
World of wonder led former fair participants into medical field:[1 2 7 Edition]

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For chart see microfilm.

For the record | An information box that appeared yesterday with an article on the Greater San Diego Science & Engineering Fair incorrectly identified Sunday as Family Day at the fair. Family Day is today. The Union-Tribune regrets the error. (04/15/2000, B-2)

Long before starting his own company to perform clinical trials on new treatments for Alzheimer's disease, depression and other conditions, Stephen G. Thein Jr., already had made a name for himself in science.

And before Almeda Starkey started her Pine Valley veterinary clinic, she did the same.

They both won first-place awards in the Greater San Diego Science & Engineering Fair.

Back in 1963, Thein and James Cooperman, a classmate at Point Loma High School, experimented with a way to amplify the low voltage of nerve impulses in a frog's leg.

"And the project was a failure," said Thein, director of the Pacific Research Network in Hillcrest.

In 1972, Starkey (then Almeda Lynn) ran laboratory rats through mazes to see how use of an exercise belt and temperature changes affected their ability to learn. Exercise helped, she found.

But as hundreds of participants will discover from the fair's 46th annual event, which is open to the public at the Balboa Park Activity Center through Sunday, just getting a little exposure to science and some support to explore an interesting idea can be as encouraging as the actual results.

"For me it wasn't so much the competition (as) the field trips" fair participants get to take, Starkey said.

Visits to Balboa Hospital, where she remembers seeing microscopes and cells projected from slides onto a screen, and to Navy research labs and a submarine -- all full of the latest technology -- made a big impression on the Sacred Heart Parish schoolgirl.

"It opened up a whole area that I had not been introduced to," Starkey said, explaining that no one in her family had a background in science or medicine. "I pretty much attribute where I am today, actually, as starting with the science fair."

And Thein, who has been a judge in the science fair for most of the past 30 years, said the event allows kids to "push the envelope a bit."

"It's less structured learning. It rewards creativity and it stimulates thinking," he said. "It's also an opportunity for some kids who probably today would be branded nerdy or geeky to excel and get recognition, because unfortunately I think our society tends to recognize fashions and trends rather than creative thinking."

Thein's work with frogs may not have been a complete success, but he maintained a lasting interest in the central nervous system.

A licensed clinical psychologist with a Ph.D. from United States International University, he began doing work in clinical-trial medicine 25 years ago, eventually forming Pacific Research Network. Besides the home facility on Fourth Avenue in Hillcrest, he has two clinics in Riverside County.

Working primarily for pharmaceutical companies, Thein's company has conducted trials of medications for Alzheimer's, sleep apnea, depression, social anxieties and more. Its specialty is geriatric psychology and neurology.

Clinical trials, typically conducted among different populations all over the world, are the critical step in determining whether a drug is safe and effective -- as the federal government requires -- for the disease being treated.

Work currently under way at Pacific Research Network and elsewhere, for example, may allow a promising drug already used as an anti-inflammatory for arthritis symptoms to be used in slowing the progress of Alzheimer's.

Years ago, the company was involved in trials of the anti-depressant Xanax, and more recently, Thein said, it has worked with anti-impotence drugs.

But before any of that was the science fair.

In 1961, as a student at Dana Junior High, Thein submitted a project called "Talking With Light" -- a transmitter and receiver to send a voice over what was essentially a flashlight beam.

Two years later, Thein and his friend turned to the medical field with an ambitious project they called "Amplification of Nerve Impulses," using a frog as their subject.

"One of the things that we had read was that to maintain nerve conduction, you can't use a normal anesthetic because it either eliminates nerve conduction or slows it down," he recalled.

"In reading, we learned that what still allows for conduction -- what renders the frog immobile -- is curare. So we got curare, and injected it into the frog and sliced open the legs and attempted to amplify the nerve impulses."

Alas, there was a problem. The nerve-impulse signal was so small, it was masked by the electronic circuitry being used to measure and record it.

To top it off, the students later realized they should have immobilized their subject through its spinal column. "We learned that the frog felt everything," Thein said. "We felt horrible."

Still, the judges were impressed enough to give the team a senior group sweepstakes award, one of the top prizes. "We were extraordinarily thorough in our literature," Thein said, "and in documenting every single experiment and recognizing our failures.

"In science, the answers are won with a lot of losses, a lot of negative findings."

Starkey, who later earned degrees from the University of California San Diego and UC Davis, doesn't even remember how temperatures figured into the results of her experiments with lab rats. The project, which won a senior sweepstakes award, carried her all the way to the international finals in New Orleans.

A where-are-they-now review of winners from the first 39 years of the San Diego science fair, published in 1994, listed dozens of others who moved on to bigger roles in the science, medical and engineering communities: whiz kids who became science teachers and professors, physicians, company presidents and vice presidents, physicists, dentists, research geophysicists and mechanical engineers.

For Thein, given the unfortunate miscalculation with the frog anesthetic, it was perhaps appropriate that in his professional career he would become deeply involved with a human subjects committee, responsible for protecting the rights of those involved in medical research.

And what became of high-school partner James Cooperman, whom Thein describes as the brains of the nerve experiment?

Cooperman became a conscientious objector during the Vietnam War and fled to Canada to avoid the draft. He built his own log cabin and began living off the land.

The last Thein heard of him, he was running a community sawmill.

[Illustration]

2 PICS | 1 CHART; Caption: 1. Beginnings: In 1963, Stephen Thein (right) and James Cooperman won an award for an experiment on how to amplify the low voltage of nerve impulses in a frog's leg. 2. Psychologist: Stephen Thein, founder and president of Pacific Research Network, explained his 1963 science fair project. 3. If you go (B-4:2,7; B-8:1); Credit: 1. STEPHEN THEIN 2. NELVIN CEPEDA / Union-Tribune 3. UNION- TRIBUNE

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