This drawing of a soldier walking on water is found in the Codex Atlanticus, one of da Vinci's notebooks.
chute, machines to make rope and coins, and even a sort of plastic. One of his later designs for a glider has been tested in modern times with success. Again, it is unclear to what extent, if any, these devices and gadgets were built or used in da Vinci’s lifetime.

Yet grander schemes included a town plan with three levels: the upper pedestrian level was reserved for gentlemen, the ground level bustled with the general populace and roads for the distribution of goods, and an underground level housed a sewage system with good circulation to keep disease at a minimum. He also dreamed up self-cleaning stables and a means to drain the Pontine Marshes. More plans recorded in his notebooks include: shaving off the tops of hills to facilitate a line of fire, escape tunnels, joining Florence to the sea via a canal, and building a bridge that joined Europe to Asia. One of these schemes was actually tried during his day; troops were deployed to dig a trench west of Pisa to redirect the river Arno from the sea. Unsurprisingly, it failed miserably. It was overambitious and grossly miscalculated. The river refused to flow into the channel, preferring the path of its own making.

Da Vinci’s walk-on-water shoes were part of one of his more grandiose schemes — to wage war via water. The image of a man wearing the shoes appears in the Codex Atlanticus amid drawings of machines and devices to lift water. But it was part of a military line of thought that included several ideas, such as sending divers into combat armed with sharp cutlasses and drills to poke holes in the hulls of enemy vessels. While totally sci-fi in character, the concepts are not completely outrageous. “Frogmen” are employed by modern military forces for a variety of tasks today, including infiltrating enemy vessels, reconnaissance, transportation of troops, deactivation of explosives, and planting weapons in enemy territory.

From the walk-on-water shoes drawing, we can deduce that da Vinci’s basic concept involved inflated attachments to the feet with poles that end in similarly inflated attachments. Bladders from some

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6 See YouTube for footage of a modified version of da Vinci’s glider in use; search for “da Vinci glider.”