

Creepy-crawly science that matters

How an ASU researcher developed lifesaving antivenom against scorpions

By Lisa Robbins, ASU News
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Written by Douglas C. Towne

When Karen Clark was a child traveling with her grandfather, the late ASU Professor Herbert L. Stahnke, she didn't realize how unusual their evening routines were.

"When we arrived at our destination, we always hunted outside for scorpions that glowed under our black light," says the retired nurse. "It wasn't until later that I learned that normal people didn't do that. But scorpions were my grandfather's passion."

Clark also recalls watching him extract venom from the stingers of these nocturnal arachnids at the exotic-sounding Poisonous Animals Research Laboratory, which he founded at ASU in 1945. As the lab's name suggests, scientists studied more than just scorpions there.

Two things were constant across the research.

"My grandfather had a great sense of humor and instilled in our family the importance of education and science," Clark says.

Stahnke, who at the time was the nation's leading authority on scorpions, had big ambitions at the lab, where research also focused on black widow spiders, centipedes, tarantulas and Gila monsters. He dedicated years to developing an antivenom for infants who experienced life-threatening reactions to scorpion stings, the kind of revolutionary discovery that continues today at ASU.

Crowdsourcing a cure

Stahnke achieved his objective with the help of the Valley community, which supported him in one of the most unusual crowdsourcing medical campaigns in history.

He needed hundreds of specimens for his scorpion research. As early as the mid-1930s, Stahnke called on the public to bring him specimens so he could identify different species and collect their

venom. In 1951, his appeals for scorpions to produce antivenom went viral. Life magazine covered his outreach, calling it a “scorpion roundup.” Stahnke needed about 150 scorpions to produce a single dose of antivenom, so the publicity was welcome.

“Several kids, including myself, in our Tempe neighborhood collected scorpions for him,” says John Gwilliam, a retired plumber. “He paid us 5 to 25 cents apiece for them, depending on the species.”

According to ASU Archivist Shannon Walker, there were many drop-off locations around the city.

“As he involved the public, each person who participated became what we would call today a ‘citizen scientist.’ In a way, it became a clever marketing campaign raising awareness of the lab and its research and allowing citizens to participate,” she says.

Handling dangerous desert creatures seemed like an unusual career choice for an urban kid who grew up in Chicago. Stahnke loved biology, though, and after graduating from The University of Chicago in 1928, he followed his fiancée, Lydia Stille, to Arizona, where he taught science at Mesa High School.

Stahnke’s PhD dissertation, “The Scorpions of Arizona,” was inspired by a child in Mesa who died from a scorpion sting. Two years later, he became the first head of the Department of Biological Sciences at Arizona State College, the predecessor to ASU.

In a 1943 article in Popular Science magazine, Stahnke points out that scorpions’ stings had killed twice as many people in Arizona as all other venomous creatures combined over the past 20 years. He also discovered that treating patients with morphine for pain relief — standard practice at the time — made the venom more toxic.

Saving lives

To fill the need and literally save lives, Stahnke founded ASU’s Poisonous Animals Research Laboratory in 1945. It transformed how Arizonans interact with their natural habitat even today, according to Walker.

“One of the most important aspects of Stahnke’s legacy is the way he used education and science to dispel myths and superstitions about scorpions and other venomous creatures,” Walker says. “Instead, he promoted curiosity and knowledge of their behavior and habits for proper avoidance.”

The charismatic ASU professor became a scientific celebrity through his writing and lecturing, which included a six-month speaking tour of Europe in 1961. Stahnke also hosted his own TV show, “Desert Denizens,” which aired locally from 1953 to 1957.

Rosalind Hussong recalls attending a presentation by Stahnke. “He emphasized respecting the snakes and their vital role in maintaining the ecosystem balance,” says the retired California medical professional. “People were drawn to him, and he patiently answered question after question. He was an environmentalist before the term became popular.”

By 1948, Stahnke had developed a scorpion antivenom that was credited with saving many young lives, including that of Neil Wheeler, ’75 BA in anthropology, in 1951.

"I was stung by a bark scorpion at the age of 6 months and was in convulsions with a 106-degree fever at Good Sam Hospital," says the retired teacher who lives in central Arizona. "The doctors told my mother it was unlikely I'd survive."

Miraculously, a hospital intern who had studied under Stahnke called him at his ASU office, and Stahnke personally delivered the antivenom.

"Twenty years later, as a student at ASU, I looked Dr. Stahnke up to thank him," Wheeler says.

If there were a local 'Nobel' prize for venomous animal research, it should be named after him. My patients and I have benefited tremendously from his work.

—

Dr. Frank LoVecchio

Medical director of clinical research at ASU's College of Health Solutions

A legacy that endured

Stahnke retired from ASU in 1972, having earned numerous research grants and published 23 books and 96 academic articles. He passed away in 1990, but former ASU students still vividly remember his classes, including Athia Hardt, who enrolled in one in 1969.

"Stahnke was an interesting guy, very confident in his theories, and was a famous figure on campus," says Hardt, who served as press secretary for Govs. Bruce Babbitt and Rose Mofford.

Stahnke's influence may have even reached Hollywood in "The Fabelmans," a 2022 semi-autobiographical film directed by Steven Spielberg.

"When the main character was young, he and some friends were seen collecting scorpions in the desert to raise money for film and supplies," Walker says. "Knowing that Mr. Spielberg lived in Phoenix for some time, I'd be willing to bet money that he was sending those specimens to Dr. Stahnke's lab."

Truly revolutionary science that mattered

The importance of Stahnke's antivenom cannot be understated.

"If there were a local 'Nobel' prize for venomous animal research, it should be named after him," says Dr. Frank LoVecchio, medical director of clinical research at ASU's College of Health Solutions, who served on the faculty of Banner Poison and Drug Information Center from 1996 to 2020. "My patients and I have benefited tremendously from his work."

LoVecchio says that if a toddler required a hospital admission after a scorpion sting, they would often sedate the child and sometimes put them into a medically induced coma. The other option was Stahnke's antivenom.

"Patients would often reverse within an hour and return to baseline shortly after administration," he says. "The antivenom saved lives, lowered medical costs and reduced unnecessary hospital stays and suffering for patients and their families."

Stahnke's lab closed in 1988 after successfully advancing medical treatments for bites or stings. Its antivenom was still given out until supplies were depleted around 2004, according to LoVecchio.

Today, scorpion antivenom developed by a private company is used to treat stings — unfortunately, LoVecchio says, at a higher cost.

Lifesaving research continues at ASU

Research in ASU's [School of Life Sciences](#) involving these often-mysterious animals still moves forward; a team recently sequenced the entire genome of a Gila monster. Its DNA code reveals incredible chromosome diversity and provides insights into the reptile's evolution. The data could help treat Type 2 diabetes in humans.

Although unrelated to Stahnke's research, ASU is still making pioneering discoveries that have vital implications.

About the author

A longtime contributor to Phoenix magazine, Douglas C. Towne cofounded and serves as the editor of Arizona Contractor & Community magazine. The periodical received the Al Mérito Award from the Arizona Historical Society in 2022, marking the first time a publication had earned the honor in the award's 52-year history.

This story originally appeared on [ASU News](#).

Main image



Professor Herbert L. Stahnke examines a scorpion specimen under the microscope in the Poisonous Animals Research Lab at ASU, 1959. Photo courtesy ASU Archives

Text image(s)

Up Arizona
Sep 10-48

Dear Father Emmett -

It has been called to my attention that you need live scorpions. We have a great many here and whenever I can catch any I would be happy to send it to you if you will let me know just how to go about it. Of course they are not marlable but if you wish I think they could be sent by Express or on the bus. I have one on hand now which I can send as soon as you let me

No caption

Gallery



Lydia Stahnke stands in front of two wooden doors decorated with scorpions at their Mesa home, 1956.



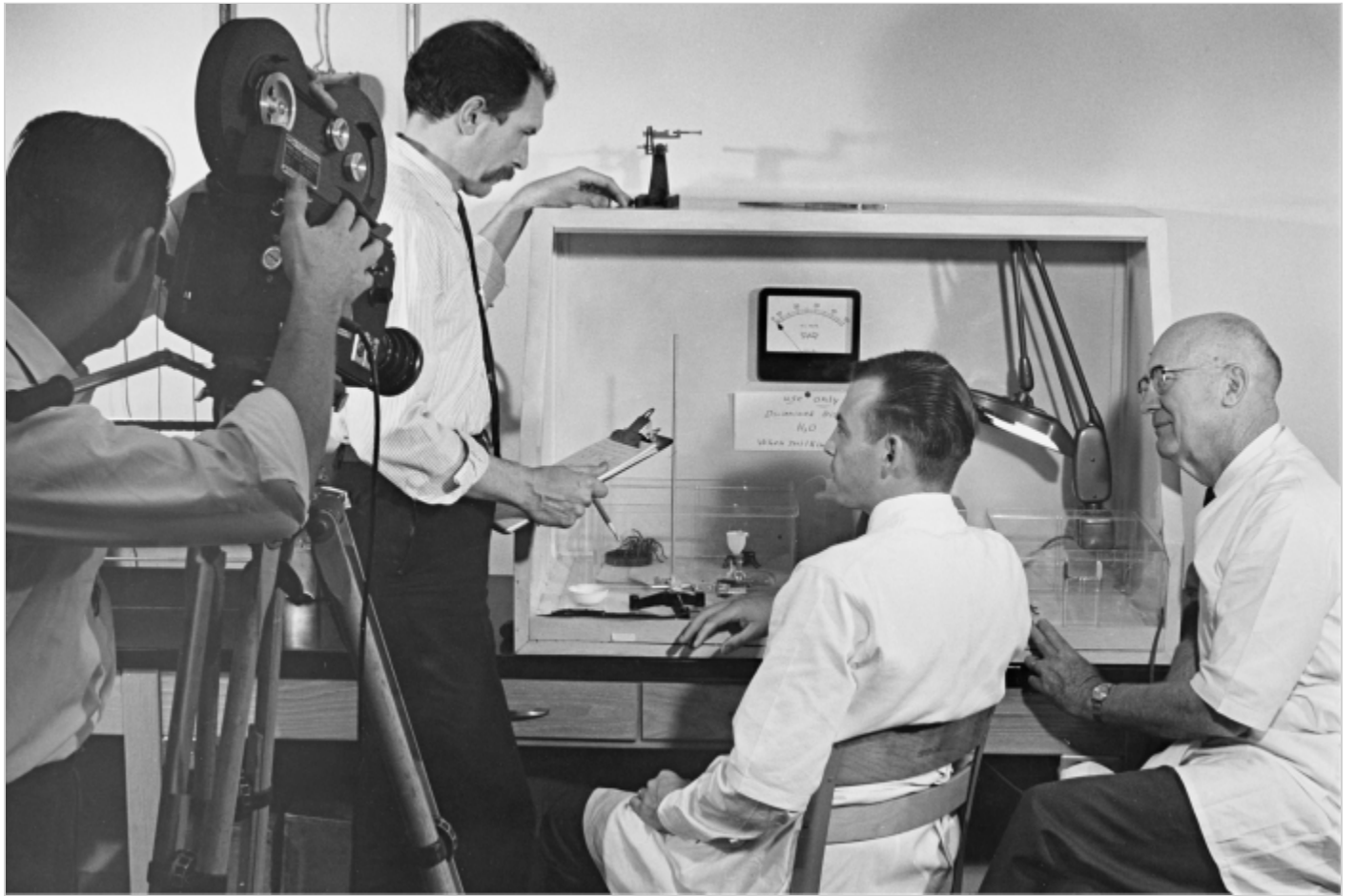
Herbert Stahnke and a student examine a Gila monster in the 1950s.



Herbert Stahnke and a student with a rattlesnake specimen in the 1950s.



Herbert Stahnke teaching a class, while Dean McGrath of the College of Education observes in 1957.



Herbert Stahnke and an associate being filmed as part of the lab's efforts to enhance public education, 1959.