

THIS WAS JUST THEIR LIVES

CAL POLY QL+ CENTER PUTS THE PIECES TOGETHER FOR THE VETERANS' BATTLE AFTER THE WAR BY SCOTT ROARK



A 21-YEAR-OLD WOMAN lies in bed after a tour of duty in Iraq, leg gone from a roadside bomb, wondering if she will ever dance again – ever fall in love.



Another former soldier, a 19-year-old barely out of high school, lies in a hospital with his mother at his side after being severely injured in a firefight in the Iraq desert. Both wonder what's next.

For many Iraq veterans, many the same age as a typical Cal Poly student, the real fight starts when arriving home after the sound and fury of war. Bodies are broken and disfigured. Minds are scarred. The rest of their lives loom before them.

Jon Monett (IE '64) and Robert Barron want to start the healing process for these young veterans and others like them. Both have been instrumental in founding the new QL+ Center on the Cal Poly campus, a facility for research and development of prostheses for individuals who have experienced injuries from weapons, explosives or fire.

The Monett Foundation has supported the creation of the center with a \$500,000 donation. Monett himself said that injured veterans will benefit from the development of technologies in a nonprofit setting.

"I was inspired to do this after seeing the movie 'Fighting for Life,' a documentary film by Terry Sanders that graphically depicts the struggles of wounded Iraq war veterans and the military physicians that care for them," said Monett, who recently owned a technology consulting company. "We are, in effect, creating a start-up with a nonprofit motive."

Monett and Barron are both long retired from government service, serving during the Cold War era and accumulating remarkable experience and perspective. Barron was a senior disguise specialist for the CIA, a talented artist who virtually transformed people's identities with the use of silicone masks and high-tech prosthetic devices, all having to pass the closest of scrutiny "or agents' lives would be in jeopardy" said Barron.

Barron is working directly with QL+ researchers at Cal Poly. He found his second calling shortly after retiring from the agency in the early 1980s. After attending a seminar on

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(L) Robert Barron in his lab; (Above) Jon Monett



(Above) Before and after shots of Barron's clients with their prosthetic devices

biomedical sculptures, Barron realized if he could put someone in hiding with an advanced disguise, he could bring a disfigured person out of hiding with a prosthetic device. Barron has helped hundreds of people since, many suffering from accidents or birth deformities.

"A prosthetic device increases the quality of life, eliminating the embarrassing stares and unwanted attention produced by differences," said Barron. "It allows individuals to socially interact on a day-to-day basis and return to society as contributing members, serving a great psychological benefit in the rehabilitation of a person's mental and physical well-being. It's very gratifying work."

Cal Poly Engineering Professor Dan Walsh is spearheading the on-campus effort, bringing together a group of multidisciplinary faculty and students in the College of Engineering and potentially other disciplines throughout Cal Poly. "The focal point is improving people and society – and students will be heavily involved with the research," said Walsh, who also was moved by Sanders' film.

The disciplines come together in remarkable ways. Consider how a typical prosthetic is made, said Martin Koch, laboratory manager and member of the Cal Poly QL+ research team.

If you need to build a finger, you cast an existing finger and sculpt it with clay as a mirror image. A silicone mold results. The silicone finger then needs to be colored. An artist such

as Barron spends hours coloring the silicone to make it look natural, drawing in the veins and pores to match the skin tone and look of the patient. Several layers are used, the top layer translucent like skin. The lower layers have the veins.

The QL+ Center would take this technology a step further, combining CAD scanning and molding, streamlining the process of creating prosthetics by bringing together new and old technology.

If someone lost an ear, a laser could scan the remaining ear, creating a CAD image or mirror image of the lost ear. The silicone mold would be cast from this data; then artists such as Barron would perform their magic, matching the skin tone, etc. The new ear would be attached to the side of the patient's skull using titanium pins.

Engineering, art and design are truly blended into one, said Walsh.

Many returning Iraq war veterans have physical problems that are even more severe, but the principle and technology for healing are the same. According to Monett, the QL+ Center will build on what Bob Barron has already accomplished, finding new ways to efficiently develop these prosthetic devices as wounded soldiers return home.

"The men and woman who volunteer to enter the armed forces are some of the best," said Monett. "It is incumbent on us to support them in their time of need." □

Editors Note: For more information on Robert Barron's work, visit www.prosthesis.com. For more information on Terry Sanders' film "Fighting for Life," which premieres Memorial Day weekend on National Public Television, visit www.fightingforlifethemovie.com