

Painting the sky with Pyrotechnics

Article by Becky Talley
Fence Post Staff Reporter

On this fourth of July evening, in fairgrounds' arenas, front lawns and parks across the nation, tons of people will be seen craning their neck skyward, faces upturned to the heavens and filled with anticipation. Soon the air will be saturated with "oohs" and "aahs" as well as earth-shaking booms, as the dark canvas of sky is miraculously filled with a stunning, sparkling light show of all shapes and colors. It is a show that is guaranteed to bring a smile to faces aged 1 to 100, and it is a show that has been doing just that for centuries. These exploding, awe inspiring effects are fireworks and no celebration or event is complete without them!

Fireworks have been a part of the human experience for over 1,000 years.

The story (according to www.twilightbridge.com) goes that a cook in 9th century China accidentally

mixed three common kitchen ingredients: potassium nitrate, sulphur and charcoal, and lit it. The result of this historically significant mistake was

colorful flames and a tremendous explosion when enclosed in a hollow bamboo chute and burned. The explosion was so loud that these early day fireworks were initially used as a way to scare away evil spirits. Eventually these colorful displays became a way to celebrate weddings, victories in battles and religious events.

Legend goes that fireworks came to the West through explorer Marco Polo, and these illuminating displays exploded in popularity in celebrations throughout history! Today, fireworks are a mainstay of celebrations and can be seen in the skies all

across the world.

But, did you ever wonder, during the fireworks show at your local county fair, what fireworks are all about and who actually sets them off?

To understand all of this you must get into the mind of a pyro — a pyrotechnician that is!

Larry Darrington Jr. and wife Ginger, of Pierce, Colo., are two people that really enjoy blowing things up. As owners of Angel Light Pyrotechnics, they get many chances to share their passion with audiences throughout Northern Colorado, hoping to get them just as fired up about fireworks as they are.

"We're always looking for an excuse to do fireworks," Larry related.

Larry, in particular, has been a firework aficionado since he can remember.

He says when he was around 3 to 5 years old he can remember his father and grandfather taking him to a fireworks stand in Greeley.

Photos courtesy of
Angel Light Pyrotechnics
and Dale Netherton

Owners Larry Darrington Jr. and his wife, Ginger, are shown holding 5-inch shells. The small white attachment on each shell is a rising tail, also known as a comet.

Photo by Dale Netherton





The wiring field for this show involved stringing 1,500 feet of wire, and that was just for the small effects!

"That's when they could sell the good stuff," he recalled.

At the stand he got an assorted pack of Liberty Eagle fireworks. Showing shades of his future occupation, he got home and took all the fireworks out of the pack and arranged them by size on the table because he just couldn't wait to shoot them off.

Eventually, because of safety reasons fewer fireworks were available to the consumer.

"They kept outlawing more of the good stuff," he said, adding, "I just decided I had to find a way to do this (shooting fireworks) legally."

Larry's chance came in 1995 while he was at a fireworks show at the University of Northern Colorado. He met Marc Williams of pyrotechnics company Night Musick INC., of Parker, Colo., and showed his interest in fireworks.

"From that day being under the shells that close and feeling the lift charge, I was hooked. If I was a spectator, I wasn't close enough," said Larry.

In 1997, Larry received his shooter's license and performed his first show for his church's youth group in 1998.

"I just enjoyed shooting the fireworks off legally. I was just tickled to find something to support my hobby," he said.

For Ginger, who married into the fireworks life, Larry's "hobby" was a new challenge for her. She was involved in stage performances in the past and really connected with the theatrical side

of the firework shows. She said that she made a choice to be involved in things her husband enjoyed and ...

"luckily, it's kind of cool." Ginger said she really enjoys the electrical side of the business and jokingly added, "If you can't change 'em, join 'em!"

Due to the sincere efforts of the Darringtons, the business boomed, and the first big show Angel Light Pyrotechnics did was at the Johnstown's Barbecue Days, the 100th anniversary for the town and the first fireworks show the town had hosted.

From there, the popularity of the company has spread like wildfire and they have performed shows at the Larimer County Fair, in Milliken, at UNC and at a bull riding event in the Budweiser Events Center, to name a few.

A good fireworks show is a spectacle to see, but the work that goes behind the scenes is tremendous.



Crew members Andrew Space (left) and Matt Grieser fuse multi-shot firework cakes prior to the show.



Multi-shot firework cakes must be specifically angled in order to shoot the right direction. Directional setups can vary according to the wind and weather.



Ginger fuses a Grand Finale. Notice the aluminum foil covering the setup for protection from water and fire.

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Part of the crew takes time to pose for a photo. Pictured from left to right are: Andrew Space, Matt Grieser, Eric Krug, Larry Darrington Sr., and Mike Worley.

Photo by Dale Netherton



"Goodness, Gracious, Great Balls of Fire!" A huge fireball raises from the football field at the Johnstown show held June 6, 2004. Can you feel the heat?

Photo by Dale Netherton

According to Larry and Ginger, safety is always the first priority. Because of this a lot of precautions are taken with the fireworks. They are stored in a bulletproof, weatherproof, fireproof and burglaryproof building a good distance away from people. The equipment and shells are protected from fire by tin foil and from water by plastic sheets.

Another safety precaution taken is a "dud hunt." This requires the crew to scour the mortars (guns that shoot the fireworks) and the area around the show for shells that may not have gone off. To look around the area, the crew will go out at first light the day after a show and make sure they find any misfires before anyone else does.

The sheer time it takes to set up for a show is astounding. The 2003 Larimer County Fair fireworks show only took 2 minutes and 7 seconds to shoot. However, it took a total of 21

hours to set the show up and tear it down.

The company also has to be sure that they have the right size of shells for the area they are in, making sure that no one who watches the display could be injured.

Because the company has had many shows that have been in close proximity to animals, it has to account for their reactions. Often they have to make sure the animals are somewhere that they won't hurt themselves or people when the fireworks begin. Larry related that he even played "firecracker" to a horse that was to carry a small effect attached to the flag. He had to simulate the noise of the firework in the horse's ear to find out what the horse's reaction would be. The noise didn't bother the horse.

For the Darringtons, these shows are not just about shooting off fireworks and going home. They spend a lot of time on the creativity aspect of each show.

"I really like the display and making a picture out of fireworks," said Ginger.

The Darringtons work hard to choreograph their unique fireworks to music, which is provided by Ginger's brother, Gary Hughes, who has a large music collection and arranges music to fit each particular show.

During their Johnstown fireworks display, the Darringtons worked to get all senses involved in the show.

Ginger choreographed the Jerry Lewis song "Great Balls of Fire," with an

effect that looks like a fireball and sent out a heat pulse even before you could hear it.

"We had everything but the taste," said Larry.

They say that people really enjoy the shows because of the extra time they put in to make different shapes like crisscrosses and "V"s.

"We do things that crowds have never seen before," Larry added.

And it is what a crowd sees that is the neatest part of the fireworks game. When a shell explodes, it can be a visual treat, but did you ever wonder what kind of fireworks there are and how they explode into such intricate designs?

According to Larry there are simple fireworks like fountains, other effects called cakes, and aerial shells.

The professional class fountains can burn for over a minute straight. Cakes are a bundle of tubes bound together by one fuse. These tubes can shoot off simultaneously or at different times to create a different display. Aerial shells are the classic fireworks that are seen in the sky.

Shells themselves can range anywhere from 1 3/4 inches to 16 inches. A common shell size is a 12 inches, which is bigger than a basketball and weighs around 15 pounds.

When shells explode, they are fairly proportionate to their size. For example, a 2-inch shell will shoot to a height of about 200 feet and blow up to about 200 feet wide. A 3-inch shell will have an ascent and width of 300 feet, and so on.

A neat fact about a shell is how it is constructed.

"It's still handmade and probably will always be handmade," Ginger said.

The reason is because of the highly flammable powder used to make each shell. A spark from a machine could cause a fire, which is not something you want in a fireworks factory!

A shell itself is a hollow cardboard sphere that is in two halves. The shell (4 to 5 inches, for example) is filled with grape-sized pellets called stars. A timing fuse is included that goes into the core.

When a gun fires the shell, it lights the timing fuse which burns into the core.

When it reaches the core, the shell explodes from the center out, creating a central force which exudes the same pressure on all parts of the shell. As a result you get a perfectly symmetrical shape in the sky.

So, if you see a firework that creates a smiley face, the stars were designed in a smiley face pattern inside the shell during construction. When the shell explodes the stars are pushed out in the same pattern and appear in the same pattern in the sky!

With such an awe-inspiring medium to work with it is no wonder that the Darringtons are passionate about pyro.

In addition to the larger shows, the Darringtons also provide fireworks for weddings, grand openings and basically any celebration you could think of, be it indoor or outdoor and anytime of the year.

"If you can dream it, we can do it. Not even the sky's the limit," related Larry. Ginger added, "There is no limit to where we can do shows or what we can do them for."

If you would like to see the fireworks shows of Angel Light Pyrotechnics you can catch them at the Larimer County Fair and Rodeo August 6-8 and the town of Milliken the weekend after that. You are sure to see some stunning visual wonders

"The sky is our canvas," said Larry. "We like to paint it." ❖

If you are interested in finding out more about fireworks and the pyrotechnics business please contact the Pyrotechnics Guild International at www.pgi.org or the Rocky Mountain Pyrotechnics Guild at <http://ns2.rmpg.org>.

Have a Happy and safe Fourth of July and remember to always supervise children while lighting fireworks!

Would you like to contact the Angel Light Pyrotechnics? If so you can write to Larry and Ginger Darrington at: 43995 WCR 41, Pierce, Colo. 80650; you can also call or fax them at (970) 834-2362; or e-mail info@angellightpyrotechnics.com