aviation maintenance technicians, 30 administrators, and 1,000 students.

66 As HAI celebrates its 75th anniversary, it is essential to note the organization's role in every sector of our industry—advocacy, safety, education and training, and industry outreach. These efforts help raise awareness about helicopters, their role in society, and the importance of aviation education.

- Michael Mower

#### **Terry Palmer**



A senior consultant for aviation training, Terry Palmer most recently managed training programs for the Airborne Public Safety Association (APSA) and served as APSA representative on the FAA's UAS **Detection and Mitigation Systems** Aviation Rulemaking Committee. She chairs HAI's Training Working Group and is a member of the HAI Safety Working

Group, serves on the board of the Commission on Accreditation of Medical Transport Systems, and speaks on training and safety at industry events.

**66** As HAI turns 75, safety and training for members of both crewed and uncrewed vertical flight operations should remain priorities. - Terry Palmer

#### Wesley Van Dell

A full-time flight instructor since 2007, Wesley Van Dell has served as chief flight instructor-rotorcraft at University of North Dakota (UND) Aerospace since 2017. He is a member of the UND Aerospace Safety Council and safety management system implementation team.

**66** The next generation is far more creative and adaptable than what I've seen before. This is especially true when it comes to evolving technology. The students often teach me a thing or two about how to make our job easier as pilots!

- Wesley Van Dell



#### **Bruce Webb**



After serving as chief pilot for Airbus Helicopters Inc. for 16 years, Bruce Webb became the company's director of aviation education and community outreach in 2016, where he works to improve industry safety.

66 HAI remains a bellwether! You continue to advocate for our entire industry in a proactive, methodical,

and impactful way. - Bruce Webb

#### THE GLOBAL CITIZENS

Our industry is a global one that finds in HAI a place to gather, connect, and collaborate.

#### **Arvind Butola**

Arvind Butola, a retired Indian Air Force air marshal, became president of the Rotary Wing Society of India in 2021. He has served across India and abroad and has 7.000 hours of incident-free flying in 24 different types of aircraft and helicopters.



ff In today's globalized world, getting all stakeholders together globally, though difficult, will do the helicopter industry good. - Arvind Butola



#### **Tim Fauchon**

Tim Fauchon is CEO of the British Helicopter Association and also serves as a director on the board of the General Aviation Awareness Council.

**66** Congrats on the 75th, and keep up the good work. - Tim Fauchon



#### **Thierry Couderc**

Thierry Couderc is the vice chairman of the European Helicopter Association. He also has served as executive director and administrator of the French Helicopter Association since 2007.

ff The 75th anniversary of HAI is a perfect occasion to enhance HAI's global outreach and to coordinate promotion of the helicopter industry and air safety with other international vertical flight organizations before the International Civil Aviation Organization.

- Thierry Couderc

#### **Gretchen Haskins**

Gretchen Haskins was the CEO of HeliOffshore, an organization focused on improving safety in offshore helicopter operations, from 2014 to 2020 and now serves on its board of directors. She is an aviation industry leader in safety performance improvement and an internationally recognized expert in human factors.



66 HAI has done an amazing job of creating a forum for the global helicopter industry to come together in the past 75 years. Their role in attracting and developing diverse talent is crucial to meeting our future ambitions. - Gretchen Haskins

#### Loreto Moraga



Loreto Moraga, a lawyer specializing in aviation and space law, has been president of the Chilean Helicopter Association since 2017 and of the Chilean Space Association since 2021.

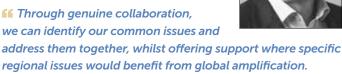
ff From all corners of the world, and from Chile especially as the only helicopter association in Latin America that integrates this network, we want

to join the efforts of HAI and contribute to the sustainable development of vertical aviation for the long term.

- Loreto Moraga

#### Tim Rolfe

Tim Rolfe is CEO of HeliOffshore and was a founding member of the organization. He had a 30-year career at Bristow Helicopters as a helicopter pilot in offshore, search-and-rescue, military support, and VIP operations.



– Tim Rolfe



#### Sanjeeth Sewgolam

Sanjeeth Sewgolam is the president of the Helicopter Association of South Africa. In addition, he is the aviation safety manager at Airbus Helicopters Southern Africa and has been in the aviation industry for more than 20 years.

Great job, HAI, and continue the good work that is being carried out. My interaction with HAI has been fantastic thus far.

- Sanjeeth Sewgolam

#### **David Solar**



David Solar is head of the general aviation and vertical takeoff and landing department at the European Union Aviation Safety Agency.

ff This is a great anniversary and a significant achievement for an association. The next 25 years will be more challenging, with the pursuit of more sustainable aviation practices,

potential new entrants in the vertical flight market, and technological changes. - David Solar

#### THE WIDE WORLD OF **VERTICAL AVIATION**

Pilots, engineers, safety professionals, journalists, attorneys, veterans—we sometimes forget the many hands that it takes to keep the vertical aviation industry moving forward.



#### **Alex Atukwatse**

Alex Atukwatse is an aviation maintenance technician at the Ministry of Internal Affairs, Republic of Uganda. He was awarded an HAI scholarship in 2022 and used it to further his education, taking a training course at FlightSafety International in Dallas, Texas.

Wertical aviation feels like it will be a fresh industry, more welcoming, inclusive, and sustainable. I can't wait to live to this reality! - Alex Atukwatse

#### Krisna Dewi



Krisna Dewi is the commercial manager of Heli SGI in Bali, Indonesia, who received HAI's Salute to Excellence Safety Award in 2020.

HAI provides invaluable support to our employees by offering access to essential information, data, and training opportunities. This continuous learning and development have been

instrumental in improving our workforce's capabilities and enhancing our overall performance. - Krisna Dewi

#### Jeanette Eaton

Jeanette Eaton is a former regional VP at Sikorsky, a Lockheed Martin company. She began in vertical aviation more than 35 years ago as an electrical engineer with Sikorsky, where she spent the majority of her career, advancing to VP of business development. A commercial helicopter and commercial fixed-wing



instrument-rated pilot, Eaton is the 2021 recipient of HAI's Salute to Excellence Communications Award.

**66** Congratulations on an incredible 75 years! HAI has made a tremendous impact on the industry through multiple avenues such as inspiring youth through exposure and scholarships, bringing market segments together for a unified goal of protecting and promoting the industry to allow us to prosper, and most importantly, driving a culture of safety.

- Jeanette Eaton

#### **Elan Head**



Elan Head is an award-winning journalist specializing in aviation and technology and currently a senior editor at The Air Current. She is a commercial helicopter pilot and an FAA Gold Seal flight instructor with helicopter and instrument helicopter ratings. In 2014, she received HAI's Salute to Excellence Communications Award.

I am grateful for the leading role HAI has played in showcasing the industry's accomplishments. - Elan Head

#### J. Heffernan

J. Heffernan spent 20 years as a US Marine Corps heavy helicopter (CH-53) pilot, including two tours in Vietnam and a stint flying Marine One for former US president Ronald Reagan. After retiring from the military, he worked for CJ Systems Group, Sikorsky, and Air Evac Lifeteam, as well as HAI, where he twice



served as director of safety. He is currently chief operating officer at Helicopter Safety Alliance.

ff The military enabled me to find my way to aviation, and when I had the chance to choose vertical aviation, I jumped at it without a second thought. - J. Heffernan

#### Oliver Johnson

Oliver Johnson is the editor-in-chief of Vertical magazine and the 2019 recipient of the HAI Salute to Excellence Communications Award.

**66** HAI has helped make the industry what it is today and continues to play a crucial role in bringing the industry together. HAI HELI-EXPO remains the single biggest and most important helicopter trade show in the world.

- Oliver Johnson



#### Sarah MacLeod

Sarah MacLeod is a managing member of the Obadal, Filler, MacLeod & Klein, P.L.C., law firm and a founder and the executive director of the Aeronautical Repair Station Association (ARSA). She has advocated for individuals and companies on international aviation safety law, policy, and compliance issues for 40 years.



ff Thinking about 75 years, like looking back on ARSA's 40, I'm struck by how much changes and how much stays the same. The rotorcraft industry is facing interesting shifts in technology that are driving considerable excitement but don't fundamentally change the mission: Whether it's a vintage Huey or a conceptual vertical-lift platform, the dedication is to safe operation. - Sarah MacLeod



#### Don Miller

Don Miller was sergeant major of Marine Medium Helicopter Squadron 268, out of US Marine Corps Air Station Camp Pendleton, California. The squadron deployed twice between 2004 and 2006 to the Al Taggadum Airbase (ORAT) in Irag, covering casualty evacuations between Fallujah and Ramadi and beyond, transporting more than 800 urgent casualties.

ff It was an honor to serve. - Don Miller

#### **Faith Ortega**

Faith Ortega, a helicopter mechanic and helicopter maintenance instructor with Air Evac Lifeteam, is a 2023 recipient of Air Maintenance Technology magazine's 40 Under 40 Maintenance Professional Award. Ortega created the



HowToHelicopter social media pages, where she posts about her experiences and hopes to inspire others to get into the industry, and is also an HAI brand ambassador.

**66** Being an HAI member has allowed me to network within our industry. I have been blessed to meet some of the most encouraging and influential people this way. Many of these folks have been great contacts to guide me in future career adventures! - Faith Ortega

#### HAI BOARD CHAIRS

Who better to express HAI's impact on the vertical aviation industry than the member volunteers elected to lead the association?

#### Gian Franco Blower

A fixed-wing and helicopter pilot, Gian Franco Blower was a founding member of Elitos Helicopters. As head of the International Committee of the then-named Helicopter Association of America, Blower led the association's embrace of its international identity and transition to what is now HAI. He went on to serve as HAI Board chair in 1982-83.



ff The helicopter industry today is a mature participant in the aviation family, similar to the airlines, due to HAI's hard work and dedication through the years. - Gian Franco Blower

#### Steve Sullivan

Steve Sullivan, a Vietnam War veteran helicopter pilot, founded Aris Helicopters in 1972. Based in Northern California, the company grew from a single helicopter



operation to a fleet of more than 20 aircraft providing comprehensive helicopter flight training, energy exploration, logging, aerial patrol, firefighting, search-and-rescue, and external-load operations. Sullivan served as HAI Board chair in 1987-88

**66** Notwithstanding the industry changes and growth over the past 75 years, HAI's role continues to be advancing the industry through collaboration, education, and communication. - Steve Sullivan

#### **Neill Osborne**



Neill Osborne spent more than 40 years in the international helicopter industry, including a stint as president of Era Helicopters. HAI awarded Osborne the 2009 Lawrence D. Bell Memorial Award, and he served as HAI Board chair in 1997-98.

**66** Without a single reservation, I can say the most important role of HAI in the vertical aviation industry is the

preservation, expansion, and advancement of safety. May the next 75 years be as successful and productive for the industry and for HAI as the past 75 years have been. - Neill Osborne

#### **Ed Newton**

A Vietnam War veteran helicopter pilot, Ed Newton flew for many years in the Northeastern United States, ending his career as chief helicopter pilot for Honeywell. In addition to his flight duties, he also took part in the development and testing of helicopter avionics for the company. Newton served as HAI Board chair in 2006-07.



**66** HAI has evolved as an incredible advocate for this industry in the areas of safety, government rulemaking, career opportunity, helicopter reliability, and public service.

- Ed Newton

#### Mike Suldo



After retiring from the US Navy, Mike Suldo spent his career in the vertical aviation industry working for the Bristow Group and Bell Helicopter. He served as HAI Board chair in 2007-08.

66 At 77, I am looking back at my 55 years in the industry and loving the memories, opportunities, and great friendships along the way. Many,

probably most of those, were provided by HAI. - Mike Suldo

#### **Patrick Corr**

Patrick Corr founded Helicopter Adventures in 1987, flying outdoor adventurers to hunting and fishing locations in Northern California before changing the business model to become a leading flight-training provider. He sold his company in 2007 to the Bristow Group. Corr served as HAI Board chair in 2008-09.



**66** For 75 years, HAI has been there to support its members. When operator members have the team from HAI sitting beside them, presenting a well-researched, reasonable, and skillfully articulated argument, the regulator pays attention and usually chooses the path of compromise over conflict.

Patrick Corr

#### **Tony Burson**

Tony Burson served as the chief pilot for United Technologies (now Raytheon Technologies) for more than 30 years and retired in 2022. He was HAI Board chair in 2013-14.

66 HAI has been a positive influence in the ever-changing environment of aviation. It has brought a strong voice



to the table to address the issues that face all sectors of helicopters and their operators. When I think back on my time with HAI, I am truly humbled and honored to have been a part of its rich history. - Tony Burson



#### **Max Lyons**

Max Lyons is the owner and CEO of Hillsboro Aviation, which offers complete helicopter and airplane services through five divisions: contract and charter, aircraft sales and management, a service center, an FBO, and parts sales. He served as HAI Board chair in 2015-16.

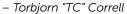
I've had the good fortune of experiencing the industry as both a pilot and a businessman. When I look at all other industries and businesses, there is nothing that I can imagine enjoying more than working in the helicopter industry and meeting the extraordinary people that it attracts.

- Max Lyons

#### Torbjorn "TC" Correll

TC Correll is currently chief pilot and senior manager for Southern California Edison's flight department. He was chair of the HAI Board in 2016-17.

**II** HAI is an important global leader in our amazing industry, and 75 years of service is incredible. I am proud to have been part of HAI. As an individual, you can make a difference if you are willing to do the work.







#### Dan Schwarzbach

Dan Schwarzbach served as a senior police officer and pilot with the Houston (Texas) Police Department for almost 40 years. He is currently executive director and CEO of the Airborne Public Safety Association. A 2008 recipient of the HAI Salute to Excellence Law Enforcement Award, Schwarzbach served as HAI Board chair in 2017-18.

**66** I think HAI has had a profound effect by unifying the helicopter community. HAI is well positioned to be the global leader for vertical lift aviation. - Dan Schwarzbach

#### **Stacy Sheard**

After leaving the military to pursue a career as a commercial pilot, Stacy Sheard flew in the charter, tour, news-gathering, air ambulance, and corporate aviation sectors. She was also a production test pilot for Sikorsky. She is currently an AW139 corporate helicopter captain with Executive Jet Management. Sheard was HAI Board chair in 2020-21.



ff I'm incredibly proud of HAI for its commitment to safety, innovation, and advocacy within the helicopter community over the past 75 years and for its ability to adapt to support the future as it transforms in the next 75 years! - Stacy Sheard

#### HAI MEMBER COMPANIES

Creating and providing products and services for the vertical aviation industry demands working to a higher standard.

#### **Breeze-Eastern**

Breeze-Eastern designs and manufactures rescue hoists, winches, cargo hooks, and weapons-handling systems. For 70 years, Breeze-Eastern has been an industry leader recognized for technical innovation, product quality, and supporting military and commercial customers worldwide. Breeze-Eastern has been a member of HAI since 1967.

ff not for HAI, the industry would compartmentalize, and



business and product would not be as safe or profitable as they are today. - Ian Azeredo, Chief Engineer, Breeze-Eastern



#### **Archer Aviation**

Archer's goal is to transform urban travel, replacing 60- to 90-minute commutes by car with estimated 10- to 20-minute electric air taxi flights that are safe, sustainable, low noise, and cost competitive with ground transportation. Archer's Midnight is a piloted, four-passenger aircraft designed to perform rapid backto-back flights with minimal charge time between flights. The company has announced commercial electric air taxi routes in partnership with United Airlines in New York City and Chicago, Illinois, and is targeting entry into service in 2025. Archer's team is based in Santa Clara, California.

66 The future is bright! HAI has helped shepherd the verticallift industry for 75 years. A strong and capable HAI is needed now more than ever to help unlock the unlimited possibilities that are bound only by our imaginations.

- Michael Romanowski, PhD, Head of Government Relations



#### **BETA Technologies**

BETA Technologies is an aerospace company developing electric vertical takeoff and landing aircraft and supporting charging infrastructure that enables greener, safer, and more efficient transportation.

ff It's been remarkable—especially as a new entrant in the aerospace industry—to have witnessed the speed of innovation within the world of aviation and, namely, vertical aviation. As HAI turns 75, BETA is proud to be a part of an organization that has been responsible for fostering and guiding the industry over the years. - Jake Goldman, BETA Team Member

#### **HAI** REFLECTIONS





#### **Erickson**

An HAI member since 1991, Erickson is an OEM of the S-64 Air Crane helicopter, serving civilian and military markets and providing MRO services to customers around the world.

**Let May Some the Market State of State** 



#### **Jaunt Air Mobility**

Headquartered in Dallas, Texas, with design and manufacturing in Montreal, Canada, Jaunt Air Mobility is building the next generation of electric vertical takeoff and landing (eVTOL) and hybrid-electric VTOL aircraft for transporting people and packages over urban areas.

66 Congratulations to HAI on your 75th anniversary! HAI's dedication and unwavering efforts have undeniably enriched the safety, efficiency, and accessibility of helicopter operations. Here's to celebrating HAI's remarkable contributions and positive influence on aviation and broader communities. – Martin Peryea, Founder and CEO/CTO

#### Rolls-Royce

Rolls-Royce is a global leader in design, manufacture, and service for helicopter engines in both civil and military aircraft. Its M250 (left) and RR300 engines, used in over 170 rotary- and fixed-wing applications, have logged more than 280 million flight hours worldwide. The company is also developing electrical power and propulsion systems that will power advanced air mobility applications, enabling silent short and vertical takeoffs and landings. Rolls-Royce has been an HAI member since 1965.

66 Over the years, HAI's efforts have propelled the vertical lift industry to new heights. HAI's decades of advocacy have helped create the gold standard of safety we enjoy today, showcase industry's cutting-edge technologies, and pave the way for the next generation of aviation. We look forward to celebrating the next 75 years of HAI providing opportunities for industry collaboration and partnership with our regulators. – Scott Cunningham, Helicopter Program Director, Rolls-Royce Defense

#### **Spectrolab**

A leading provider of high-intensity light source systems, Spectrolab first developed powerful lighting to test the solar cells and panels that they build for spacecraft at their Los Angeles, California, facility. Realizing how this technology could be applied to other industries, they then developed a successful product line of airborne searchlight systems, which are widely used in public service missions, including search and rescue

and law enforcement. Spectrolab has been an HAI member since 1981.

off HAI is a fierce advocate and proponent of safety and education, and I think those are the most important things that HAI has been offering throughout its history and will be offering into the future. – Miquelle Milavec, President and CEO, Spectrolab, a Boeing Company



# When did you know that you were a rotorhead?



In 1976, while with Aviation Power Supply, I had just completed a turbine change for a Bell 206B-2 when the pilot asked me to join him on a checkride. I thanked him, and he said, "Son, don't thank me. If you don't want to get in it and fly, I sure don't want to fly it." It was then I knew what a responsibility I had just accepted as a helicopter maintenance tech and what a cool job I have. I have been a rotorhead ever since!

#### - Mike Broderick

My first helicopter flight in the US Navy flight school. I could vertically levitate at will—what a feeling!

- Susan Cadwallader

When I was 5, in 1994, a Hughes 369D lifted an airconditioning unit on my parents' house. My dad and I watched the perfectly done sling job, and we both fell in love with helicopters. Years later, he was my flight instructor and mentor.

#### - Christoph Oberhumer

When I was a child, my father took me for walks around the airport, and one day I asked him about helicopters. He told me, "They are super flying machines only supermen can fly." From there, I knew I had to be a helicopter pilot.

#### - Moises

When I was 15, I was working on a cattle station in the Australian Outback. A Bell 47 was brought in to muster cattle, and I was asked to accompany the pilot to show where to go and act as a spotter. I instantly fell in love with flying and decided that flying as a career would be much better than riding a horse.

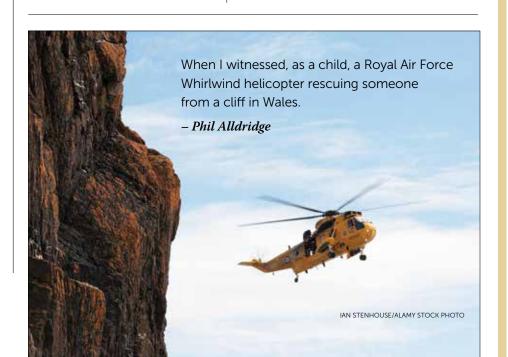
#### - John Caldwell

In high school. My family would move out of my way as I ran through the house to get outside to see a helicopter that was flying over. I still do that to this day.

#### - Michael Giovannini

I was working as support staff for an operator when the owner asked if anyone wanted to go for a ride. I ran to the hangar as quickly as I could. I was hooked from the moment we left the ground.

#### - Kristen McDaniel



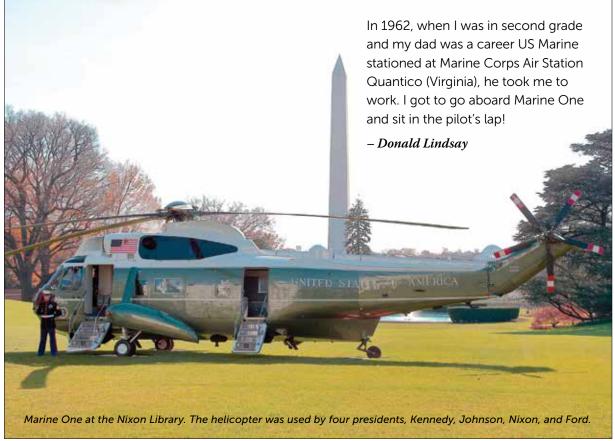
#### **VERTICAL VOICES: Destiny**

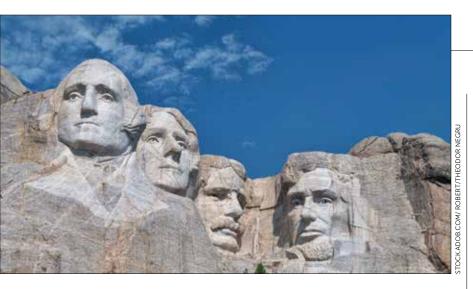




In 1971, I was 17 and fascinated with the Bell 206 JetRanger. The Port Authority of New York and New Jersey operated two of them. I went to their rooftop helipad in Manhattan to photograph them, and Philip J. Landi, who was in charge of the aviation unit, took me on my first flight. That wonderful day, I used three rolls of film on what has become my favorite subject throughout my life. I fondly remember Landi for being instrumental in steering me on the path to becoming a proud rotorhead.

- Vern Curtis Anderson





I was 14 and on a family camping trip to Mount Rushmore in South Dakota, where my dad took us on a helicopter tour. Flying at what seemed like the speed of sound, we came to Mount Rushmore at eye level. A rock formation seemed to engulf the bubble, and the pilot climbed skyward to clear it. I broke into a beaming smile faster than the tips of the rotor blades could spin! Afterward, I knew I would someday fly one of these amazing machines.

#### - Chris Horton

In 1963, when I received my first helicopter ride in a Bell 47 at 6 years old. (Thanks, Dad!)

#### - Anonymous

I was 12 years old, in my dad's car, going to school. I saw an AS350 descending to land in our village. Ever since, I've wanted to know where every helicopter is going.

#### - Nick Dening

When I was about 5. An ag operator stayed at our farm for three days while he was spraying power-line herbicide. My mom claims I sat in a lawn chair in our front yard watching from dawn to dusk for the entire three days.

#### - David Conboy



I was 11 in 1977, and a place in the Wisconsin Dells was giving rides on a Bell 47. I begged my parents to let me ride, and after about a month of me begging, they finally gave in. I WAS HOOKED! I've been a helicopter/airplane mechanic now for 37 years and don't regret a day of it.

#### - Kevin Egan

I went for a ride in the Pocono Mountains in a Bell 47G when I was 8 years old. I was the pilot's last flight of the day, and we flew for 45 minutes. I was hooked. I took a Chinook pilot to school for showand-tell a few years later.

#### - Pamela Landis

I went on a ride with Mike Pond at Royal Gorge Helicopter Tours in 2004. I finally knew what I wanted to be when I grew up.

#### - Robert Schaper



I fell in love with helicopters when I first met the Sikorsky Black Hawk in South Korea. And I love other helicopters too. I'll take any chance to be on board, sit in the copilot seat, and fly with a rotorhead.

– HyunJu Woo



Helicopter Association International PLANS OF SERVICE

With vertical aviation facing a shortage of skilled personnel, one innovative workforce development program shows a way forward.

A PHOTO ESSAY BY MARK BENNETT







egislators in Utah decided in 2019 to support a new path to success for the state's secondary and postsecondary education students by funding an innovative initiative, the Utah Rotor Pathway Program (URPP). The program brings helicopter industry education into high schools. Participating students have a direct path to university aviation training programs and then connections to mentors and employers in a field that is full of opportunity.



#### Statewide and Industry-wide Support

The URPP is a model for education and training programs preparing high school students for STEM (science, technology, engineering, and math) careers in rotary-wing aviation. And it's the first of its kind in the United States.

The idea for the program had been floating around for years, but it took the efforts of Cade Clark, HAI chief government affairs officer, to sort out the details and assemble support from stakeholders. The result? Four years ago, the Utah State Legislature agreed to back the program with permanent funding for instructors and equipment.

Of course, creating a robust workforce development pipeline requires more than money. "Industry support for the pathway program is essential. The people of Utah should be proud their state is investing today to build the workforce of tomorrow," says Clark.

Above: Arriving at the Davis Catalyst Center in Kaysville, Utah, wave after wave of local high school students get an up-close view of a Kaman K-Max and speak with its pilot at the second annual Utah Rotor Pathway Program Fly-In, held Oct. 5, 2023.

Right: Granite Technical Institute, in Salt Lake City, serves high school students from several districts, providing training in many specialized fields, including aviation. Here, instructor Mike Matson presents an introductory class.

Previous spread: At the Oct. 5 fly-in, high school students from the Ogden area cluster around an AgustaWestland AW109SP during a field trip unlike any other, examining the aircraft and querying the crew.





#### **Introducing the Aviation Career**

To raise awareness of aviation among students, a fly-in is held annually to put students and aircraft—and their crews together. This year, helicopters from flight school, public service, air ambulance, and utility operators gathered in an expansive public park in a suburb of Ogden where they welcomed busloads of excited teenagers.

"The goal is to get people exposed to rotary aviation," explains Granite School District Career and Technical Education Coordinator Sandi Hemmert. "And networking is key!"

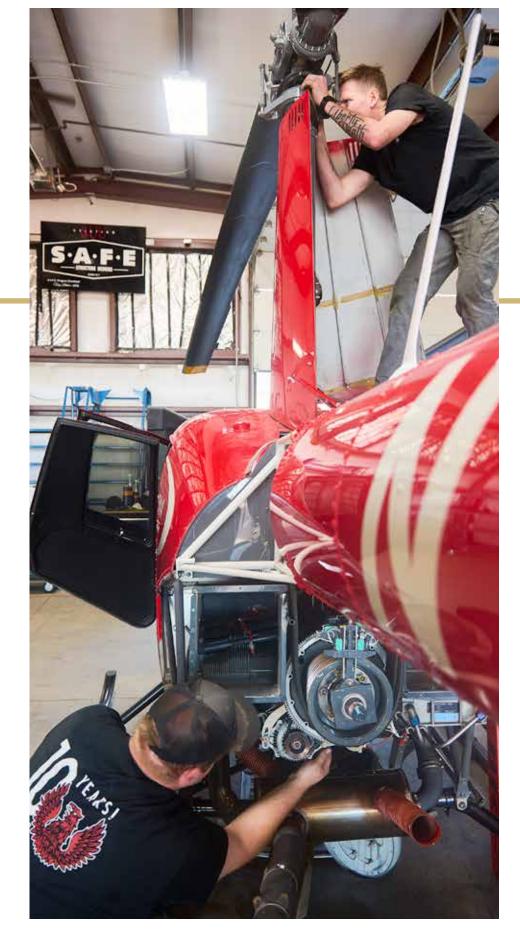
It must be working, because, as observed by Chris Cox, director of flight operations at Southern Utah University (SUU) and chair of the URPP, "It was wonderful to see the tremendous number of students present and learning about the industry. This event allows students to interact with those already in the industry, see helicopters up close, and learn how they can pursue great careers in this field."

Hemmert's efforts to promote aviation to area students don't stop with the fly-in. She arranges for young women to gather for Girls in Aviation Day, sponsored by Women in Aviation International, in the fall, and for interested students to attend an Aviation Career Open House in the spring.



Top: Cedar Valley High School, in Eagle Mountain, Utah, is the home of "The Aviators," a mascot and theme chosen by Principal Courtney Johnson, a pilot herself, as is her husband.

Above: Chief Pilot Lloyd Nelson, a former US Marine Corps and US Army helicopter pilot, instructs 10th-grader Covelli Moore in Cedar Valley High School's "Ready Room," home to 10 single-screen and 16 multiscreen simulators, plus a full-motion Redbird simulator.



Right: Former Southern Utah University (SUU) maintenance students Nathan Davies, inspecting the engine of a Robinson R44, and Ikaika Epperson now actively support the aircraft used by the pilot training program at the school.

Below: Another SUU student-turnedemployee, Christopher Green, peers into the  $fuse lage\ of\ another\ of\ SUU's\ training\ aircraft.$ 





Left and below: Southern Utah University's aviation program offers associate's and bachelor's degree programs that prepare students for both flight and maintenance careers in rotary-wing aviation.

Thirty-two Utah high schools are now part of URPP, each providing students with education applicable to the industry and linking them to universities that provide training that will lead to professional licensing. Students are also connected to mentoring and internships with operators.

Three state universities—Southern Utah, Utah Valley, and Utah State—actively participate in the program with coursework and training, plus interactions with operators, to prepare students for entry into the industry.

Utah may be the first state in the United States to start such a program, but it won't be the only one. Already North Dakota has launched its own Rotor Pathway Program, with two-and possibly three-other states not far behind.



Right: The University of North Dakota, already home to a strong aviation program, is now leading the state's **Rotor Pathway** Program, which includes, to date, one high school, with more in sight. (University of North Dakota Photo)





Above: Pilot Nathan Barton begins a series of announcements to passengers about to embark on their tour of the Grand Canyon's western reaches in an Airbus H130.

Below: Barton earned his (rotary) wings at Southern Utah University and then, after building hours with a small operator on the East Coast of the United States, joined one of the URPP's commercial operator partners, Papillon Grand Canyon Helicopters, flying tours out of Boulder City, Nevada.

#### The Importance of Pathways

For many years, the vertical aviation industry was able to replenish its workforce with little effort. Those days are long gone, and our industry now has to learn to find talent, tell them our story, and demonstrate the opportunities we offer.

The Utah Rotor Pathway Program—and similar programs in other states—stands out because it provides students with exposure to the industry and then lights the way to aviation education and professional licensing. Because of the integration between the educational institutions and the industry, young people can more easily reach careers that, scant years before, they might not have even known existed.



# The Path from **High School to** College to an Aviation Career

The Utah Rotor Pathway Program exposes young people to the joys and promise of flight, and then provides them with the scholastic and practical training—and industry connections—to make that career a reality.

FIELD TRIPS, AVIATION DAYS, AIR SHOWS

- > Aviation Awareness
- > Interaction with Industry Professionals

Hook **Them Early** 

Teach Them the Basics

#### **HIGH SCHOOLS**

- > Flight and Maintenance Education
- > Ground School, College Credits

Prepare

#### **COLLEGES**

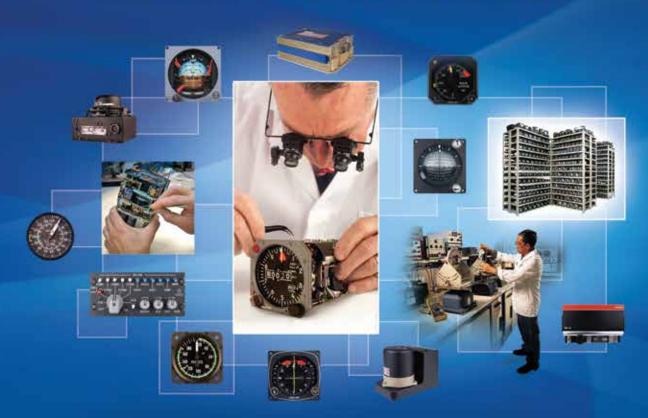




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