



IN LOVING MEMORY OF
Elizabeth Irving Arnold 1937-2024
Herpetologist
by her daughter Lucinda Choules



Figure 1- Elizabeth Irving Arnold at the Beach in San Diego, CA.

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Memorial for Elizabeth Irving Arnold



Figure 2- Elizabeth Arnold wearing her father's lab coat and copying him in the lab.

lab. Professor Emerson was impressed by Bill Arnold's rather amazing math skills and asked him to work in his lab helping with research into photosynthesis. They were successful in their



Figure 3- William A. Arnold

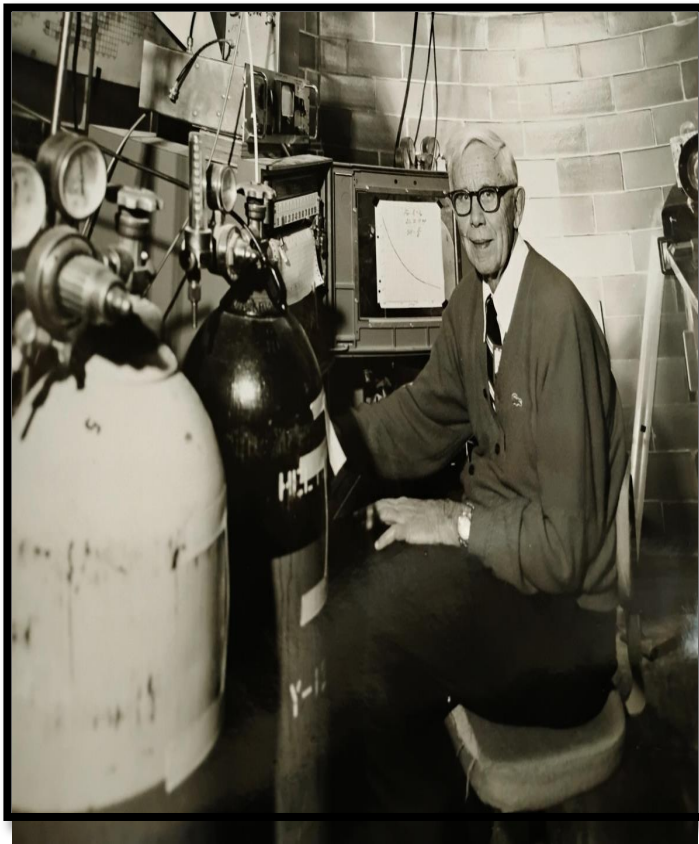
My mother Elizabeth Irving Arnold was born May 16, 1937, in San Diego, California, the daughter of Dr. William Archibald Arnold and Jean Thompkins Arnold. Young William A. Arnold (Bill) had dreams of becoming an Astronomer but an elective course would change his life forever. The Professor for this course was Robert Emerson who was conducting novel experiments in his

experiments and while still an Undergraduate student William A. Arnold was published with Robert Emerson. Harvard then offered William A. Arnold a full scholarship in exchange for working in their lab and helping his peers. Bill helped several of his peers get published while he attended Harvard. Because of this, his Dissertation defense consisted of just one question "How do you make maple syrup" A question his Professor knew Bill could easily answer as he grew up on a farm.

Dr. William A. Arnold and his wife Jean had two daughters Elizabeth and Helen this is a tribute to his eldest daughter Elizabeth who is my mother.

Elizabeth Irving Arnold (Mom) spent her toddler years in California, and then her family moved to a house near Niels Bohr's Lab in Copenhagen, Denmark as her father was granted a graduate assistantship there. Atomic work was being conducted at this lab when he arrived, and they were successful at splitting atoms to release a lot of energy for the first time. My Grandfather (Figure 3) was just assisting with these experiments; they were not his discovery.

However, he did help name their new discovery as they asked him "What is it called when cells divide?" and he replied, "Binary fission." They kept the fission part and named their discovery "Nuclear Fission." Not long after this discovery, Mom's family was ordered to return home to America early, as tensions with Hitler made all Americans living in or near Germany targets, especially scientists.



A short time after they returned home, Dr. Arnold was offered a professor position at a prestigious, University, but he never got to teach a class, as he received a formal but odd letter, that stated, "He and his family must report to Oak Ridge, TN, immediately to protect his country by working on a secret Project." That secret project we know today was called the *Manhattan Project*.

Figure 4- Dr. William A. Arnold at Oak Ridge National Laboratory. Jan 22, 1974. Photo credit R.C. Fuller.

Thus, my mother grew up in Oak Ridge, TN which was also referred to as “The City behind the Fence” or “The Secret City” (Johnson, CW, Jackson, CO, 1981), because this new isolated small city was a government installation that had drafted every physicist that they could find at the time including my grandfather. Each Physicist was given modest housing surrounded by a beautiful woods.

Mom’s Fascination with snakes began in Oak Ridge.

While their parents worked, the children of Oak Ridge played games together in the huge woods surrounding their homes. One day my mother and her sister Helen were playing in the woods behind their home when Mom spotted a pretty stick on the ground. She pounced on it and quickly lifted the stick; it felt oddly cool and she marveled at its colors sparkling in the sun. Suddenly the stick turned over in her hand and a roundish face appeared; she stood transfixed for a moment staring into its eyes until fear took over as she realized it was in fact a snake and she gently but quickly put it back down on the ground. This encounter was the

beginning of a lifelong fascination with snakes and all other reptiles for my Mom.

Elizabeth Irving Arnold graduated from Oak Ridge High School in June 1954, and soon after she was accepted to the University of Rochester where she achieved a Bachelor of Arts degree in 1958. Not long after graduation



Figure 5- An Oak Ridge Christmas party, photo taken by Jean Arnold.

William Arnold is in front; Elizabeth Arnold is on the right; others are:

Dorothy Habib (his sister) in the middle and their neighbors.

Memorial for Elizabeth Irving Arnold



Figure 6 - Elizabeth Arnold working in the Greenhouse at Johns Hopkins University.

she was accepted to the Masters program at Johns Hopkins University.

Reptile keepers generally spend a lot of time cultivating plants as well as caring for their animals and my mother learned to care for an array of different plants at University. My mother was particularly fond of Monstera, banana plants, and ferns.

Mom achieved her Master's degree at Johns Hopkins University where she also met, fell in love with and married my father George Lew Choules on July 16, 1960-pictured below

Figure 7 - cutting their wedding cake

Figure 8 -newly married couple



Figure 9 (just above- on the left) : Moms' family- Jean, Helen, and William Arnold. Figure 10 (just above on the right) : Moms' new family- Lew's mom Ester is on the far left; sister in law Doris in the middle, mom, Lew and brother John in the back.

My parents had three daughters Jennifer, Lucinda (Cindy), and Pamela, and we were all about a year and a half apart in age. I was born in California and then we moved to Utah. My name was a compromise - mom wanted to name me Cindy, but Dad wanted his name “Lew” carried on so they named me Lucinda. Mom always just called me Cindy.

Figure 11 -Mom with Cindy (right) and Jenny (left) after making snow angels.



My father taught classes at the University of Utah for a while and later was hired as a civilian Chemist at Dugway Proving Grounds in the Utah Desert. My mother was hired at Utah's Hogle Zoo and worked there for all of my childhood and into my teens. Both my parents loved sailing and owned a sailboat and two canoes. Mom was a Girl scout leader and took them to neighboring lakes to canoe and hike.

We always had a ton of animals at the house including a pet armadillo named Sancho who resembled a small fuzzy army tank with legs. Mom raised him and he was very friendly.

Mom the Zookeeper

Hogle Zoo

My mother worked in the small animal building at Utah's Hogle Zoo. The small animal building had a rainforest zone in the middle that people could walk through- iguanas and birds were most numerous here. There was a temperate zone, and desert zone, and multiple snake and other reptile exhibits. In one of the zones there were 3 loose hornbills that could hop or flutter up to you if they chose to- named Hekyl, Jekyll, and Ludwig. I adored Ludwig the ground hornbill and he rode around on my arm for most of my visits there as I have always loved birds as much as my mother loved reptiles.



Figure 12 (left): Sue Armstrong, Elizabeth Arnold, and Joyce Palmer. Figure 13 (middle): Mom and Rango in the baby nursery at Hogle Zoo. Figure 14 (right) -Mom and a lemur.

My mom also helped out in the baby nursery located at the employee entrance to the zoo and here she raised a baby orangutan named “Rango” and he stole her heart, even when he was transferred to another Zoo to be put into a new family group; mom continued to visit him for many years and always loved him like a son.

In 1984, I went on foreign exchange for a year to Australia for my last year of High School. When I returned home, I found my family in turmoil as my parents were divorcing. Sadly, just a few years later my Dad died from pneumonia. Mom never remarried and continued to work as a zookeeper at Utah’s Hogle Zoo and at a lab caring for hoof stock with Jarvik artificial hearts. About a year later, mom was hired at a University owned venom research lab caring for venomous snakes where she worked for a couple years and made a life long friend named Jim Glenn.

My mom cared for venomous snakes for over 40 years and was only bitten by a venomous snake once. She was working at the venom research lab and trying to feed multiple baby rattlesnakes at the same time when one of them bit her. Unfortunately, baby rattlesnake venom is very concentrated and can be more or just as lethal as an adult snake bite, but she was administered antivenom aka antivenin almost immediately which saved her life. She did suffer serum sickness from the antivenin but otherwise was fine and made a full recovery. While some people may have chosen another line of work after such an event mom went back to her beloved snakes as soon as she was strong enough.

In July 1988, Mom was hired as the Senior reptile keeper at the Dickerson Park Zoo in Springfield, Missouri, and she worked there for 12 years before retiring.

The Dickerson Park Zoo (DPZ)

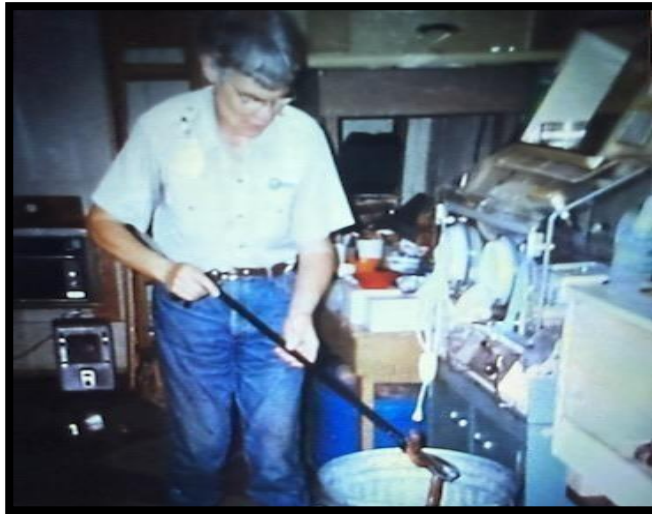


Figure 15(left)- Mom moving a venomous snake at DPZ.

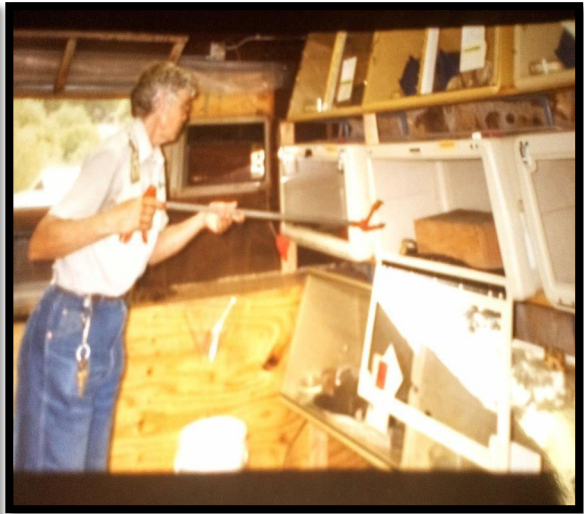


Figure 16 (right) Mom catching a snake at DPZ.

My mother cared for some amazing reptiles at this zoo including huge tortoises, snakes, alligators and lizards. Mom loved it here as she was working her dream job caring for all of her favorite animals. She was a brave, hardworking, rather fearless keeper, and during her 12 years there she was only



Figure 17 - Mom's favorite rattlesnake at DPZ



Figure 18 -Mom working as a Docent for the SA Zoo.

bitten by a snake once. Mom was feeding a large Burmese Python- which suddenly bit her arm and then wrapped around her arm constricting it. Mom radioed for help "*The snakes got me*"- her curator Mike Crocker rushed over to her and rescued her from the snake, then he returned the snake back to its cage. This incident is documented in his book called *True Tales from*

Dickerson Park Zoo (2021). Mom retired from the Dickerson Park Zoo in May 2000, and moved to a property next to mine in Seguin, TX then

began Volunteering as a docent for the San Antonio Zoo where she delighted children with her snake stories.

Mom used her abbreviated first name “Liz” as a reptile pun and she added a lizard next to her name when she signed Liz Arnold in letters. Mom had her own unique set of words and phrases that were endearing. For instance, if you said something that she thought was ridiculous, she would say “Oh Piffle “; if you said something that upset her, she would tell you to “go jump in the lake.”

Mom was my best friend and confidant, and she flew all the way to Australia to walk me down the aisle at my wedding Figure 19 ; also see Figures 20-21 below.



Figure 19- Mom walking me down the aisle.



Figure 20- Mom and I with some friends.



Figure 21- My mom taking a picture of me, taking one of her. 📷



My mother's favorite zoo was the Dickerson Park Zoo and following her death, I called and spoke to the Curator Mike Crocker about a memorial and he designed a plaque for her at their new alligator exhibit (see Figures 22 and 23 below). So if you are ever in Springfield, MO please stop in to the Dickerson Park Zoo and visit mom's plaque at the alligator exhibit. Mom loved this

Zoo and you will too. 🐊



Figure 22- Moms memorial plaque.



Figure 23- Alligator in the exhibit.

Mom's Career Contributions

(1) A lifetime of Reptile Conservation and Management.

(2) The creation of antivenin that has saved countless lives.

Plus- She helped care for the animals testing the first Jarvik artificial hearts which extend the lives of cardiac patients.



Figure 24 - above is a collage of photos of my 3 favorite people- Grandpa Bill, Grandma Jean, and Mom who sadly have left this World.

Goodbye Mom- You were my best friend and confidant and were taken from the World a decade too early, but at least now you are with your parents again. I am so sorry that I could not save you. I love you and miss you more each day.

Acknowledgements

I thank **Govindjee Govindjee** (email: gov@illinois.edu) for reading the above tribute on my mother Elizabeth Arnold, and for helping with a few edits of it, plus coauthoring an article on my grandfather William A. Arnold.

(Choules L and Govindjee (2014) Stories and photographs of William A. Arnold (1904-2001): A pioneer of photosynthesis and a wonderful friend. *Photosynthesis Research* 122: 87-95.)

A special thank you to **Dylan Perry** for artistic and technical support with this paper. Cover Photo border designed with Canva by Lucinda Choules.

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