All Hail Leonardo

If you were at all like many college freshmen, you may recall your required (at many schools) Art History 101 lecture class—over-crowded, often slotted for an eight or nine a.m. start, and suitably dark for art slides viewing. The Old Masters never had a chance. Who among us can deny on occasion catching up on some much-needed shut-eye while "the old perfesser" droned on about various artistic styles, eras, etc?

Which is perhaps why a good many people—"educated" or otherwise—are not aware that Leonardo da Vinci—arguably the poster child for the Renaissance Man—was of, how to put it—undetermined parentage. And yet, has there ever been clearer evidence that the old saw—It's not where you start, it's where you finish that matters—holds meaning?

What we do know is that he was born in 1452 to one Ser Piero—a wealthy Italian—and "Catrina"—a woman of means by no means—i.e., a peasant, last name unknown.

To address the no-last-name issue, the boy became known as "da Vinci," or, from Vinci. Some of the back story remains murky, but it is documented that the boy lived with his paternal grandparents and uncle in Vinci. It has also been reported that, while Leonardo showed no early signs of genius—he did receive an education—in Latin, geometry and math—but who tutored him, and where, remains a mystery.

This Addendum is not a biography. We won't regale you with da Vinci factoids regarding his "other career." Yes, he created The Last Supper, and yes, he created the Mona Lisa. (Come to think of it, those achievements alone make for a pretty good legacy.) Rather, it is an expression of wonder and marvel that a child born of such sketchy circumstances could and would go on to become one of the charter members of the Smartest Men in the Room club.

Best of all, he wasn't just a Renaissance man; he was—as most reading this already know— one of our own—a *gear man*.

Consider these da Vinci-concepted, "first-iteration" inventions—all still used today in some capacity:

The retractable landing gear. The mechanism could be allowed to drop under its own weight, or retracted by the simple pull of a string.

The ball bearing. First attributed to the Romans, da Vinci's design "perfected" its functionality in reducing components' friction for another of his marvels—the helicopter. The first bearing patent was not granted until 1791.

The automobile. Spring-driven, the "vehicle" was wound up in order to propel it. (Perhaps a precursor to today's early "electric" cars?) Pegs (pinions) installed in matching holes directed the wheels of the car to turn intermittently—controlled "under the hood" by what one da Vinci site describes as "programmable, complex gearing and cog assemblies." Based on the spring diameters and instructions of da Vinci's original design, some have written that the machine "could move for up to forty meters before needing to be recoiled."

Continuously variable transmission (CVT). Quoting from *howstuffworks.com,* "Some say you can't teach an old dog new tricks but the continuously variable transmission, which Leonardo da Vinci conceptualized more than 500 years ago and is now replacing planetary automatic transmissions in some automobiles, is one old dog that has definitely learned a few new tricks. Today, several car manufacturers—including General Motors, Audi, Honda and Nissan—are designing their drivetrains around CVTs."

The robot. Credited as "the first robot in history." Ever notice all those da Vinci references—"vitruvian man," for example—used by surgical robotics companies?

Rack-and-pinion gear system. Although da Vinci didn't invent this type of gearing, he certainly made ingenious use of it in many of his devices. As common today as thin-crust pizza.

So next time you hop in your car, land safely at LAX or have your gallbladder removed by a robot, reflect for a moment and give the man his props. (Sources: *museoscienza.org*; *mostredileonardo.com;* and *howstuffworks.com.*)