

The AHS Vertical Flight Heritage Site Ceremony



Mr. Fiorenzo Galli, the General Director of the Leonardo Museum, expressed his gratitude at receiving the AHS International Vertical Flight Heritage Site award, in recognition of Leonardo da Vinci's visionary's design of the Aerial Screw. The others in the ceremony were (left to right): conference organizers Luca Medici and Fabio Nannoni (Leonardo), Mike Hirschberg (AHS) and David Gibbings, MBE (Westland, retired). (Photo courtesy of Leonardo.)

Leonardo da Vinci is famous for many incredible contributions to western civilization. More than 500 years after he conceived it, da Vinci's Aerial Screw — the first known concept of a man-carrying flying machine that would literally bore its way into the air — is still an oft-used symbol for the helicopter.

Da Vinci noted, "If this instrument made with a screw be well made, that is to say, made of linen of which the pores are stopped up with starch and be turned swiftly, the said screw will make its spiral in the air and it will rise high." Four men were to stand on a platform and push against handles on the shaft to rotate the screw.

Although the exact time and place that he conceived the idea and recorded it for history is now unknowable, it is believed to have been when he worked in Milan and Florence around 1487. In considering a location to recognize the creation of the first known VTOL design, it was decided that no better place could be found than the National Museum of Science and Technology named for Leonardo da Vinci.



Remarks by Mike Hirschberg, AHS International Executive Director:

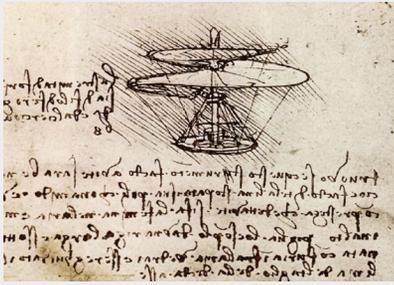
The AHS International Vertical Flight

Heritage Sites

Program is intended to recognize and help preserve sites of the most noteworthy and significant

contributions made in both the theory and practice of helicopter and other vertical flight technology.

[See www.vtol.org/heritage for details.]



Previous awards were:

1. The Franklin Institute in Philadelphia, which held the world's first rotary-wing technical conference in 1938.
2. The Pratt & Whitney Canada plant in Quebec, where the iconic PT6 helicopter engine was developed and is still produced a half-century later.
3. The birthplace of Bell Helicopter, in Gardenville, New York.
4. The NASA Langley Research Center in Virginia, with nearly 100 years of rotorcraft research.
5. Morton, Pennsylvania — the place near Philadelphia where the Piasecki tandem rotor helicopters were developed and produced [and near the Boeing plant that still builds the Chinook tandems today].

A program with the American Institute of Aeronautics and Astronautics (AIAA) had previously recognized the birthplace of the Focke-Wulf Fw 61 in Bremen, the birthplace of the Sikorsky helicopter; and the Getafe Airfield in Madrid, where Juan de la Cierva tested his early Autogiros.

David Gibbings, a member of the AHS History Committee, nominated Milan last year as a Vertical Flight Heritage Site, honoring Leonardo da Vinci's inspirational pioneering work on the Aerial Screw concept. Coincidentally, the announcement of the selection of the award was made on March 15, 2016, just a day before Finmeccanica announced that it had selected Leonardo as the new name for the company.

Just a note about Dave, he is a retired RAF [Royal Air Force] engineer/navigator and flight test engineer for helicopters and aircraft. He worked on the Fairey Rotodyne in the 1950s and 60s, and subsequently was a flight test engineer with Westland, retiring at the head of flight test in 1993. Dave was awarded the Kelly Johnson award by the Society of Flight Test Engineers for outstanding achievement and the AHS John J. Schneider Award for Historical Achievement. He's also a Fellow of the Society of Flight Test Engineers, the Royal Aeronautical Society, and was designated as a Member of the Order of the British Empire (MBE) by Her Majesty, Queen Elizabeth the Second. So it is a great honor to have him with us tonight and we thank Leonardo Helicopters for flying him here for this very historic occasion.

Remarks by David Gibbings, MBE:

If asked to give an example of "Renaissance man," the name of Leonardo da Vinci would immediately come to the fore. Leonardo was an artist, sculptor, engineer, architect, philosopher and musician. All this in a time when science was unregulated and indeed sometimes treated with suspicion. Leonardo's interest ran across most of the items which we now take for granted.

The invention of the airplane probably represents the most significant of all inventions that have changed our world. A machine capable of vertical takeoff took a long time to come to fruition and, when it did, it was difficult to identify a single inventor. However, Leonardo is credited with having been the first to identify such a machine, an aircraft deriving its lift and control from the rotating wing. It is, of course, now known that Leonardo's proposal was so far ahead of the skills or materials available at the time that it would have been unlikely to achieve its objective. But it did identify the fact that air is a fluid. But the concept was not supported by the knowledge of structures, power and control.

Leonardo had no knowledge of the five equations of physics (Newton, Bernoulli, Faraday, Clausius or Einstein) and no suitable prime movers for sustained flight. Nevertheless, in pictures he produced innovative concepts for manned flight, albeit impractical; but he also implanted the idea that flight would be possible and that rotating wings might provide the means.

Most engineers acknowledge the fact that Leonardo was an informed dreamer who thought well out of the box and was able to point the way for others to follow with the instincts of an engineer. It would not be unreasonable to describe him as the 'Galileo' of the helicopter world.

Leonardo not only considered all aspects of flight within his thinking, but with his engineer's approach realized that safety was an important feature and with that in mind also proposed a practical parachute which nearly 500 years later was tested and shown to be possible.

It can come as no surprise that AgustaWestland have chosen to adopt the name Leonardo to identify their approach to aviation.

The American Helicopter Society International has for some time maintained a program identifying sites which have significance in the development of vertical flight. Leonardo's active mind was considering such an aircraft at a time when he was working as an artist for the Duke of Milan.

The object of this proposal was to identify the site where Leonardo da Vinci was in residence or working when he conceived the idea of powered flight utilizing rotary wings. The ideas took shape in Leonardo's active mind during [the late 15th century, during] which time he was working in Milan and Florence; it would be difficult to identify a precise location, but it is felt appropriate to place a commemorative plaque here in Milan where some 400 years later Count Giovanni Agusta built his factory which was to become the center of the Italian helicopter industry and which was to further grow into a global company adopting Leonardo's name.

We as engineers can take pride that AHS has chosen to identify that our work originated from such a mind, working here in this city, and a new generation of brilliant young engineers stand ready to take up the challenge of the future.

I like to imagine that Leonardo was talking to his attractive model as he painted, explaining his machine. Then, he looked up and said: "Why are you smiling Mona Lisa?" Well, now you know.