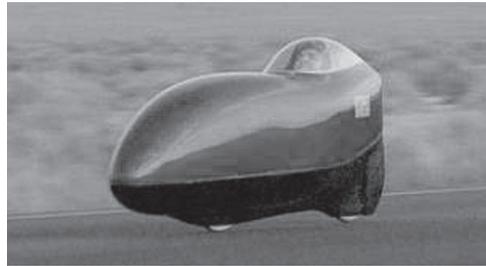




Human Powered Vehicle Association

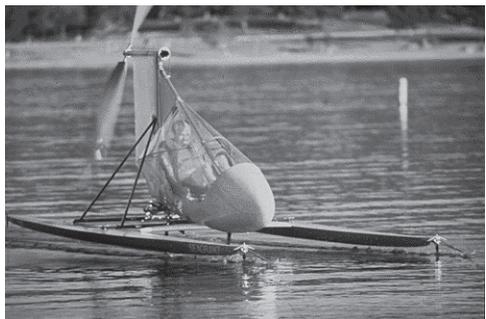


A streamlined recumbent bicycle, *Varna Diablo* has achieved 81 miles per hour under human power alone.

ON LAND

At the first IHPSC in 1975, IHPVA founder Chet Kyle's *Teledyne Titan* was clocked at a speed of 44.69 mph. In 1986, Gardner Martin's *Gold Rush* (now in the Smithsonian) ridden by "Fast Freddy" Markham won the DuPont prize at a record 65.484 mph. In 1992, *Cheetah*, ridden by Chris Huber, broke 68 mph. In 2002, Sam Whittingham became the World Champion with a speed of 81 mph.

There are two land speed prize offerings currently open: the \$25,000 Dempsey-MacCready Hour Record for the first single-rider to equal or surpass 90 kilometers (55.924 miles) in one hour, and the \$18,000 deciMach for equaling or exceeding 75 mph over 200 meters.



The pedal and propeller powered hydrofoil *Decavitator* sliced through the water at 18.50 knots (21.28 mph)

ON WATER

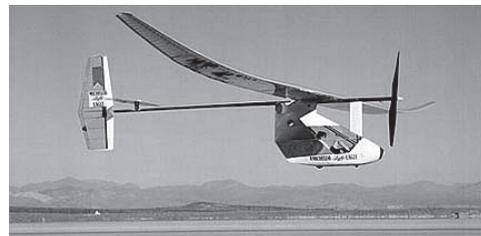
Water events have been a feature at HPVA Speed Championships for many years. The improvement of human powered watercraft took a significant jump in 1987 when Allen Abbott propelled the hydrofoil *Flying Fish* to a speed of 12.94 knots (14.89 mph). Under the stimulus of the Dupont Water Prize, MIT's *Decavitator*, ridden by Mark Drela, achieved a speed of 18.50 knots in 1991. There is still the challenge to break the 20 knot barrier.



The development of human powered all-terrain vehicles lead to useful vehicles that can traverse sand, mud, and water.

ALL-TERRAIN

For years shade tree mechanics, artists, and engineering students have considered the building and racing of human powered all-terrain vehicles, sometimes referred to as Kinetic Sculptures, around the world, as a fun challenge. However, important lessons are learned by those interested in developing transportation alternatives with practical applications for all-terrain vehicles that can traverse sand, mud, and water especially in developing nations.



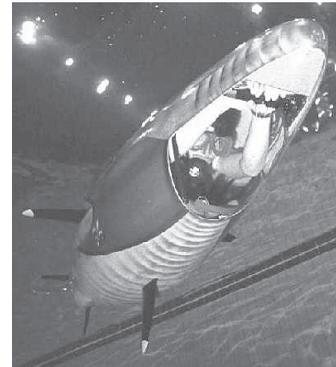
A human powered airplane, *Daedalus*, has flown 74 miles.

IN THE AIR

In 1961, the *SUMPAC* airplane was flown in England. The first to fly in North America was *Olympian* in 1976. In 1979, IHPVA founder Paul MacCready's *Gossamer Albatross* won a Kremer prize for crossing the English Channel. In May 1988 MIT's *Daedalus* was pedaled 74 miles across the Aegean Sea by Kannelos Kanelopoulos.

In 1989 the National Aeronautic Association (NAA) certified that Cal Poly's *DaVinci III* flight of 6.8 seconds was the first successful flight of a human powered helicopter. At an event in Seattle in 1994 a Japanese team more than trebled the time. N. Ikeuchi flew Akira Naito's *Yuri I*, for 24 seconds.

Gossamer Albatross' pilot Bryan Allen pedaled the human powered helium gas airship (blimp) *White Dwarf*, built for the comedian Gallagher, to a NAA record 58.1 miles in 1985. Japan now hosts the annual Bird Man Rally.



A human powered submarine, *Omer 3*, has reached 6.97 knots (8.03 mph/12.92 kph).

UNDERWATER

The modern era of human powered submarine competitions was originated by Stann Dunn, at Florida State University, and Hap Perry, at the Perry Corp. They organized the first competition in 1989. Francois Maisonneuve set the best one person submarine speed of 6.97 knots at the 1997 ISR in Bethesda, Maryland. This feat was in *Omer 3* from the University of Quebec's Ecole de Technologie Superieure in Montreal.

While the earlier human powered submarines were "dry", current competition vehicles are one- or two-person

free-flooding "wet" submarines. Crewmembers breath from a SCUBA system carried by them aboard the submarine.

AT WORK

The HPVA has encouraged the development and improvement of bicycle rickshaws, cargo carriers, and pedicabs in developing nations. However, driven by urban growth, congestion, and air quality concerns, there is now a growing interest in the use of human powered work vehicles in industrialized nations.



For 30 years these striking achievements have been the focus of the Human Powered Vehicle Association (HPVA).

Driven by urban growth, fuel costs, congestion, and air quality concerns there is growing interest in the use of human powered vehicles in the workplace.

In the past, competition bicycles and rowing shells have been restricted in their design, to ensure that athletics were primary. These restrictions have inhibited improvements in engineering.

Rules for HPVA events are quite simple: anything goes as long as the vehicle is powered solely by its rider(s) and is safe. Such design freedom has resulted in the most technologically advanced cycles ever built. The HPVA provides unlimited forums where inventors and innovators are encouraged to test and evaluate new machines through races, contests, and symposia.

Many new ideas are developed from one-on-one discussions at these events and from presentations in the HPVA's newsletter HPV News and technical journal Human Power. The result? Spectacular increases in speed and performance—as well as advances in the kinds of bicycles and tricycles that many people use for every day, work, transportation, and recreation.

The HPVA is a corporation organized under the Nonprofit Public Benefit Corporation Law for charitable purposes [Section 501(c)(3)]. It is run by an enthusiastic corps of member-volunteers.



Human Powered Vehicle Association

Join the HPVA! The Human Powered Vehicle Association is a North American-based, volunteer-run, nonprofit educational and scientific organization dedicated to improvement, innovation, and creativity in the use of human power, especially in the design and development of human powered vehicles. Donations to the HPVA are tax deductible in the USA under section 501(c)(3) of the US tax code. You can read more about the HPVA and IHPVA and their activities on the website www.hpva.us.

Who Should Join? All are welcome! Individuals, schools, clubs, businesses. Buy a membership for a friend, school or library!

What Are The Benefits Of Membership?

- Receive the HPVA official newsletter, *HPV News*, keeping members updated on current/upcoming events and fun and interesting topics regarding Human Power.
- Receive the technical journal *HUMAN POWER*, which covers human power technology in a scientific manner, where you will read in depth reports about technological developments of lasting interest for the human power community.

How Do I Join? Please send in a completed application. Photocopies are accepted.

What Does It Cost? Yearly membership dues are as follows: US, Canada and Mexico: US \$32; all other Countries: US \$37

How Can I Pay? We are happy to accept: US Dollars, check drawn in US dollars on a US bank account, VISA or Mastercard (please include the card number and expiration date), postal money order made out in US dollars, foreign draft drawn on a US bank, with identification numbers. *Please do not send non-us currency or checks drawn on any other than a US bank.*

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