Newsletter Volume 31 July 2020

Western Pyrotechnic Association



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Jim Carver and Al Stahler's prototype spinning shell launcher

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Notes from the Board

Changes on the Board

This past WWB, there were multiple positions open on the Board of Directors.

Greg Danderand finished his 9 years on the board, and "retired". Kevin Mather ran unopposed for President, and resigned as VP. Lonny Ross ran unopposed to replace Kevin as VP. Dorris Hennings ran unopposed for a second term as Treasurer. Tackett Austin ran unopposed for a second term as VP of Communications.

In June, Dorris stepped away from her position as Treasurer. The Board appointed Aubrie Ross to be the Treasurer, and she'll be able to hold the position until our next General Business Meeting in February.

The positions of Vice President, Secretary and Treasurer will be up for election in February 2021.

The Board would like to thank Dorris for her service to the club, and helping us make great progress towards cleaning up the club finances.

Additionally, the Board would like to thank Aubrie for stepping up to volunteer on short notice.



Aubrie Ross has been involved with several nonprofits for over 25 years. For the past five years she has provided administrative support to a College Foundation 501c3 where she provided accounting, bookkeeping, and fundraising services. Aubrie has been volunteering as a WPA Winter Blast Registration Staff for the past 3 years. When Aubrie isn't working or attending Pyro events with her husband Lonny, you can find them visiting their "Happy Place" Disneyland or spending time at home with their puppies.



Greg's last Board meeting

We couldn't find a quiet private place for the Board meeting at WWB, so we used a cargo container and flashlight. Although Greg is no longer on the Board, he still plans to be Safety Chair at our events.

Thank you for so many years of Board service Greg.

Hello Everyone!

I hope you and your families are doing well and safe in these trying times. I sit here and type this on Sunday July 5. Just like most of you, I have to admit that this past Friday and Saturday have been the strangest 4th of July weekend in quite some time - for me, since 2001. Locally, those firework shows not canceled due to COVID-19 were canceled on Thursday due to fire restrictions - and that was too bad given all the thunderstorms and rain each afternoon. In fact, at 10:30 this morning the thunderheads were already building for today's storms. Even with the storms, I still took advantage of the day and managed to smoke some trout, ribs, and chicken - a great way to celebrate!

Things have been quite busy from a secretarial perspective. WPA activities for me typically slow down after Winter Blast, and they did - for about a week! As part of our strategic initiative to run the Club more like a small business, I have been looking at recruiting tools. With the Maker Faire no more, the Club lost one of it's most lucrative recruiting tools. Did you know that Winter Blast is one of the best recruiting sources for the California display companies? While we have their links on our website under resources, we have actively (at least recently) engaged them as a recruitment tool for us. So a few telephone calls later, the Club will get it's time at the various operator seminars. I know when I first got involved in fireworks it was my mentor that told me about the WPA. So, once things start getting back to the new normal, we shall see how this pans out.

In other activities, along with John Noonan and others from registration staff, we are looking at ways to simplify and share the load of paperwork involved with membership and registration. Looking at additional methods for working smarter not harder. If anyone wants to volunteer to work on paperwork - let us know.

And finally for this edition, the Board and Do-It team are actively making plans and monitoring the situation. Continue to look for updates on the digest. And with that, until next time.

What the heck happened to the online Seminar Series?

By Mike Garrett

After a brief run of six episodes the online Seminar Series shut down temporarily to address insurance coverage issues. The liability policies that the WPA and PGI had in place were inadequate for our purposes and they are pursuing the correct updated coverage. Once that happens the Seminar Series should resume production.

What? You say you don't know what this refers to? Back in late March as the Covid crisis was weighing heavily on everyone's mind a small group of WPA members got together (at a socially safe distance) and developed a simple idea - produce a series of online educational seminars about various fireworks subjects. It seemed like a good way for the frustrated pyros in the WPA and PGI to get a small fireworks fix while they were stuck at home. How tough could it be?

Then the insurance issue came up and the entire project was reexamined in greater detail. After some consideration it was decided the project needed to be framed by a Statement of Intent. This is what the Seminar Team recently submitted to the BOD's of both the WPA and PGI -

We propose to host an online Seminar Series with content essentially the same scope and breadth as what is offered at PGI and WPA club conventions. It would be hosted on Zoom or other platforms as appropriate, approximately one or two presentations per month, with live presenters or pre-recorded content.

There are a lot more supporting details in the proposal but in the end both boards agree with the mission statement so the concept is still alive and well. We hope to have the remaining details addressed soon. Stay tuned for more presentations of the online Seminar Series in the near future.

Statement of Intent

We propose to host an online Seminar Series with content essentially the same scope and breadth as what is offered at PGI and WPA club conventions. It would be hosted on Zoom, Facebook Live, or other platforms as appropriate, approximately one or two presentations per month, with live presenters or pre-recorded content.

Seminar Team

Steve Wilson, Mike Garrett, , Brooke Rosel, Joe Wright, Bruce Blom, Tom Calderwood, Kurt Medlin and Lonny Ross

Charcoal part II, retort examples

Continued from Winter, 2019

A charcoal retort may be bottom vented or top vented. In the top vented method, holes are made to allow escaping vapor and pyroligneous gas to escape upwards. In this design, the gases are released into the atmosphere and do not contribute to the heat required for pyrolysis. Examples of this design were published by Ben Smith in the PGI Bulletin and also by Ned Gorski online https://www.skylighter.com/blogs/how-to-make-fireworks/charcoal-making-secrets.

Bottom vented methods use combustion of the escaping gases to provide extra heat. This is the more efficient and less polluting (except for CO₂) of the two methods.

The method employed by O'Neill, Lichtenwalter and many others involves an inner and outer steel container, the inner container, the retort, could be a steel bucket of 5 to 25 gallon capacity capable of withstanding 400 degree C heat for up to two hours.¹ This retort should be small enough to fit inside the larger container with several inches to spare, not a snug fit!

The retort is loaded with the material to be pyrolized. Sticks of wood about one inch in diameter or smaller, with bark removed, are packed into the retort with as little air space as possible. The lid of the retort (bucket) must have 4 to 8 vent holes about ¼ inch in diameter placed evenly around the lid (or the bottom, if this will be dedicated to this purpose). These are the vent holes through which the gaseous vapor will escape. The lid must be fastened securely to the bucket since the retort will be "cooked" with the vents facing downward into the fire, and no air should be allowed into the retort during the pyrolysis. Combustion with air degrades the quality of the charcoal.

The outer container is a furnace of sorts. A 55 gallon standard oil drum will serve this purpose. The drum will be about 33.5 inches high and 22.5 inches in diameter. A window is cut at the bottom (closed end) of the empty drum and bricks are placed at the bottom as standoffs. This will provide the area for a fire to be built and managed through the window.

Extra air is not allowed into the retort. The decomposition gases include much steam, carbon dioxide and monoxide. A wide variety of organic compounds are also produced, pyroligneous acids and methanol for example.

Tom Dimock, of girandola construction fame, also uses this bottom vented method²

Lichtenwalter describes using the retort pictured below as follows:

My equipment consisted of a steel, 5-gal can with a removable steel lid. These are a little hard to find, since most are now plastic buckets. I drilled 5, 1/4" diameter holes in the bottom of the can, which allow for outgassing.

¹ O'Neill, R. 1997,"A Systematic Study of the Performance of Charcoals in Pyrotechnic Compositions."Pyrotechnica XVII, pp. 11-22.

² Dimock, T. "Girandola Construction" available from American Fireworks News.

The "shell" consisted of a steel, 32 gal drum, with a removable lid. The lid is not very important, so the end could be cut from a "closed" drum. I welded a "grate" for the 5-gal bucket that set inside the larger barrel. A hole was cut in the bottom-side of the larger drum. Estimate it to be 6" x 6" or so. I fed scrap wood into this hole and under the grate, to heat the bottom of the 5-gal bucket. A person could probably make this shell from bricks, cinder blocks or scrap metal. I wanted mine portable and light weight.

Willow or other wood was cut to about 11-12'' long, which just fit the inside length of the 5-gal bucket, with the lid installed. Wood was split to about $1'' \times 1''$ sticks. I tried to make these fairly uniform so that cooking time would be uniform.

Load the 5-gal bucket. Crimp the lid on and place on the grate, inside the 32-gal drum. Build a fire under the grate and wait. I used the lid from the large barrel to partially close the top, thinking that it might help hold the heat in. Not sure if it was important or not. Any piece of scrap metal will do the same.

After about an hour, steam would come out of the bottom, vent holes. After the water is vaporized, the flammable gases from the wood start to come out. These emit a jet of flame from the bottom vents. Pretty aggressive and noisy! Sounds like a jet engine. This flame means that not much additional fuel is needed to heat the bucket. [it was} Self sustaining. As the flame diminishes, the volatile hydrocarbons from the wood are gone. Remove the 5-gal bucket and spray with water to cool it. Be sure the can is cold before opening. I usually placed the new charcoal sticks into another 5-gal steel can and closed the lid*. Reloaded the cooker and opened the 2nd can the next day. The charcoal sticks still show the wood grain, but in charcoal. Each stick should "snap" when broken in half. Any uncarbonized wood should be discarded. This was rare.³

³ Guy Lichtenwalter, personal communication.



*This author also believes that the vent holes should be kept facing downward while the retort is cooling. This extra measure keeps fresh air out of the retort while it is cooling. During this cooling period, the charcoal sticks are pyrophoric!





Small scale production

A much smaller "smoke can" retort can be made from a discarded steel can such as the cans which come with large commercial kitchen quantities of fruits or vegetables. Such cans can hold around a gallon of material to be pyrolyzed, another source could be a metal coffee can (but these are rapidly disappearing, being replaced by plastic.) A one gallon empty metal paint can with a convenient metal top may be purchased from a hardware/paint store.

Even smaller still is a Progresso brand soup can. To use the can, you will need a re-closable top. I discovered that the top removed from a can of Bush's baked beans worked perfectly. You will need two different types of can openers for this exercise. One is the traditional inside lid cutter which removes the lid and leaves the rim intact. The other is the type which cuts around the rim on the outside of the can, removing the lid as well as the rim at the same time.



Next, cut tabs at the open end of the can. These will be folded down over the lid to keep it in place while



the charcoal is outgassing. A pair of tin snips will do the job. Shown below is a stack of loaded cans with tops inserted and tabs folded down.

These "smoke cans" can be used in two ways. In either case, high quality charcoal is produced. For smoking meat (or tofu for that matter), an outdoor smoker grill made by Brinkmann is used. The cans should be loaded with a wood suitable for smoking, My choices for this have been alder, apple and sassafras. Charcoals made from these woods are also useful in fireworks. Alder makes good black powder and apple makes a good tail effect for rockets and in chrysanthemum stars.

Sassafras may also produce fast BP.

To produce copious amounts of smoke the cans are used upright in the firebox compartment of the smoker and hot charcoal is piled up around the outside. Each loaded can will last about 20 to 30 minutes. When smoke is no longer produced, the can is removed and allowed to cool off on a tile or brick in the shade. <u>Many</u> such smoke cans are used for a day of smoking.



For black powder, other choices of wood such as cottonwood (as in the Dixie powder discussed previously), willow, red cedar, and buckthorn can be used. For this purpose, the cans are not used for smoking meat as the gaseous products in the smoke don't lend a nice flavor to meat or vegetables (in my opinion).

In this case, the cans are vented downward into a fire of wood or charcoal. The author has found that four cans can be used at a time in a wood stove. The outgassing products will ignite and the extra heat will help to pyrolyze the contents of the can.

The wood chosen can be the commercial products for smoking or other purposes. Red cedar bedding can be found at pet supply stores.

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Reprint from 1996

You Might Be A Pyro When

Judd R. Herberger

These are the first signs that you have something to worry about; or should I say that your neighbors do?

You start drinking coffee because you need more storage cans.

You take up gardening because it looks funny when you live in a high-rise condo and get deliveries of 50 pound bags of fertilizer.

Strangers say..."I see from your fingernails, that you are in the printing business.

You love it when your dog has gas, because it reminds you of the star compound you are currently tumbling.

When you go to the supermarket, you always spend some time on the aisle called "Kitchen-Gadgets".

When the weather-man gives the relative humidity on television, you think of drying time, not rain.

■ You love the smell of a backed-up sewer, because it reminds you of that super charcoal comet mix you made last week.

Every time you reach into your pocket, your dog hides under the bed.

When you meet a little-tipsy Cindy Crawford at the bar, you only ask her about the special effects in her last movie.

■ You would rather spend an evening with Clive Jennings-White, Bill Page and Mike Swisher than Demi Moore, Julia Ormond and Terri Hatcher.

■ You can't decide if summer is better because of the drying time or winter because of the earlier darkness.

You know the fastest route to drive away from every remote area near your home.

Anything powdered is a potential fuel.

■ You attempt to make up with your wife after trashing her Cuisinart by offering her a vacation at the PGI convention.

■ You call your pyro advisers more than your mother.

No day is quite right without some pyro literature or material in the mail.

■ You've dried something in your house while you were sleeping.

You once had to paint the garage, the car, a fence, a wall after a fireworks experiment.

You wish you could get pyro tools for Christmas.

No one gets to go in your storage shed behind your house.

You've been asking for paper bags at the grocery for years.

■ Your wife's best knife has been missing for months.

You think all the time about the old man who taught you to roll your first.....eh...firecracker.

Got any examples of your own? Send them in to the editor.

Remembrance Of Things Past

First Pyro Wedding



Catherine Strangis and William Daly, now Mr. and Mrs. with Tom Mattrocce (what's he doing there?) were married at the 1990 Auburn PGI convention. In the original 1990 photo, not this better 1996 one, they are standing only feet from where Bill Ofca's No-Match pyro event occurred at the recent Charlie Hill Fireworks Festival in New York. Too bad they couldn't have waited. What a send off that would have been, getting started with a 850 device bang. I was standing to their right only six years later, so I should have added my picture. Almost like I was invited. Sorry, I had to drink your gift. This was the first pyro event wedding, so Bill tells me. Both are now California licensed operators, well-known WPA members and active WWB particpants. Bill is an operator at Universal Studios and Disneyland. Cathy is a Los Angeles County EMT.

Didn't Receive The Current WPA Newsletter?

Anyone who is <u>not</u> now reading this section has probably not received the most recent issue of the WPA Newsletter. There is a new absolute policy: if you don't pay, then you don't recieve. Because it takes time to process applications, your present copy may be delayed. Contact the WPA Secretary about any subscription problems. If you're really mad, contact WPA President Dave Steinau.

Write The Eighth Time

These are not mistakes, apologies, admissions of responsibility or corrections but instead think of them as

Improvements and Clarifications

as well as sharing the blame. I don't open my own mail anyway.

Contrary to statements in a previous newsletter, not only did I see a thirteen time report shell made by an old Italian shell-maker, I was assured by two others that it is done all the time. You can resume making your own without fear that you are violating some historical trust. However, I wasn't wrong because

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WWB 2020

Ignite the Night

Winter Blast went off smoothly again, thanks to the hardworking WPA Staff.



LAKE HAVASU CITY, AZ FEBRUARY 13-16, 2020



We aren't sure who put all the straw on the ground just before a week long pyro convention, but it certainly helped to Ignite the Night.

Rocket shaped girandola - Jackalopes



16" shell by Tommy Photo by Wanda Garret





Tom Calderwood was caught cheating during the election. He changed his shirt and attempted to vote twice.





Do It 2020 - Canceled

At the Board meeting on 7/15 one of the major topics discussed was planning for Do It. We had 5 Board members, plus staff representing key parts of the event. The majority of the people on the call are regular attendees of Do It. Although it's not normal Board meeting procedure, everyone on the call was given the opportunity to speak their mind about if and how to hold the event. It was a thoughtful, reasoned discussion where a variety of opinions were expressed.

We had a lengthy discussion of how to hold the event safely, and heard a number of suggestions from both Board members and staff - food or no food?, masks required?, how to enforce social distancing, etc.. Every person on the call was given time to ask questions or give suggestions, and each item was discussed.

The Board is aware that the virus has become a political issue. We were careful to not involve politics in our decision, and we stuck to data and trends. The meeting was attended by people with a wide variety of political opinions, but we all share a love of fireworks.

We made the very difficult decision to cancel Do It 2020.

There were three factors that came up in conversation.

- » How can we put on an event that is safe for our members?
- » Can we put on an event that is safe for the residents of Hawthorne?
- » What do the current trends of the virus lead us to believe the situation will be in two months?

In the end, with the number of infections rising at an alarming rate, we decided that it would be extremely difficult to keep our members and the residents of Hawthorne safe.

We know everybody wants to get their pyro fix, and we have several ideas to try and ease the pain.

Getting the online seminars restarted. Mike Garrett, Joe Wright, Brooke Rosel and Steve Wilson are leading the team, with assistance from others. We know there have been questions why the seminars stopped. The short answer is the Board learned that we do not currently have the right liability insurance coverage to protect the WPA and presenters. This forced us to put things on hold while we educated ourselves on the issues and learned what was needed. The seminar team has proposed a plan which will allow us to get the insurance coverage we need to resume online seminars. We have content and new presenters lined up and hope to be back online soon.

Secondly, we will be looking into adding days to WWB and/or Do It next year. No promises yet, but it's an idea we will be investigating.

Respectfully, the WPA Board of Directors