View From the Top: LSU ECE Professor Survives WWII Poland to Become Mountaineer, Scientist, Humanitarian

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BATON ROUGE, LA – LSU Electrical & Computer Engineering Professor Leszek Czarnecki marked a major milestone in the last year. The Alfred Lopez Distinguished Professor recently celebrated his 30th anniversary with the LSU College of Engineering.

Though Czarnecki is widely known for his vast knowledge of power properties of electrical systems, his personal journey as a scientist, mountaineer, scuba diver, and humanitarian is just as astounding.

MOUNTAINS ARE CALLING

“Research is only one part of my life,” Czarnecki said. “I tell my students that our intellectual activity is no more important than our physical, public and social activities.”

It’s a notion that is easy to believe when seeing photos from his numerous global excursions, which could easily be turned into a documentary.

At the age of 29, Czarnecki was married with two sons and had earned his PhD with distinctions in electrical engineering from a Polish university. Though happy with his family life and professional accomplishments, he couldn't help but wonder what else was out there?

"I essentially achieved everything in life by the age of 29," he said. "I thought, is life over at this age?"

Having always revered the mountains in his homeland of Poland, Czarnecki decided he would rather climb them than admire them from afar. In 1970, he enrolled in his first mountaineering class and obtained his climber's license. Climbing would be the perfect fit for a young man who was never selected to play on the soccer or football teams in school.

"I felt accepted by climbers," he said. "Mountaineering is social because you're climbing with a partner or group and putting your life in their hands. Your survival in the mountains depends on them."

At the age of 34, Czarnecki climbed to the Main Ridge of the Tatra Mountains, which form a natural border between Poland and Slovakia. The Main Ridge, which is 50 miles long, consists of hundreds of individual peaks that equate to climbing 16 miles.

"It was a hard 10 days of continuous climbing," Czarnecki said. "A climber can lose up to 15 lbs."

In 1975, Czarnecki set out to climb the Moon Mountains of Africa, an area once thought to be the source of the Nile River. Currently known as Rwenzori, the Moon Mountains receive 200 inches of annual rainfall and have a jungle at their feet, making them extremely difficult to access. Czarnecki and a group of 13 climbers set out on a five-month expedition to climb Rwenzori, Kilimanjaro, and Mount Kenya. They would need ice axes, crampons, snap hooks, tents, backpacks, clothes, and other mountaineering equipment that was not available in Communist Poland.

Since it was illegal to use Western currency abroad, the group had to find materials and design the tools it would need, then find a company that could make them. Czarnecki was responsible for providing the expedition with this equipment, which took two years to acquire.

After two months of circumnavigating Africa on a commercial Polish ship, Czarnecki's group finally reached the base of Rwenzori.

"The Moon Mountains were the last mystery of Africa," he said. "Do they exist? Some explorers declared they saw them. The next explorer would say they didn't exist. In 1889, English traveler [Henry Morton] Stanley confirmed he saw the mountains for the first time on the Congo River base, just half a degree north of the Equator. So, we arranged an expedition to traverse the main ridge of Rwenzori."

Czarnecki and his two Polish climbing partners, Janusz Chalecki and Stanislaw Cholewa, spent 18 days continually climbing the 19 summits of the Moon Mountains, which were each about 16,000 ft. tall. Czarnecki's team was the first to traverse the main ridge of Rwenzori in nearly 70 years. The only other group that accomplished it was a team of 35 mountaineering guides in 1906. Czarnecki and his partners then climbed volcanic cones Mawenzi and Kibo in Mount Kilimanjaro and the twin summits Batian and Nelion in Mount Kenya, making them the first group ever to climb all 24 African summits.

Czarnecki's next expedition was more even-keeled, yet much more frigid. In 1977, he and 11 Polish climbers traveled to Spitsbergen, Svalbard, the largest permanently populated island of the Norwegian archipelago between mainland Norway and the North Pole. Their goal was to reach the Atomfiella Mountains, which had never been climbed. Because of the mountains' rugged, remote terrain of glaciers and frozen tundra, Czarnecki's polar expedition had to be dropped off by helicopter.

“A Russian helicopter dropped us in the Arctic tundra, and we had to pull 300-lb. sleighs with all of our supplies for a six-week operation,” he said. “We had 24 hours of sunlight a day, also called the ‘Midnight Sun,’ but there was very poor visibility going up 3,600 feet.”

It took the expedition three days in dense fog to reach the Asgardfonna Glacier. The men arrived at their final destination with bloody lips from exertion.

“After that, climbing mountains in a sunny, Arctic 24-hour day was really exciting,” he said.

Upon completing the climb, five of the men spent 23 days traversing 300 miles to reach the northern tip of Spitsbergen. The summer sun had melted some of the snow on the glacier, turning the surface into a slushy mix of snow and water. Later on, the snow completely melted to reveal a labyrinth of 100-foot-deep crevices.

“There were long hours when we simply fought to survive,” Czarnecki said.

The men did survive and were later inducted into the Polish Polar Club composed of Arctic explorers.

Czarnecki knew the dangers of climbing all too well. One of his partners, Tadeusz Szulc, lost his life years later while climbing an ice wall in the Himalayas on a similar excursion—the only expedition Czarnecki did not go on, which still haunts him.

“I think if I were there, he would have lived,” he said. “I have lost several of my climbing partners. When the climbing goal is above 8,000 meters, one climber out of seven, statistically, does not return home.”

Undeterred by danger, Czarnecki’s most intense expedition came in 1979, when he and 23 climbers attempted to reach the summit of Mount Lhotse, the fourth highest mountain in the world, in the Himalayas. Forty expeditions had already attempted to climb it and failed.

“Poland received permission from the government to climb Lhotse in 1979,” Czarnecki said. “I was asked to join this national Polish expedition of Himalayan climbers. We traveled to Nepal during monsoon season, so we weren’t able to get to the bottom of Mount Everest and Lhotse by helicopter and instead had to walk on foot. There were no roads, just 200 miles of narrow paths across the Himalayan hills.”

Czarnecki was responsible for delivering six tons of food and equipment to 23 climbers at the main camp at the bottom of Everest. It would be enough for them to use during the two months of climbing Lhotse. It took Czarnecki three weeks of walking in monsoon rain with 200 porters and 70 yaks to reach the main camp at 18,000 feet.

To reach the top of Lhotse five miles up, the climbers needed three bottles of oxygen—two to climb and one to help them sleep before they climbed to the summit. While Czarnecki was checking the oxygen pressure of the bottles in the -75-degree cold, a bottle slipped out of his backpack and disappeared two miles below into the cutoff of a steep glacier. He suddenly found himself with only half of the oxygen he needed.

A week prior to the climb, Czarnecki and his climbing team had heard of two climbers a mile away who perished on Mount Everest due to lack of oxygen. Johanna Schmatz, the third woman ever to climb Everest, and her professional guide used all of their oxygen ascending the summit and had no oxygen left for the descent, a mistake that would cost them their lives. Aware of this tragedy, Czarnecki decided to climb Lhotse anyway but bring what oxygen he had left to use in case of a critical situation.

“Climbing the icy 60-degree slope is slow,” he said. “You carefully hit the ice with the tooth of your crampons. A misstep meant you are two miles below. In the fifth step, you are falling into a semi-

sleep, and you only remember to count to 10, hit the ice ax in the snow as deep as you can, lay against it, and take 10 breaths."

Without oxygen support, he ascended no more than 200 feet an hour. The rest of the team, who climbed with oxygen support, reached the Lhotse summit while Czarnecki was still 400 feet below them. He descended and lived to tell the story.

"If I had followed them, I would not have returned," he said.

Though he would go on to climb Cordillera Hayashi in the Andes in 1981, followed by Torre Venezia in the Alps in 1983, Czarnecki's most anticipated and final climb wouldn't come until 1999.

"I was obsessed with climbing McKinley, the highest summit in North America," he said. "I tried to find people to climb with, but not many people were around to join me, so I decided to go alone for a solo climb."

The average time needed to climb McKinley was three weeks. The average climber was 35. Czarnecki was 60. He figured he would need one week extra due to his age, so he packed enough food, fuel, and equipment for the monthlong expedition.

"I had to have final permission from the ranger to climb," Czarnecki said. "He told me I couldn't go alone and would need to join another group of climbers. I interviewed with another expedition of four young Canadians. When I saw them, I thought this would be a disaster if the ranger tells them they have to take this old guy with them. They would be furious."

After Czarnecki told the ranger of his climbing experience, the ranger agreed that Czarnecki could make the climb alone. Though he was prepared to climb for four weeks to reach the summit of McKinley, Czarnecki made it in just five days.

"I ran into the Canadians as I was halfway down and they were halfway up," he said with a smile.

McKinley would be Czarnecki's last climb, a relief to his wife who thought he might not return.

"When I made it back down, I called my wife in Poland and said, 'Surprise! You're not a widow,'" he laughed.

Asked if he still has the urge to climb, Czarnecki said, "No, I can just tell my stories now."

After climbing McKinley, Czarnecki took up underwater photography and obtained a sport diving license. He went scuba diving in the reefs of New Zealand, Australia, Hawaii, Belize, Egypt, the Philippines, the Bahamas, and French Polynesia. Ironically enough, Czarnecki actually took up scuba diving in 1971, but deemed it too dangerous and switched to climbing instead. Once he concluded that he was too old to climb at the age of 60, Czarnecki went back to scuba diving. His lowest dive ever is 200 ft.

SURVIVING WWII

Before his life as a climber, husband, and father, Czarnecki was a young boy who was forced to work hard for every success he had. He was born in the small Polish village of Rózanka in 1939, just before World War II. Czarnecki's parents were teachers in the village, which was mainly populated by Ukrainians.

At the time of Czarnecki's birth, however, his father was a low-level officer preparing to fight the German invasion. Before leaving to fight, Czarnecki's father built a shelter in the woods, in case the family needed to escape while he was away. Ukrainian Nationalists tried to kill his father because he was a Polish school teacher.

"In our cottage, there was a steel door in the floor to protect against a fire," Czarnecki said. "If there was a knock at the door, my father took all of his clothes and jumped into the hole, and mother would put the door back."

Just before the end of the war, when Czarnecki was 5 years old, his mother took her three sons to a shelter in the woods to hide when the Russians invaded Poland to fight the Germans. When the family eventually returned home, its cottage was mostly destroyed, along with the cherry orchards surrounding it.

Though WWII officially ended in 1945, life did not get easier for Czarnecki, his family, and the community they lived in, which now had no electricity or running water.

"We were very poor because of the economy post-war," he said. "Once an educator, my father now made clothes and shoes for us."

One time, a pickup truck with soldiers came to their home and took Czarnecki's father. Having witnessed the abduction, a young Czarnecki said he began crying so "dramatically" that it prompted his mother to come outside and see that her husband was gone.

"She ran to the city and begged the soldiers to release her husband," Czarnecki said. "It was a miracle that she somehow convinced them. That night, several Polish teachers in other villages were never seen again. They disappeared. It's estimated that 300,000 Polish intellectuals were killed by Communists post-war during peacetime."

Communist rule lasted for years in Poland and kept Czarnecki from attending the high school five miles from his home. The list of incoming students had to be signed by a Communist chair, and the Communists did not like Czarnecki's parents. When they saw Czarnecki's name on the list, they removed it.

"I was not allowed to go to that school," he said. "In desperation, my mother took me 100 miles away to a city where there was an industrial buildings construction college [high school]."

After Czarnecki and his family made the move for him to attend high school, he set his sights on Warsaw University of Technology to study telecommunications. However, he had never taken a high school physics class, which he needed in order to be accepted into Warsaw. Sadly, Czarnecki did not attend college and stayed home for a year.

“During that year, I bought a bunch of books and taught myself physics and math,” he said.

Now having these subjects under his belt, Czarnecki was able to earn his PhD and D.Sc. in electrical engineering from Silesian University of Technology in Poland, where he went on to lecture and teach from 1963 to 1984. He then served as a visiting research officer for the National Research Council of Canada until 1986, followed by two years of serving as an EE associate professor at Zielona Gora University of Technology in Poland.

Ironically enough, Warsaw University invited Czarnecki to be the keynote speaker at the International Conference on Mathematical Methods in Electrical Engineering 40 years after he failed to pass the university’s entrance exam. Warsaw also nominated Czarnecki for a Titled Professor of Technological Sciences degree to be granted by the President of Poland.

COMING TO LSU

While doing research in Ottawa, Czarnecki decided he could not leave North America without first seeing the Grand Canyon.

“All my life, I dreamed of seeing the Colorado River in the Grand Canyon,” he said. “From Poland, this canyon was as accessible as going to the moon. It was a dream for a boy from a poor Polish village.”

Czarnecki purposely attended a conference in Denver so he could make his dream a reality. Having obtained his driver’s license just before flying to Colorado, he rented a car and braved the snow and icy roads down to the Grand Canyon. Upon returning from Canada to Poland a few years later, Czarnecki received a call from an LSU professor he had met at the conference who invited him to teach at LSU.

“I’m sort of proud of that fact,” Czarnecki said of being sought out by the university. “I couldn’t believe [former LSU ECE professor] Dr. Tan remembered me. He said, ‘How could I not remember a guy at a conference dressed in a red jacket with a backpack?’ The other 1,400 engineers were in dark suits with a tie and briefcase.”

Czarnecki joined LSU as a visiting associate professor of electrical engineering in 1989. The next year, he became an associate professor and then a full professor in 1999. All of Czarnecki’s research was focused on the explanation and description of physical phenomena that accompanies the energy transfer in electrical systems.

“This was one of the most difficult problems of electrical engineering in the 20th century, with hundreds of scientists involved in the quest for its solution and thousands of papers published,” Czarnecki said.

Czarnecki solved the problem and developed a Currents’ Physical Components (CPC)-based Power Theory of electrical circuits and systems. The results of his research were published in 154 journal papers and 89 conference proceedings. He was invited to lecture 88 times at different universities across the globe, delivered 14 keynote speeches, and received 21 patents.

At the recommendation of five other IEEE Fellows, Czarnecki was selected to become a Fellow of the Institute of Electrical and Electronics Engineering (IEEE), which is only awarded to one IEEE member out of 1,000 each year. Czarnecki was the second Polish IEEE Fellow. The first was Professor Janusz Groszkowski, former president of the Polish Academy of Sciences.

In nominating Czarnecki for the IEEE Charles Proteus Steinmetz Award, which is given to an individual for major contributions within the field of electrical and electronics engineering, former president of the IEEE Industry Applications Society, Professor Paulo Tenti of Padova University in Italy, said, “I would like to conclude this letter with my strong opinion that nobody contributed to our understanding of the energy flow and power-related phenomena in electrical systems in a degree comparable with Czarnecki’s contribution.”

Even with all the awards and acknowledgments, Czarnecki is most proud of what he did for his country outside of academia.

NATO

“My life’s greatest achievement is not science, but public service,” Czarnecki said.

In 1981, Communists in Poland, incapable of handling growing democratic opposition, declared martial law across the country and put thousands of solidarity leaders into prisons. Czarnecki saw this as no time for mountaineering and joined the illegal underground activity of the democratic opposition, coordinated by Lech Walesa, who received a Nobel Peace Prize for his efforts aimed at abolishing Communist control of Poland.

“It was crucially important for the military security of Poland that the country be admitted into NATO,” Czarnecki said.

This move had to be approved by at least 67 of 100 U.S. senators. In 1987, the Consul General of Poland to the U.S. called Czarnecki to inform him that two Louisiana legislators were against including Poland in NATO. He asked if the Polish community in Louisiana could change the standing of these senators.

“I told him that this was not possible because of a very low number of Polish people in Louisiana,” Czarnecki said.

However, Czarnecki wrote a letter on behalf of seven Polish LSU professors, asking all state legislators to adopt a resolution requesting the U.S. Senate to include Poland, the Czech Republic, and Hungary into NATO because, as Czarnecki wrote, it would serve in the best political, military, and economic interest of the United States. A few legislators replied that they shared his opinion. Czarnecki then drafted the resolution himself.

In a few months, Czarnecki and his wife, Maria, convinced the Polish community to write a letter to the state legislators showing support for the resolution. Czarnecki would deliver his resolution and 1,500 handwritten letters to the Louisiana State Legislature. The resolution was approved. Poland was admitted to NATO and saw its first free election in 1989.

Czarnecki said of all of his life's accomplishments, the resolution is the one he is most proud of because it contributed to the military security of Poland and Central Europe. Then-President of Poland Aleksander Kwasniewski awarded Czarnecki and Maria with the Knight Cross of the Medal of Merit of the Republic of Poland in 1999 for their contribution.

ON THE GO

Though Czarnecki could sit down, write a book, and reflect on the phenomenal accomplishments in his life, he would rather keep moving. Retirement is not a word he mentions, nor is "staycation." Just last year, he traveled to Antarctica, with a portion of his journey spent on an icebreaker with 80 other adventurers. He then retreated to Poland for the summer, as he and his wife do each year.

In reaching out to Czarnecki a week before school started this past August, he said he had returned from Poland and was almost back at LSU but "jumped before classes to the Canadian Rockies for the end of the week."

"I would never not go on a walk with my wife because I have a paper to write," Czarnecki said, summing up his life's philosophy in one sentence.

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