

Western Pyrotechnic Association Newsletter

Summer 2017
Vol 28-1

Table of Contents

From the Board	3
Making Amends	6
Winter Blast Roundup	7
MG's Mine Workshop	12
PIT Crew	15
DO IT Announcement	21
A Pyro Tale	22
Maker Faire	23
White Smoke part 1	25



Cover: Rocket Class - Scott Morton

Elected Officers of the WPA

President:	Chuck Eriksen
Vice President:	Greg Dandurand
VP Communications:	Pete Hand
Treasurer:	Jane Anderson
Secretary:	Dennis Miele

THE SMALL PRINT

The Western Pyrotechnic Association, Inc., also known as the WPA, is a non-profit group of fireworks professionals and their apprentices. This newsletter is a vehicle for their exchange of information in this craft and the right to publish this information is guaranteed by the Constitution of the United States of America. Nonetheless, readers are urged to learn and obey all laws and regulations of all federal, state, and local jurisdictions and of their agencies and representatives. Some information herein may contain incomplete descriptions of fireworks techniques based on the experience of its author(s) in a controlled environment with circumstances, and conditions different from the reader. Readers must form their own opinion as to the application of this information. This information is considered documentary in nature and no opinion is given as to its suitability or use. No warranties are made either expressed or implied, including but not limited to warranties of the accuracy of the information herein. The WPA is not responsible for the opinions of authors or mistakes in printing. All information is intended solely for viewing by members of the Western Pyrotechnic Association, Inc. and its associates. The WPA's entire liability and anyone else's remedy shall be a refund of the subscription price. In no event shall the WPA, or its officers, or the editor, be held liable for any damages whatsoever arising out of use or inability to use the information in this publication, even if said parties have been advised of the possibility of such damages. This publication is published by and is the sole property of the copyright owner, and is not to be sold or reproduced in whole or in part without written consent of the editor and publisher. The contents of this newsletter are Copyright 2012. All Rights Reserved by the Western Pyrotechnic Association, Inc., or the author(s), if so indicated, and is re-published by permission of the copyright owner. Any previous agreement to allow any one to re-publish any material from the WPA, Inc. Newsletter is revoked and void as of March 1, 1995. Reproduction without permission will be deemed a purchase and implied authorization by the user to accept billing and make payment of a minimum \$50 user's fee per instance of use. Distribution is limited to paid subscribers. Submission of written material, graphics, and photographs dealing with pyrotechnics or fireworks, related technologies or activities of, and information to the benefit of the members of the WPA, Inc. are gladly solicited. All submissions become the property of the Western Pyrotechnic Association, Inc., and may be edited or rejected for any reason. No payment is made for submissions and submitted materials cannot be returned.

From your President, Chuck Eriksen

It was a lot of work, frustration and fun! Winter Blast 28 had some great moments, a serious scare on Saturday night just after the start of AM Pyro public display started, a fun wine tasting and dinner in the camp parking lot. The Board thanks all of the staff and volunteers who worked so hard to pull the event together, running as smoothly as possible, putting the equipment in storage and cleaning up after the event. Thanks also to all of the great vendors in the Trade Show, Class C tent and Flying Pheonix for pre orders of Class B. We are well into planning Winter Blast 29 and hope you will invite a new person to come with you next year as a guest or new member.

The Board is moving forward on the facility at the Moapa location. We are asking for members who live near the facility to step up and volunteer to be a "Responsible Person" for the magazine at that location. We can't proceed without at least 3 or 4 members doing this for ATF&E inspections and reports of activity in the magazine. This means that at least one responsible person is on location when members are using the facility to make these reports accurate and complete. Jason Creager has taken the lead in organizing this responsible persons list. If you are interested, please contact Jason.

The Board authorized extending Do-It in September by an additional day. We will be setting up on Tuesday and will be able to start shooting on Wednesday. This is a great event with smaller attendance and more time for you manufactures to build, collaborate, socialize and shoot. We should have a class B vendor on site as well. If you have never been to this event, you should try to make it. I don't think you will be disappointed.

We are a volunteer club. We need members to help the club as much as possible. We understand that most members have jobs and lives outside of fireworks and the events. That being said, we need your help. Please consider taking an additional day off from your busy lives and help the club by volunteering to clean up the mess we make during our events. This will help the club save money on day ready labor costs for event cleanup which can help in keeping the event fees as low as possible. If you can't take the time off, offer to man a gate or work on the C or B line as a safety observer.

Finally, I hope you all have a safe 4th of July Season and I look forward to seeing you at an upcoming event.

Chuck



A Peep from the Veep

Greg Dandurand

Wow, I can't believe it is only two weeks until the Fourth of July and I still don't have a complete crew. Plus it is 120 degrees here in Phoenix, which makes it soooo easy to recruit people. Haha. Another Winterblast is behind us and after the fourth, we can all look forward to Do-It. The BOD is already planning for February, so dust off your thinking caps and figure out ways you can volunteer and help. Our two events run smoothly because of the staff and volunteers we have.

The Maker Faire event was a success in the Bay area, a special thank you to Wally Glenn, Mike Garrett and all those who gave up their weekend to bring in new members. We have had quite a few new people come from this event, it is very successful.

There are also some improvements being made behind the scenes to make life easier for our registration staff at our events. It is not something most of the membership will see, except for a more relaxed crew when you check in for an event.

I highly encourage everyone to get involved behind the scenes at our events. It is not hard and there are plenty of people to mentor and guide. We need help. Some of our longer serving staff want to step back, and let someone else handle things. It is a lot of fun, plus you get let in on all the inside jokes.

At the business meeting at WWB, we have three officer positions up for election, please think of serving your club that has served you.

I look forward to seeing you at Do-It this year. Have a safe Fourth of July!!

Greg Dandurand

Secretary's Notes

Dennis Miele

Well, the smoke has cleared, the mortars are empty, and the rocket racks cooled. Yet another successful WWB is now in the books. Thanks to all the staff and volunteers for once again contributing significant time and energy to pull off this event. We've said it before, and frankly, I don't think we will ever stop saying it – we couldn't have done this without you!

For many of us, our thoughts and energies turn to the 4th of July – yet another busy time of the year. And while many of us are gearing up for one or more fireworks shows, your Board and other volunteers are still hard at work to get events going, and make updates to the web-site. Some updates to the web site will help us with getting events set-up and completing registrations. Other updates will make it easier for you to have a sponsored guest. Perhaps one of the most important updates coming is to send you an email reminder of your membership expiration.

From an event perspective, we are underway with WWB 29 and Do-It. And, we've already had some discussions about our next milestone event – WWB 30 that will be celebrated in 2019. We have our ideas on what we might do; what are yours? Submit your ideas to me at secretary@westernpyro.org or to any Board member, or to all of us at bod@westernpyro.org.

In the meantime, I wish you a very happy and safe 4th of July.

Dennis Miele



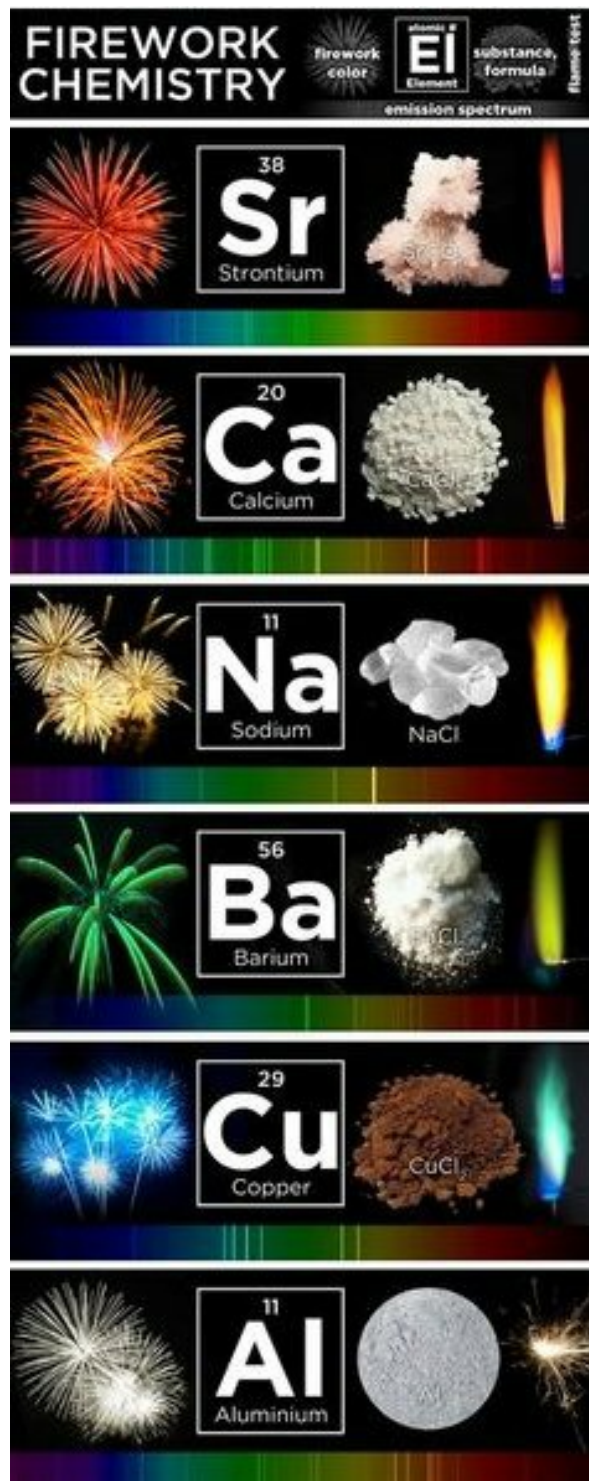
TREASURER'S REPORT

By Jane Anderson

Er ...

That's it.

Here's a useful chart to fill the space.



EDITOR'S NOTES

By Pete Hand

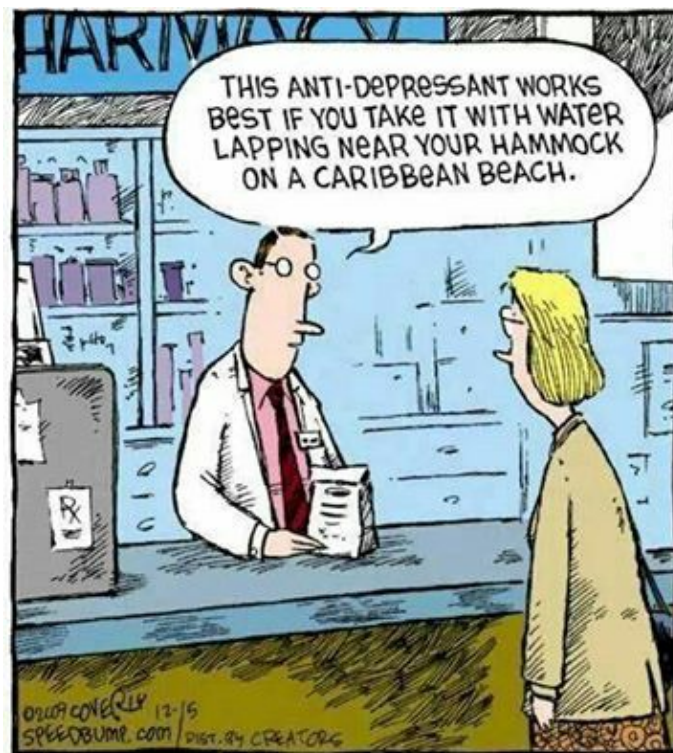
Welcome to the Summer 2017 edition of the WPA Newsletter. It's later than usual, because I had some health problems this spring and was unable to badger my contributors as vigorously as I would have liked to submit their articles and reports. Yet here we are, at last.

This was the year when the PIT Crew returned to Winter Blast, and it was a delight to see the young Pyrotechnicians In Training working with enthusiasm to prepare their display. Todd Hall has written a full report.

In other highlights, Mike Garrett wrote up his Mine Workshop, with many pictures, and Chloe Jennings-White submitted an article on pyrotechnic smoke production - one of at least two, I'm promised.

Finally, I regret to announce that when my term as Communications VP ends in February I shall not stand for re-election. So this is my penultimate Newsletter before I hand over the reins to he or she who comes after me.

Pete Hand



'76 PRO LINE



THE ULTIMATE IN PRECISION AND CONTROL

- E-ports for safe and easy electronic ignition
- Brown wrapper - great for professional shoots
- Continuous firing pattern (no finale rows)
- Reduced tube height and minimal tube separation
- Single effect cakes - make a great scene
- Excellent variety of special effects
- Labeled for duration and effect
- All 1.4g - No ATF license required

★ ★ ★ ★ ★
Spirit of '76

1 (573) 447-1776 | 76FIREWORKS.COM

TWO DISTRIBUTION CENTERS: COLUMBIA, MISSOURI & EASTON, PENNSYLVANIA
LIKE US AT : INSTAGRAM (@76FIREWORKS) • TWITTER (@SO76) • FACEBOOK (76FIREWORKS)

Spirit of '76 -

*So sorry I left your ad out
of the WWB program.*

*Such a fine ad, you put a lot
of work into it.*

*I was especially grateful
because most people are too lazy
to write their own copy and I
have to make their ads up
myself at the last minute.*

*And then I forgot and left
it out. Mea Culpa! I
must be going senile.*

*But more members will see it
here, anyway.*

Are we friends again now?

Ed.

WINTER BLAST XXVIII

Photo Roundup

Wet, windy and darned cold - that was WWB 28 this year. Your correspondent having omitted to take any waterproof gear with him, he almost died of exposure one evening waiting for the public display to begin, and was quite relieved when he could retire to the hotel to dry off and enjoy the afterglow.



The popular hand-rammed rocket seminar was well attended, as usual. After a brief introduction of principles and methods, those taking part got to work swinging hammers to compact the black powder fuel in the casings.



Neither wind nor rain can stop the shell builders, though.



The Jackalopes set up their Thunderbird set piece, with actual thunder threatening in the background. Later, the weather looked more cooperative.







Member's shells



MINE WORKSHOP

By Mike Garrett

The Mines Seminar at WWB was a big success this year with participants building a total of 88 simple bag mines. Everyone involved had a good time and the resulting mines were very unique and gorgeous. Look at the photos for some examples! Many happy faces were seen both in the seminar tent and on the B-line.

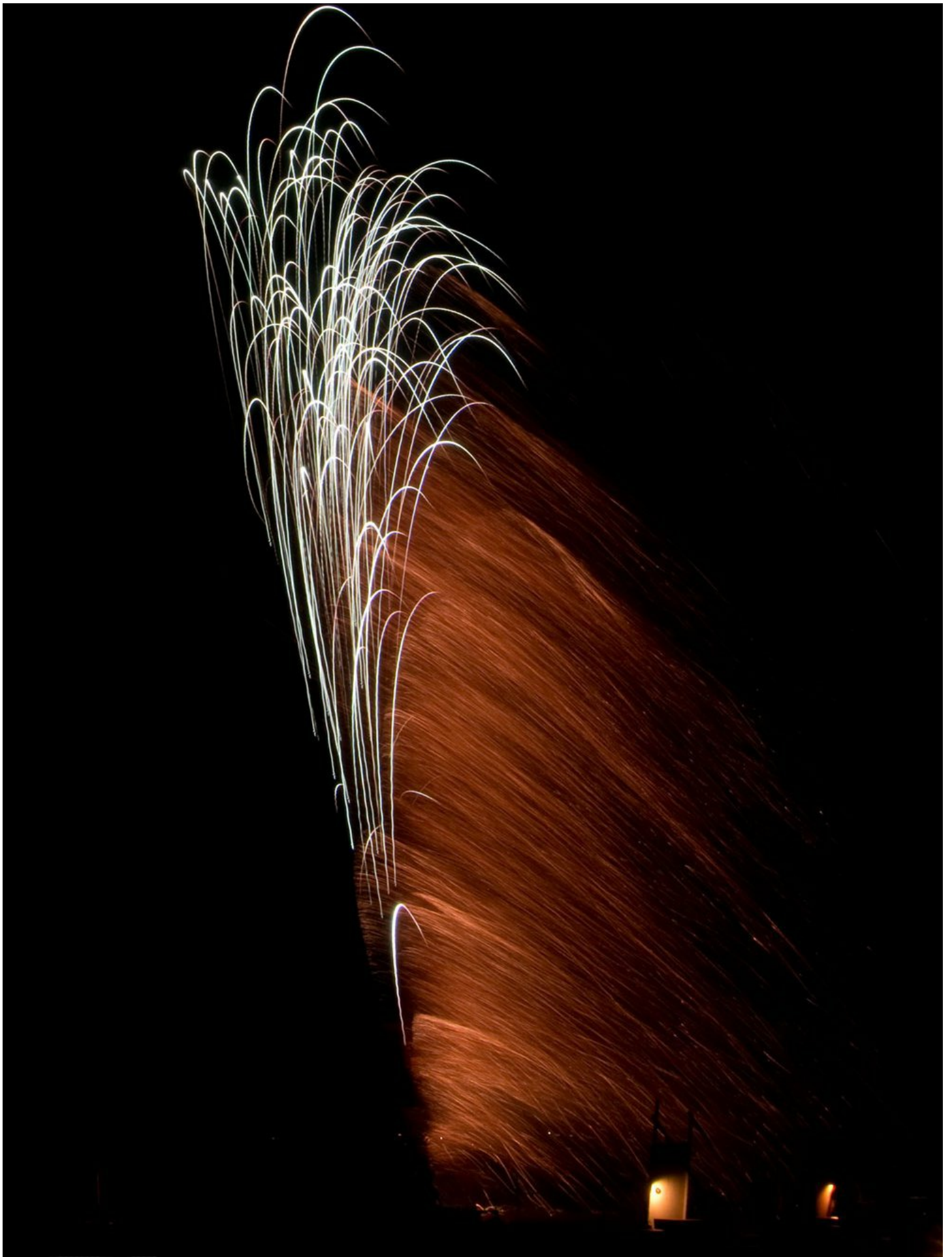
Successfully producing a seminar like this one takes a lot of effort from many people besides the presenters. Lots of important action goes on before, during and after the seminars. This successful seminar was due to the hard work and help of the Mines Seminar Staff of Todd, Gina, Victor, Molly, Wanda, John W, John, Theresa, Chuck, and Arlo; the WWB Seminar co-chairs Kevin and Susan; and the dauntless WPA Staff. I also want to thank AM Pyro for the absolutely beautiful stars they provided again this year (really, look at those photos!).

See y'all in the tent next year.





Seminar-made mines in the ready box, left, and in action, above and next page. Photos by Wanda Garrett.



PIT Crew Returns to Western Winter Blast!

At long last, this year's Western Winter Blast provided fun for the whole family for WPA members with the return of the PIT Crew after a decade-long absence,

PIT – *Pyros in Training* – is a group of youth attendees that participate in a special set of seminars and project builds that gives them a comprehensive, age-appropriate overview of the fireworks trade and the visual art it produces. In all, over a dozen kids aged from 4-18 participated, along with about a half-dozen adults.

Seminars included an "Introduction to Fireworks" presented by Jeremy Mohney of Jake's fireworks which provided details about the fireworks business, types of fireworks, and how to safely display them, followed by "Chemistry of Fireworking" put on by Bruce Beck, who had attendees watch him mix different colored flame compositions that they got to set alight. For a diverse group of kids, the basics of safety and chemistry could be total sleep inducers, but the way the PIT Crew classes were taught had those kids fascinated and continually participating.



Jeremy Mohney teaching "Basics of Fireworking"

Next, Bill Stevenson taught “Fusing Essentials”, which covered chain fusing donated product along with electric firing, including a hands-on demonstration of a Cobra firing system by Todd Hall in which each attendee got to ignite an e-match. Todd followed the e-firing demo up with a session on “Choreography and Soundtrack Design”, and set the group to work on pulling together the right music for a 10-15 minute show.

Following the foundational seminars, the PIT Crew participated in a set of interactive project builds. The first project, led by Bill Stevenson, was construction of mini girandolas using a bucket, a few Class C rockets, bailing wire, and willful ignorance of the effects of gravity.





Left: Todd Hall teaching choreography basics.



Below: Electric firing workshop

Bottom: the happiness of girandola construction



Following this, Todd Hall and Lynden King turned the kids and parents loose building a “PIT” set piece using lance work.



Everything the kids learned during the weekend led up to the moment of truth: *The PIT Crew leading off the Sunday Night Member Showcase with a display constructed from an abundance of Class C product donated by the vendors.* The kids spent all day Sunday attaching effects to boards, fusing them together, setting up cues to the choreography of the show, and setting everything up on the field.



The Cremora fairy also visited, leaving a dozen five gallon buckets in a row to serve as a period, or rather, series of exclamation points to end the show.





The show itself went great! Effects filled the whole sky with few breaks in the action, the high tempo music worked great with the timing of the Class C effects, and with only a few safety-driven exceptions, the whole thing was put together and fired by people who are too young to vote.

The PIT Crew would like to thank all the parents that stepped up to help out, and especially the vendors (Jake's Fireworks, ACME Fireworks, and especially Western Frontier Fireworks) and other folks (Lynden King, Susan Riley, Kevin Mather, Mike Sullivan, and Mike Garrett), all of whom donated an embarrassment of riches to our fledgling program. We are all very excited for next year as we plan to build on this year's success!

So, when planning for Winter Blast 2018, include the kids! Because they ARE the future of the WPA.



DO IT

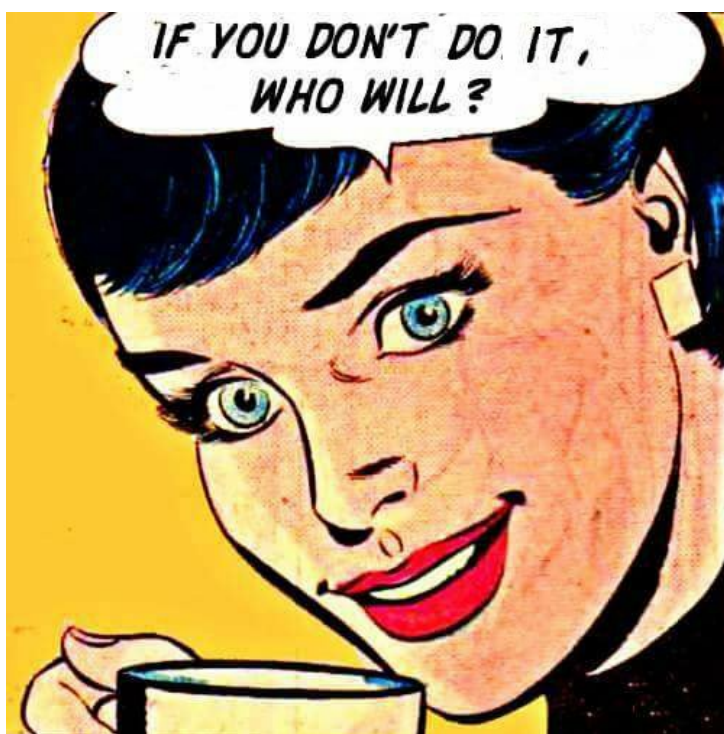
By popular demand, DO IT this year has been extended by an extra day to allow our manufacturers more time to complete their shells, rockets and other splendid pyrotechnics.

Setup begins on Tuesday, September 19th

The event runs through Saturday, September 23rd

Cleanup is on Sunday morning, September 24th

This is, as always, a members-only event. Members can sign up online shortly, when we put the form up on the web site. You may also sign up for membership and register for the event by mail, and at the event itself. But do remember that if you plan to manufacture, you must contact Bill Ryan for a manufacturing form and return it completed before the event..



A Pyro Story

(That isn't really about Pyro)

Lothar Megandorf

I have been working cover on some raves lately. For those who don't know what that means, an out-of-town company comes in to do a show, but doesn't have a local license. I provide "cover" to show the fire department that someone has a license. I do understand that if anything goes wrong, it is my butt that is in the sling.

Most of the raves have been held at Rawhide, a wild west town that used to be in Scottsdale, AZ, but when the land became fodder for condos, was moved to reservation land just outside of Phoenix. They dismantled most of the buildings and reassembled them on the new site, so it still had the feel of the old place, but the predicted crowds didn't show, so the raves became more frequent.

The pyro effect was cool, flame projectors on top of the trusses, being triggered at certain parts of the "music". I use that term loosely. Jim Morrison in a 1969 Rolling Stone article predicted EDM, but I wish the kids would find something else to like. The flame effects were safe and nothing near them to burn, so it just a matter of watching for the unusual from the front of the house, which was right in front of all the speakers. Most of the raves started at three pm and ended at three am. Joy! When there were not going to be flames for a while (not every artist wanted to kick in), I would go backstage and walk around out in the desert. The farther out I went, the quieter (relatively speaking) it would get.

Late in the evening, I took a break and wondered out farther than I had been, for some reason, I had a headache. I was drinking a water I had been offered backstage. I was surprised to see someone coming toward me. I shone my flashlight on him, to my astonishment, it was the ghost of John Wayne! The Duke is much bigger than he looks on the screen. His coal black eyes looked right through me as he uttered the words, "I don't like what you've done to my town." His fist came out of nowhere and connected squarely with my jaw. I collapsed faster than an imploded Vegas casino.

When I came to, there was another figure in front of me. Fearing the worst, and still a little cross-eyed, I started crawling away, but a gentle southern voice assured me I had nothing to fear. I grabbed the out-stretched hand that helped me to my feet. Shaking the cobwebs from my head, I realized it



was the ghost of Elvis Presley, dressed as if he had just stepped off the Charro movie set! He apologized for the actions of John Wayne's spirit, grinning as he said, "It wasn't about what was being done to the town." But his eyes turned cold and his expression to steel as he said, "But I can't forgive you for the music." I brought my arms up defensively, but he kicked me right in the groin. As I keeled over faster than a blown out rack, I heard them both laughing.

Awakening for the second time, I staggered as quickly as I could back to the backstage area. Feeling a little sore, I limped back to the front of the house, just as the show ended. The nice touch after the last DJ finishes is the old man who comes out on stage using a walker and screams, "Hey you kids! Get off my lawn!" before dropping the mike. I helped shutdown and clear the flame projectors and said goodbye to the crew. As I left, I vowed never to accept a water backstage from a guy who was dressed like Kermit the frog.



MAKER FAIRE REPORTS

From Wally Glen and Mike Garrett

Hello WPA,

I just came back from three days of talking about fireworks at the 12th Annual Maker Faire in San Mateo, California.

This is the fourth time the WPA has been represented at the fair, which bills itself as the greatest show and tell on earth. Over the weekend, 150,000 people descended on the world's largest do-it-yourself fair to watch demonstrations of full-sized mech warrior robots, watch 3D printers make things, people demonstrating VR, there was drone races, our friends the Flaming Lotus Girls were showing off their stuff, just about anything you could imagine.

You might ask why the WPA would be at a home hobbyist convention? The answer is simple, we are hobbyists, or as they call themselves, Makers. Some of us are professionals, but we are all into the aspect of doing something ourselves. This is the biggest collection of like-minded people we can find and this is a place we should be. When you get right down to it, to use the parlance of Makers, we are a Maker space that specializes in making fireworks.

Mike and Wanda Garrett, Marty Walker, Jackalope Billy, Al Stahler and I spent the entire three days talking to home hobbyists about fireworks. We demonstrated using inert 1.3g models, inert consumer fireworks, videos, firing boards and other tools used to make fireworks. We explained how the WPA works and how the people we were talking to about fireworks could join us at one of our conventions and make their own fireworks without any additional permits, licenses family connections.

The response was really overwhelming.

The most asked question was, "I had no idea this existed. How do I get involved?"

We explained how they as individuals could get involved, gave them brochures and wished to see them in Arizona this February.

Another really popular question was, "I am an educator. How can I get materials for my students to learn about fireworks?"

The educators want to show students the science behind making fireworks. They want to see how colors are created. They want to inspire students to go into chemistry, engineering and that gateway to getting students excited is fireworks, which is pretty much the way each of us got involved as kids. If

anyone has resources where we can direct educators, I think we will be doing the educational community a huge favor and possibly creating future members.

Maker Faire is a huge undertaking and I'd like to thank Dave Best for the generous donation of trade show supplies that made our booth look great. Without Dave X, we would not have a bunch of really great inert fireworks to use for demonstration purposes. Thank you to Greg Dandurand for supplying us with flyers and banners and more to really make the booth look great and send people away with information on Do It and Winterblast. Thanks again to Marty Walker for supplying us with more signage and laminated photos. Thank you to Mike Garrett for cracking the whip to keep the prep rolling and for allowing us to demonstrate what a wireless Cobra firing system looks like, although none of us could really figure it out. Another big thank you to Dan Ramsauer for allowing us to borrow a pin board and a module to demonstrate how we shoot fireworks electrically.

Mostly, I want to thank the club for allowing me to represent you to people at Maker Faire. We are really raising our profile with people that could be potential future members. The more we grow the club, the more we ensure it's going to be viable for years to come.

Wally Glenn

As Wally said, the Maker Faire was a smashing success for the WPA again this year. The traffic through our booth was nearly continuous for all three days and I fully expect several new members because of our efforts. There is a certain look that people get when it dawns on them what the WPA can do for them and it is a joy to behold.

Yes, it is a lot of work but if our membership grows some it was worth every second. The next time you see Wally please give him a big thanks for making this happen one more time. There are lots of moving pieces on a show this big and he pulled it off like a professional.

Going forward to other Maker Faires (other faires are scattered around the country, world, and calendar) we have written a brief document that outlines the process of registering for and attending them. If anyone wants to represent WPA at the other MF events please contact Greg Dandurand and he will get you started. Of course, any of us who helped with the San Mateo faire will also be happy to give you some input.

I have one request from the BOD - get us a large bag of throat lozenges so we can keep talking to the visitors .

Mike Garrett

WHITE SMOKE: PART I

by Chloe Jennings-White

There are two fundamentally different ways to produce a pyrotechnically generated smoke. One method is to heat and vaporize a substance without burning it. The other is that some of the combustion products comprise the smoke.

The standard pyrogen for the first kind of smoke utilizes Potassium Chlorate as the oxidizer and Lactose as the fuel. This particular combination allows for a low temperature combustion such that the smoke agent is vaporized, but not pyrolysed (destroyed by heat).

There are a number of substances which will produce a white smoke when mixed with a pyrogen. Many moons ago I encountered Rosin for such purpose, I think as a teenager from the Encyclopaedia Britannica, and I have not found anything superior. I messed around a bit with the formulation in order to improve the burning characteristics.

Rosin is a purified Pine Resin; and is also called Colophony, from the ancient Greek colony in Asia Minor where a process was developed. Note that some people have an allergy to Rosin.

WHITE SMOKE

50 Rosin
30 Potassium Chlorate
20 Lactose

Rosin, and smoke dyes in general, are flammable. Consequently, for this method of smoke production it is necessary to provide circumstances wherein the vapor does not catch fire. Metal cans into which the composition is pressed, and left incompletely filled, allow for a vapor cooling chamber. A hole in the lid ensures that the vapor escapes at a sufficiently high speed that an incipient flame blows itself out.

I use two standard can sizes: 2 inch diameter with 1.25 inch depth, or 2.75 inch diameter with 1 inch depth. The first takes 30g of pressed composition, the second 50g. The first can has a 3/16 inch hole punched in the lid. I use three such holes in a triangle for the larger diameter can. Each of these smoke cans will last about a minute.

Since the combustion gases are pressurized, it is necessary to provide means to keep the lid secure. Fiber tape, such as 3/8 inch, wound a few times from top to bottom, serves the purpose.

A fuse in one of the holes finishes the project. Be sure to stand back, for she who has smelled the smoke shall ne'er again be free...

The composition is easily modified to produce different smoke colors. Simply replace the Rosin with appropriate smoke dyes. For example, if one seeks a repertoire of red, white and blue, the following will serve:

RED SMOKE

50 Methylaminoanthraquinone
30 Potassium Chlorate
20 Lactose

BLUE SMOKE

50 Indigo
30 Potassium Chlorate
20 Lactose

Next time, I shall address the production of white smoke as a combustion product.



Now ***THAT'S*** a good Cremora.