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Meet Tom Mueller: From Idaho logger to SpaceX co-founder who makes Elon Musk's rockets lift off

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8-10 minutes

Tom Mueller started life in Idaho, the son of an logger; he himself worked summers logging when he was a student. But today, Mueller is a rocket scientist and co-founder of [Elon Musk's](#) SpaceX.

Mueller isn't famous like Musk, but he is a linchpin in the story of SpaceX — as chief technology officer of propulsion, he leads the team that makes sure the rockets lift off.

Mueller met Musk in Los Angeles in the early 2000s through a mutual friend, and they decided to build rockets that could one day take humans to Mars.

'Do you want to be the guy who fixes the plane or the guy who designs it?'

Were it not for an inspiring high school math teacher, Mueller says he never could have even dreamed a logger's kid from St. Maries, Idaho could become a rocket scientist.

Mueller says from the time he was young, he always had a natural attraction to rockets, astronomy, science fiction and space. His junior high school guidance teacher told him he should become an aircraft mechanic, Mueller told Loyola Marymount University's [LMU Magazine](#). (Mueller got his master's in mechanical engineering at Loyola in L.A. in 1992, [according to his LinkedIn page](#).)

"Then in my first year in high school, my math teacher asked if I was going to be an engineer. I said no. He was astounded. He asked, 'Do you want to be the guy who fixes the plane or the guy who designs it?' If it hadn't been for that math teacher, I probably would have been a mechanic or a logger," Mueller told the magazine. "Thanks to him, I got the right courses to go to college."

That conversation with his teacher was a powerful moment for Mueller. "No one had told me that I had the aptitude to be an engineer. I didn't even know what an engineer did. That teacher changed my life and set me on a path to success," he said in a 2018 commencement address at the University of Idaho.

Mueller says he has since gone back and personally thanked that math teacher.

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A natural talent for mechanics

Mueller and his three siblings grew up around machines because their father was a logger — for 45 years. Early on, Mueller, developed a natural fluency with mechanics.

“I grew up around logging trucks and equipment, and chainsaws. You learn a lot from that environment. I tend to have that rare gift where I can easily conceptualize what will work. If somebody were to give me specs for a different kind of engine, I could easily conceptualize what will work,” Mueller told LMU Magazine.

He remembers upsetting his father when he disassembled the lawn mower.

“My father came home and found the parts all over the yard. He was mad because he figured it wasn’t going to go back together. I had the pistons out and the valves out. But I put it back together, and the thing ran fine,” he said.

“At Christmas, I always went for the Erector Set—kind of stuff,” he added, referring to the toy construction kit.

Mueller **worked as as logger** during summer breaks from school. “I have many fond memories of logging, and quite a few not so fond, but I realized that was not what I wanted to do with the rest of my life,” Mueller in his commencement address. “And that helped me focus on school.”

He learned the value of hard work from his family. “My Dad was all about earning your way in life, no handouts, no freebies. I paid my own way, ... paid for my own car, paid my own way through college and I learned about getting the job done right and always supporting the working man,” he said. “What he taught me about work ethic and integrity are part of my foundation. Those lessons follow me through my life.”

Mueller, the first person in his immediate family to attend college, received his bachelor’s from the University of Idaho in 1985.

Photo credit: Jon Rou/Loyola Marymount University

Meeting Musk

After school, Mueller decided to head west. There were not, after all, an overabundance of engineering jobs in Idaho. He packed his belongings into a tow truck and set off for California. His father was not sure what to make of his son’s career ambitions.

“I loaded up the moving van and headed to California to find a job working on rockets. My dad thought I was crazy,” Mueller said in his commencement address. “But when I look back on that now, I realize that was a key decision — a fork in the road where I made the right choice to do what I love.”

There, Mueller worked at [TRW](#), which provided technology products and services for the automotive, aerospace and systems markets in Los Angeles. (It was [acquired by military contractor Northrop Grumman Corporation](#) in 2002). But he didn't work on rocket engines.

To keep himself inspired, Mueller would build rockets out of his garage at night and on weekends [with an amateur rocket club](#). By early 2002, Mueller was working out of a friend's rented warehouse to finish his rocket.

At the same time, Elon Musk was becoming a multimillionaire: He and his co-founders sold [PayPal to eBay for \\$1.5 billion](#) that July. And Musk was getting ready to launch his next venture.

A member of the rocket club introduced Mueller to Musk, and Musk had one question for him: "Can you build something bigger?" Mueller [recalled to Popular Mechanics](#). Ultimately, Mueller never did fire the rocket he was working on in the warehouse (he took it and kept it in his garage, according to the magazine) because he went to work with Musk at the company that would become SpaceX.

"Tom had an awesome track record of engine development at TRW," Musk told Popular Mechanics. "I also really liked the fact that he built and tested rocket hardware with his own hands."

Starting SpaceX

Mueller was willing to try a new path.

"[W]hen I met Elon, the rocket engine was key front-line technology for SpaceX," Mueller told LMU Magazine. "In addition, Elon's business plan and the way he wanted to set up the company really appealed to me. And he had the capital to do it. So when Elon said (to me and another prospective employee), if you guys join, we'll start the company, I signed on as one of the three co-founders." They started the company with the [third co-founder](#), Chris Thompson, in May 2002.

Moving to start-up SpaceX was a big change for Mueller. "TRW is a huge company with a tiny propulsion department," [Mueller told Popular Mechanics](#) in 2009. "Here, I'm kind of king."

At SpaceX, Mueller got the chance to focus on the rocketry of his childhood dreams. For a dozen years Mueller was a vice president of propulsion engineering, and in May 2014 he took on the role of CTO, where he builds and manages the group of engineers at SpaceX responsible for propulsion.

To be sure, working at SpaceX came with perhaps as much stress as excitement. [Musk](#) recalled in 2017 the near-failure of SpaceX at the International Astronautical Congress in Adelaide, Australia.

"A lot of people really only heard of [SpaceX](#) relatively recently, they may think Falcon 9 and Dragon just instantly appeared and that's how it always was. But it wasn't," said Musk, referring to [the current SpaceX rockets](#). "We started off with just a few people who really didn't know how to make rockets."

SpaceX almost ran out of money, Musk said. "I messed up the first three launches. The first three launches failed. And fortunately the fourth launch, which was, that was the last money that we had for Falcon 1. That fourth launch worked. Or it would have been — that would have been it for SpaceX. But fate liked us that day. So, the fourth launch worked."

SpaceX is now working to make it possible for humans to live on Mars, [according to its website](#). Musk has said he hopes to get an unmanned cargo rocket with gear [to the red planet by 2024](#). In November, Musk said it would be seven to 10 years before the first group of humans go to colonize Mars.

Building propulsion technology to go to Mars is a far cry from chopping down trees in Idaho. Reflecting on his career, Mueller says his success is due to a combination of his ability and luck.

"Find out what you are good at and find out what you love. Hopefully they are the same thing. Then make a career out of it," Mueller said in his commencement speech. "Ability plus luck equals success. If you have the ability, then luck is your opportunity. I was very lucky that I met the right visionary and because of my passion for rocket engineering I was invited to this opportunity that became SpaceX."

Added Mueller, "Steer your dreams and energies toward new, exciting frontiers."

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