Soft Landings

The advent of the parachute makes it possible to take the plunge safely

> Sixteenth-century painter Leonardo da Vinci is best known for his artistic masterpieces, which still have the power to take our breath away. But many historians also credit him with the first real concept for the modern day parachute. Da Vinci sketched the device in his *Codex Atlanticus* in 1485; it consisted of a canopy of cloth stretched over a wooden frame that was roughly the shape of an inverted ice cream cone.

That design was just an idea, though, until 1617, when Croatian scholar Faust Vrancic elaborated on it (he changed the frame to a rectangle) and leapt from a Venetian tower wearing it. He must have survived the plunge, because drawings of his "Homo Volans" (Flying Man) appeared 30 years later in a book by John Wilkins.

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But credit for the first really practical, modern parachute often goes to French physicist and inventor Louis-Sebastien Lenormand. In 1783, he became the first person to make a witnessed public descent via parachute when he jumped from a tower of the Montepellier Observatory while he was affixed to a 14-foot wooden-framed parachute.

Around that time, fellow Frenchman and balloonist Jean-Pierre Blanchard came up with the term "parachute," combining "para" (against) and "chute" (fall). In these early days, parachutes were mainly seen in circus acts, with trapeze artists using them to perform stunts. Public opinion of the device was understandably negative after 61-year-old amateur scientist Robert Cocking plunged 5,000 feet to his death—despite being attached to a cone-shaped parachute—in front of a crowd during Grand Day Fete in 1837 at London's Vauxhall Gardens.

Nonetheless, some intrepid individuals continued to work on the invention's design, with the addition of a harness and a "breakaway" component (in which one parachute inflates, is released and pulls open a second) taking place in the late 1890s. An 85-pound California teen—Georgia "Tiny" Broadwick—made the first free fall parachute jump in 1908 and technology improved rapidly after that, with a parachute testing and training center established by the military at Wright Field in Dayton, Ohio, in 1918.

From World War I to the 1930s, round silk chutes were used by the military in the United States, Europe and Russia. During World War II, Germany's Luftwaffe corps showed the world just how effectively the devices worked to strategically move troops to battle sites. Improvements in design and materials to make the chutes lighter, stronger and safer continued in the decades after the war.

Today, most parachutes used by skydivers are self-inflating "ram-air" airfoils—known as "parafoils." These have two layers of fabric that are connected by "cells" of airfoil-shaped fabric ribs. For safety's sake, contemporary parachutes are designed to open softly, thanks to a "slider," a piece of fabric that slows the spread of the parachute's rigging lines.

Despite ongoing advances, the world record for the highest parachute jump dates to Aug. 16, 1960, and the U.S. Air Force's Excelsior Project (experiments aimed at ensuring that jet pilots could descend safely after high-altitude ejection). Pilot Joe Kittinger stepped from a hot-air balloon at 31,333 meters (102,800 feet) and into a free fall that lasted an amazing 4 minutes, 36 seconds—with speeds reaching 988 kilometers per hour (614 mph) and temperatures as low as −94 F (−70 C). Finally, at an altitude of 5,330 m (17,500 feet), Kittinger deployed his main parachute and landed safely in the New Mexico desert. The total time of the descent: 13 minutes, 45 seconds.

Aptly, a plaque was afterward attached to the open door of the Excelsior gondola, with the words, "This is the highest step in the world."