

JOURNEY TO THE BOT

Can you picture yourself standing atop Mount Everest, the world's highest mountain at more than 29,000 feet? With that under your belt, could you then envisage yourself traversing the lowest point on the planet, the Challenger Deep in the Mariana Trench more than 36,000 feet below sea level? Vanessa O'Brien, a member of the NYAC since 2016 not only envisaged it, she accomplished it, becoming, in June of this year, the first woman - and only the

second person - to reach the Earth's highest and lowest points. This was just the latest addition to a plethora of firsts. Specifically?

- Boasting dual US and UK citizenship, Vanessa is both the first American and the first British woman to scale K2, arguably the world's most challenging summit.
- Vanessa has scaled the highest peaks on all seven continents in a record 295 days, the fastest ever by a woman.
- Vanessa is the first woman to complete the celebrated Explorers' Grand Slam in less than one year. If you wish to give it a try, the Explorers' Grand Slam requires you to reach the North and South Poles - Vanessa skied - and scale the Seven Summits (Everest, Aconcagua, Denali, Kilimanjaro, Vinson, plus two more for good measure. Best of luck.



The NYAC's Vanessa O'Brien, en route to the deepest part of the planet.

TTOM OF THE WORLD

The NYAC woman accomplished all of the above and then looked for more metaphorical hills to climb. This time, she looked downward and, between June 7th and 12th traveled to the lowest point on the Earth's surface. "I want to go somewhere that other people shy away from," she stated in August. "I prefer to lead rather than to follow,"



NYAC members may be familiar with the name of Vanessa O'Brien, in part due to the article about her that appeared in the December 2019 issue of *The Winged Foot*. Vanessa's accomplishments in the short time since that article have earned her a listing in the Guinness Book of Records.

Challenger Deep is a depression in the Western Pacific Ocean at the southern end of the Mariana Trench, about 200 miles southwest of Guam. With a depth of more than 36,000 feet, if Mount Everest were placed in the Trench, its peak would be more than a mile underwater. Vanessa completed her dive to the

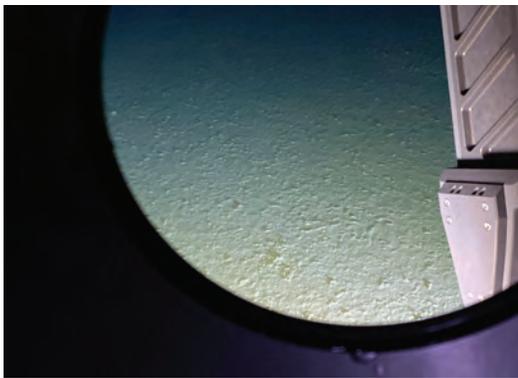
Earth's deepest point in the Deep-Submergence Vehicle *Limiting Factor*, a self-propelling two-person submersible built by Florida-based Triton Submarines and operated by renowned explorer and private equity investor Victor Vescovo. *Limiting Factor* is the first manned vessel designed and certified for repeated dives to full ocean depth. Its 3.5-inches-thick titanium alloy hull is able to withstand the more than 16,000 pounds of pressure per square inch at the bottom of Challenger Deep. To date, only 13 individuals have ever reached that depth. (Notably, astronaut Kathryn Sullivan, who in October, 1984 became the first American woman to walk in space, was also a part of the June Challenger Deep expedition).

The first measurements of Challenger Deep's depth were made in March 1875 by the crew of the *HMS Challenger* during the first global oceanic research expedition, known as the Challenger Expedition (1872-1876). Vanessa first met Victor

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Vescovo in 2013 through NYAC member Phil Erard, then encountered him again in 2019. She was aware of his dives to Challenger Deep in April and May of that year, and her explorer's spirit was piqued. When the opportunity arose for a research-based dive, arranged by Vescovo in partnership with NOAA, Vanessa's motivation to take part was heightened. "You have to be open to timing and exploration," she explains. "If I saw myself only as a mountaineer, I wouldn't have done this. Being open to different experiences, like oceans instead of mountains, and being open to timing made this happen for me."



Six miles beneath the surface of the ocean, you could be forgiven for thinking that you were on the surface of the moon.

The purpose of the June 2020 dive was to transect a straight line across the bottom of the eastern pool of

Challenger Deep with sonar and sight in order to collect topographical data of the ocean floor. Vanessa underwent training in operating the exterior robotic arm on *Limiting Factor*, while also studying bathymetry, the study of underwater terrain, skills new to a mountaineer.

Upon beginning the descent on June 12th, 2020, Vanessa and Vescovo were faced with a dive of four hours duration before *Limiting Factor* descended the full 36,200 feet (6.856 miles) to reach the bottom of Challenger Deep. As may be imagined, the submersible was a tight fit, with shoulder-to-shoulder seating, pressurized recycled air, the creaking and squeaking sounds of pressure adjustments, and the slowly dripping interior condensation on the ceiling and windows. Vanessa forewent the recommended heavy foul weather gear, opting instead for a jumpsuit, t-shirt, down boots,

and pants. It was cold in the compartment, "but, it wasn't mountaineering cold."

The bottom of Challenger Deep is desolate. On his two descents, in 2019, Vescovo identified three previously unknown species of marine mammals. "It feels like landing on the moon," Vanessa recalled. She saw few signs of life, and what would have appeared as a sandy ocean floor to an untrained eye was, in fact, sediment, the material by-product of oceanic plate subduction - the sideways and downward movement of the edge of a tectonic plate of the earth's crust beneath another plate. The four hours that it took to descend 36,000 feet was a veritable rocket ship ride compared with the three hours that it took the submersible to cover 20 meters across the eastern pool of the Deep. Vanessa and Vescovo spent that time collecting precious topographical data and water samples, harkening back to the scientists of the HMS Challenger 145 years earlier, whose water samples remain in London's Natural History Museum and where they are still used for research. The samples from the *Limiting Factor* were donated to the Museum for the same purpose.

Any conversation with Vanessa O'Brien must eventually lead to a comparison between the literal heights she has ascended and the literal depths. "Physically, sitting in a submersible is less work," she states, "although my levels of concentration are still sky high. On the dive, I know I am only going to pass through this transect once, so I am super switched on - a camera between my toes recording what is seen through the lower porthole, a camera in my hands recording and looking through the upper porthole. My focus is on anything moving in the sediment or on any rocks or debris as we move along. You have only one chance to catch it as you go by. On the mountain, you reach the summit and can generally pause and reflect, take pictures, do some high fives, eat whatever is not frozen. Then you are off on your descent.

"The summit moment on a submersible dive is the entire three

hours you are transecting along the bottom. When you hit the bottom and turn on the lights, it feels like you are landing on the moon. You are aware that there is only a handful of people who have ever seen this. With 16,000 pounds per square inch - eight tons of pressure - it's like you're somewhere that you're not supposed to be. The first vehicle to do this - in 1960, before I was even born - went down and broke all the windows. It was a US Navy vehicle. It crashed and the sediment came up and blocked their view. They never went down again. Fifty-two years would pass before another person made the effort. That was James Cameron in 2012, the producer and director. Even his vehicle only made it one time, one way. It's just incredibly hard for these vehicles to withstand that pressure. [Limiting Factor] has been the only vehicle, so far, that has been able to make multiple dives, and the first time was in 2019. It is going deeper than Everest is tall. If you put Everest in the Trench, its peak is underwater by more than a mile."

More than six miles deep, enduring 16,000 pounds of pressure per square inch - the enormity of the undertaking is staggering. Having endured the four hour descent, three hours in the Challenger Deep, next comes the four hour ascent, a total journey time of 11 hours. One might presume that to be arduous, but it was tempered by Vanessa's passion to learn more about our planet. "It was fulfilling knowing that I could contribute to science," she states, "not only with the samples, but also with the survey work. Bringing awareness to the ocean and giving a voice to something like that is so important to me." Some perspective of the work remaining to be done and the concomitant possibilities lies in the fact that, while more than 70% of the planet is under water, more than 80% of that sub-aquatic terrain remains unmapped. Vanessa is also passionate about celebrating and contributing to the legacies of explorers and researchers of the past. Her donation of water samples to the Natural History Museum in London supplements the collection of samples from

1875, thus enhancing the efforts of the crew of the *HMS Challenger* and expanding upon the significance of the crew's research.

Looking ahead to the future, Vanessa is particularly intrigued by the prospect of participating in an expedition to locate Sir Ernest Shackleton's (1874-1922) ship, *Endurance*, which sank in November 1917 in the Weddell Sea off the coast of Antarctica dur-



Getting ready to go deep. L to R: John Rost, Victor Vescovo, Vanessa O'Brien and Kathryn Sullivan.

ing the Imperial Trans-Antarctic Expedition of 1914-1917. Were she to accept that challenge, Vanessa would be walking in the footsteps of the NYAC's Lincoln Ellsworth (1880-1951), the celebrated pilot and Polar explorer, who forged new literal frontiers and for whom adversity held little meaning.

In reaching the heights and depths of the Earth's topography Vanessa O'Brien is exploring, not only the outer reaches of the planet, but also the extremes of human capacity. In that, she personifies the Olympic ethos, that the noblest of all pursuits is to redefine the possible.

Vanessa O'Brien's memoir, To the Greatest Heights: Facing Danger, Finding Humility, and Climbing a Mountain of Truth is available through advance copies on Amazon.com.