



STEREOGRAM

Celebrating 20 years of the Ohio Stereo Photographic Society

Volume 21, Number 04

OSPS is a member of NSA, ISU and PSA

December 2016

THE OHIO STEREO PHOTOGRAPHIC SOCIETY WAS FORMED IN MAY 1997 TO PROMOTE STEREOSCOPIC PHOTOGRAPHY AMONG ITS MEMBERS AND TO THE GENERAL PUBLIC.

MEETINGS ARE HELD EVERY FIRST TUESDAY OF THE MONTH, SEPT-JUNE. VISITORS ARE ALWAYS WELCOME.

ANNUAL DUES: \$25 ELECTRONIC SUBSCRIPTION TO STEREOGRAM (NON-MEMBERS): \$10/YR.

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Extended Family

Like most members, I enjoyed a great Thanksgiving dinner with family and friends, and like most members, I whipped out my 3D camera to take yet more pictures of them, and like most members' families, they immediately responded by extending their arms out holding a glass of wine, a forkful of turkey, or a carefully selected finger (see picture below.) We have them well trained, and most of us have many pictures of our 'extended' family and friends. Which got me thinking of how much we enjoy the support, or just plain tolerance, of our family for our odd little hobby? Of course, like all our behaviors as our kids grow up or marriages endure, it often starts out as fun, then they go along with it, then they ham it up, then they roll their eyes, then they express embarrassment, then they beg you to stop, and then they just run out of the room when they see the

President's Message

camera. Pets do the same thing, but just take longer. But we win in the end and share the results, often to their horror, at our club meetings and competitions.

We've all seen and enjoyed

and when the pictures were about, from which we learn more about our fellow members. I don't think we've ever explicitly dedicated a Program to our families and encouraged members to bring pictures of their wives, children, parents, etc. We have several times proposed 'Family' as a theme for our competitions, but realized that it would make it almost impossible not to know who the photographer was and so usually changed the

theme to People, Faces, or something similar. (I could be wrong that we've never had Family as the theme, but am too lazy to look it up). Anyway, I think it would be a fun program to have, maybe at one of the meetings where we don't have a competition. We could use Open Projector, but I don't think it would get the same response as if we had a dedicated program.

Our families have supported us and the club in other ways as

Meeting: Dec 6 @ 7:00pm

(See page 8 for details)

- Dinner (optional, before meeting)
- Open House Sales & Auction
- History of Stereo (TBA)
- Stereo Print Competition

so many pictures of one another's families that we get to know them fairly well – even if we've never met them. We watch them as they grow up, play games, graduate, get married, and give us a new generation of family to stereoscopically harass. And we share treasured life-like memories of some of them when they're gone.

What's great about seeing pictures of members' families is that usually they're accompanied by stories of where, what,

(Continued on page 2)



Family (and two guys) and friends reacting to my 3D camera. Alcohol seems to increase opportunities for enhanced depth.



Club & Local 3D News

November Meeting Review

We had an interesting meeting in November. The attendance was record low (12 people). Contributing factor was the Indian's game that was the same night. Well, the Indians did not win the World Series but they had an exceptional year. Let's hope for another great year in 2017.

Unfortunately, we encountered another projection problem. This time one projector was shutting off. We borrowed a projector from the hotel and were able to proceed with two totally different projectors which, surprisingly, worked quite well. Jay (who already had solved the computer problem) is now working on the projector issue.

After the opening remarks, **Jay Horowitz** showed a very interesting stereo pair taken sideways and stitched from two pictures. You can see it in

phereo here: <http://phereo.com/image/55398995e7e564a95e000390> We then saw an interesting 3d video, mentioned previously here and in the newsletter: <https://www.youtube.com/watch?v=IrSyGeUDRaA> (Sylvain Arnoux's 3d drawing machines).

Continuing with the Open Projector, I had a presentation about the Samsung NX1000 cameras, covering the points presented in last month's newsletter. I continue to work on these cameras and add information in my blog: <http://drt3d.blogspot.com/>. Several members have asked me to get them a pair of cameras. I will deliver these in December.

We continued our meeting with the Detroit Exhibition, organized and narrated by **Barb Gauche**. The slides were very good, but the digital images were outstanding! The quality of 3d

photography is getting better and better every year.

After the break, we continued with our competition "Statues / Fountains." We had 24 entries from 8 members. **John Bueche** once again hit a grand slam: 3 first places and People's Choice, a total of 19 points, the most points one can get in a competition. He is now in first place in the overall results. Details are on page 8.

Memberships & Subscriptions

A couple of members have not renewed their memberships yet. Please do this in the December meeting. I will report the memberships, subscriptions, and donations in the next newsletter.

First Round of ISCC—Results

The first round of the International Stereo Club Competition (ISCC) was judged by the Stereo Club of Southern California (also known as LA-3D club). ISCC director, Suzanne Hughes, reported the results. Our club is in first place with 65 points, followed by 4 stereo clubs, each

(Continued on page 7)



Stereo pictures from our stereo club meeting in November. I took these pictures while testing John's Samsung N1100 twin camera rig.

(Continued from page 1)

well. And, in fact, there have been several cases where the OSPS was a family affair. There have been parent/child members, like co-founder James Motley and his children, Mark, Debbie, and Wayne, and, currently, John Bueche and his daughter Gwen. There have been husband/wife members – Mark and Karen Dottle, Paul and Barb Gauche. I don't know if John Waldsmith's wife, Janet, was officially a member, but she was instrumental to the early days of the

club and 3D Weekends, and John's parents, Robert and Lois, have been honored by the National Stereoscopic Association for their work. I'm not sure if there were any sibling members (besides the Motley crew), but, again, I could be wrong and am too lazy to look it up. And many of us have brought (dragged?) our spouses to OSPS events. We all know Liz Themelis and Karen Bueche, and many of you have met my wife, Carol. (Want to meet them again? Then come to the Holiday Dinner at Memories before the December meet-

ing!)

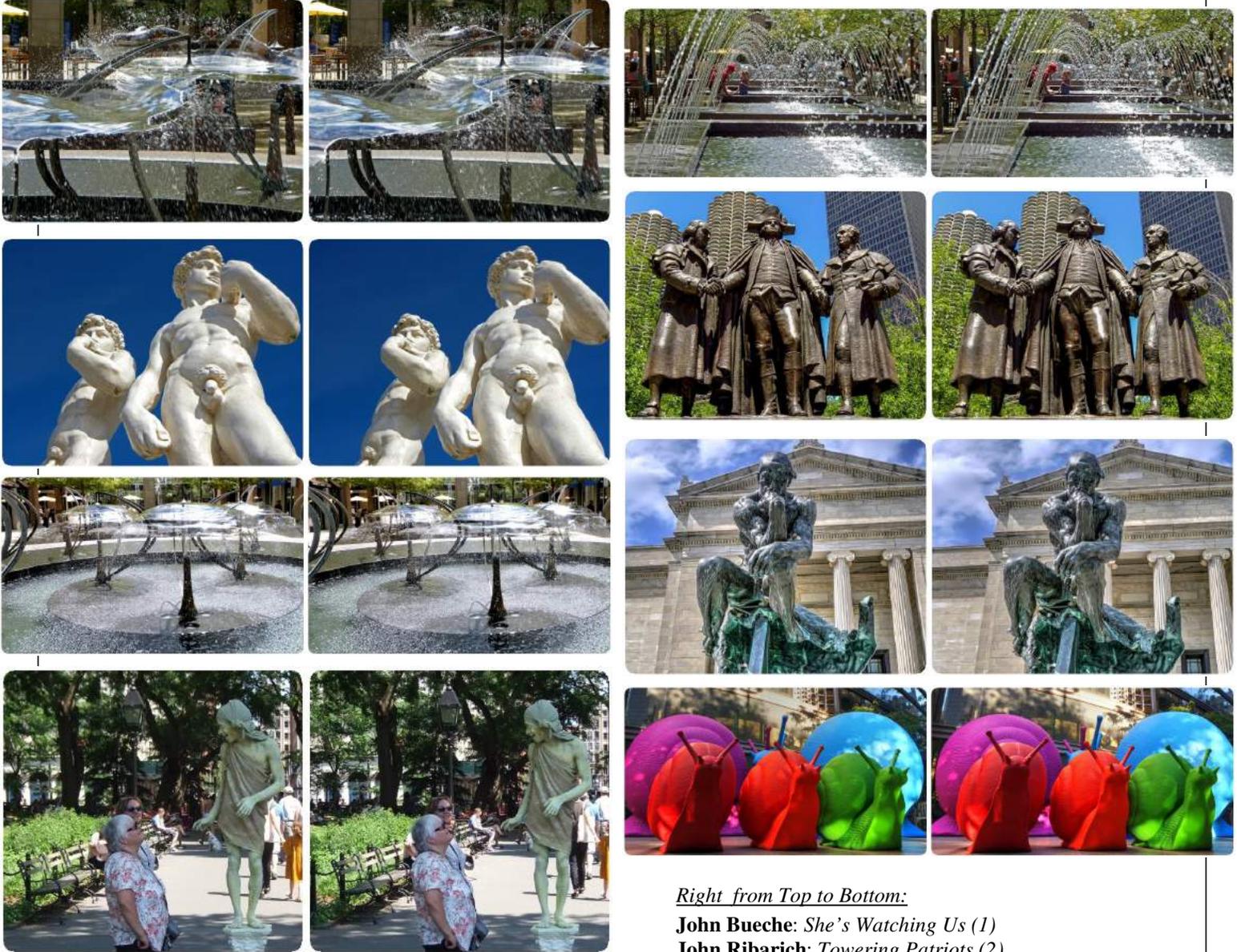
So I think we all owe a debt of gratitude to our families for supporting us. Go easy on them this Holiday season and tell them they don't need to extend their arms out to make yet another corny 3D picture. Well, actually, they do. They've come to expect it and so have we.

Happy Holidays to you and your family!

Jay Horowitz

3D Gallery—November 2016

“Statues / Fountains”



Left from Top to Bottom:

John Bueche: *Fluid Fluid* (1 & PC)

John Bueche: *Take Your Base* (1)

Ron Fross: *The Whirligigs*(3)

Bill Kiraly: *Working Stiff* (3)

Right from Top to Bottom:

John Bueche: *She's Watching Us* (1)

John Ribarich: *Towering Patriots* (2)

George Themelis: *Deep Thinker* (1)

George Themelis: *Snail Parade* (3)

Note: Our next stereo club digital competition is in January. The subject is “Toys.” This should give everyone enough time to take pictures of their Christmas toys :)

Stereo Photography Tutorial

Lens Distortion

Pincushion In Projection

Last month one of my favorite 3d images in the competition was “Dancing Water Fountains.” When the picture was projected for the second time, there was a comment that it is tilted to the left. While looking at the projected image, I noticed that the bottom left was tilted toward the bottom but the top left was tilted toward the top, so I said that it must be pincushion distortion caused by the camera lens. Later at home I examined the original image (you can see it in 3D here: <http://phereo.com/image/581b4fe4e7e564a66a00006a>) and cannot see this distortion. But I clearly remember seeing it in projection. This leads me to believe that the distortion was caused by the projection lenses.

I have tried to simulate the effect that I saw in projection in **Fig. 1**. On the left side in this figure is the original image (the left part of the image). On the right side is the distorted image. I created the distorted image artificially by introducing pincushion distortion with StereoPhoto

Maker (SPM), as explained later. Then I drew two straight lines one near the top and one near the bottom. The top edge of the building is parallel to the top line in the original image while it curves toward the top edge in the distorted image. The bottom line marks the edge of the fountain. In the original image the edge of the fountain is at the center. Notice that the fountain edge appears to be tilted towards the bottom edge even in the original image. The camera (Panasonic 3D1) was supported on the surface of the fountain so it is perfectly leveled. The tilt observed is because the camera was not perfectly leveled but was offset to the left side of the center. Also, notice that the fountain edge curves more toward the bottom edge of the picture in the distorted image. The difference is small but it was easy for me to see it in the projected image maybe because in 3d we are sensitive to horizontal leveling and alignment. It looked as if the fountain was ready to spill its water to the right.

What Is Lens Distortion?

We can define “Lens Distortion” as a form of lens aberration where **straight lines become curved**. Classic examples are the **barrel** and **pincushion** distortions shown in **Fig. 2**. (Note: there is a third type of distortion, which is a mixture of the two, known as “mustache distortion”. It is interesting how these distortions got their names, as indicated in **Fig. 2**.) What I experienced in projection was pincushion distortion where straight lines curve towards the top/bottom edges. The curvature is stronger the more the line deviates from the center.

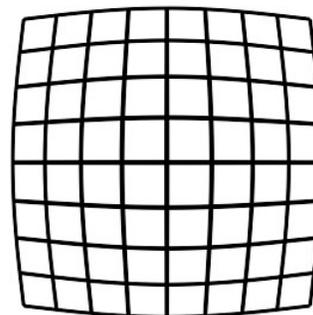
Barrel distortion is typical for wide angle lenses. Pincushion distortion is often found in zoom lenses (towards the long end.) While reading about these distortions in camera lenses, I learned something that I did not know: In order to see lens distortion in a digital camera, you should look at the RAW images (images as captured by the sensor, without any processing) produced by the lens. That’s because distortion is often corrected when an image is converted to a JPG by the camera. So, if you only

(Continued on page 5)

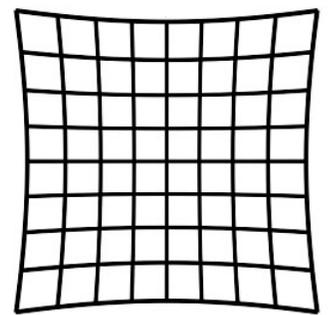


Fig. 1 (top): Simulation of projector lens pincushion distortion as I saw it during projection in our meeting. On the left is the original image (detail of the left side). On the right is the same image distorted by introducing pincushion distortion. The distortion only affects the edges. Notice how the lines are diverging to the edge in the distorted image. The divergence is small but noticeable in 3d projection if you have a subject that is sensitive to horizontal leveling (in this case, the water appears to be spilling to the left).

Fig. 2 (right): Visual definitions of barrel and pincushion distortions. (From: [https://en.wikipedia.org/wiki/Distortion_\(optics\)](https://en.wikipedia.org/wiki/Distortion_(optics)))



Barrel Distortion



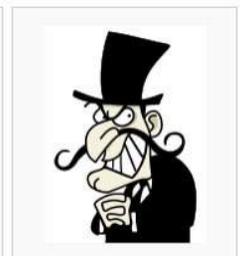
Pincushion Distortion



In barrel distortion, straight lines bulge *outwards* at the center, as in a barrel.



In pincushion distortion, corners of squares form elongated points, as in a cushion.



In mustache distortion, horizontal lines bulge up in the center, then bend the other way as they approach the edge of the frame

(Continued from page 4)

shoot JPG (as I do) you might not see the distortion of the lens.

As long as there is the same amount of distortion in the right and left images of a stereo pair, these kinds of distortions are not usually a problem in 3D and they go unnoticed. One exception are the fisheye lenses that show very pronounced barrel distortion. This was discussed last year (Stereogram 20.8). There are programs that will remove the barrel distortion of these lenses and make the curved lines straight again. **Fig. 3** (reproduced from Stereogram 20.8) shows an example of a picture taken with a fisheye lens that shows pronounced barrel distortion and the same image after it has been processed to remove this distortion.

Perspective (Size) Distortion

The barrel and pincushion lens distortion should not be confused with “perspective distortion.” By definition, perspective is the relative size of near vs. far objects. Depending on the scene, we expect a certain natural perspective. When this is not the case, we talk about perspective distortion.

In perspective distortion straight lines remain straight but sizes of objects appear

distorted. One classic example is when a wide angle lens is used and the photographer gets very close to its subject. The near objects then appear very large, compared to the far objects. An example is shown in **Fig. 4** (top). This is often referred to as “wide angle distortion.” It is not a distortion in the real sense of the word, but a natural effect, related to the distance of the camera from the near object (or, more correctly, caused by the mismatch between recording and viewing distances) and has nothing to do with the wide angle lens. But it is easier to demonstrate the effect using a wide angle lens.

The opposite effect is known as “telephoto” or “long lens perspective” or “long lens compression.” This happens when a long focal length lens is used and the depth (as seen in the 2D picture) appears compressed, or, far away objects appear much larger compared to near objects. One example is taking a picture of the moon with foreground (buildings, etc) using a very long lens (**Fig. 4**, bottom). The moon then appears much larger, compared to the buildings. Again, this is not the result of using long lenses but of being very far away from the subject (buildings). Using a long focal length lens helps increase the size of the

objects (the moon in this case). Another area where I notice this long lens perspective distortion is in Track and Field running events on TV. The camera is far away and long lenses are used. When the runners are seen “face on” they all appear to be in the same distance because they have the same size. But when the camera view is switched to the side, it is clear that the runners are at very different distances, some way ahead of the rest.

Keystone Distortion

Another common distortion is known as “keystone distortion.” This happens when the plane of the lens (or sensor) is tilted with respect to the plane of a flat object (say, a building). In this case, the sides of the building are parallel but

(Continued on page 6)



Fig. 3: Left: Classic barrel distortion created by a fisheye lens. The barrel distortion can be removed with a process known as defishing. Bottom: The defished image. The vertical lines are not bowed any more (they only converge, as a result of keystone distortion). From: <http://epaperpress.com/ptlens/example.html>)



Fig. 4: Top: Wide angle perspective distortion. The head of this boy appears a lot larger, compared to the feet, when photographed with a 24mm lens. The perspective looks natural with the 55mm lens. (From: <http://clickitupanotch.com/2014/06/lens-distortion/>)

Bottom: The rising moon looks huge compared to the buildings in Manhattan when a 840mm lens was used. That's an example of long lens perspective. (From: www.dailymail.co.uk/news/article-3756633/)

(Continued from page 5)

appear to be converging (toward the top if the camera is tilted up). The effect is intensified when wide angle lenses are used at close distances (more tilt is used). This is demonstrated in **Fig. 3**. After the barrel distortion was corrected, the parallel lines of the building are converging strongly to the top.

Again, this is not really a distortion but the way optics work. As we discussed in Stereogram 20.6, keystone distortion can be corrected and straight lines can appear parallel. But because this convergence is natural, the corrected image often shows the objects to be larger at the top than the bottom.

Correcting Distortions with SPM

The distortions that we discussed here can be corrected with software, including StereoPhoto Maker (SPM). In SPM, go under “Easy Adjustment” (shortcut: <K>). This is a powerful function of the program, incorrectly (in my opinion) labeled “Easy.” Under the menu that opens up one can do several adjustments while viewing the stereo image in anaglyph mode and with a grid turned on (for help in alignment):

- Horizontal adjustment (stereo widow)
- Vertical adjustment/alignment
- Change of image size (separate R and L)
- Four types of rotations: Basic, Barrel, V_Pers, H_Pers.

Personally, I rely mostly on auto alignment and adjust the stereo window using the keyboard arrows. I only go to the “Easy Adjustment” screen if I have to do one of the four rotations. These are further discussed and demonstrated in **Fig. 5**.

George Themelis

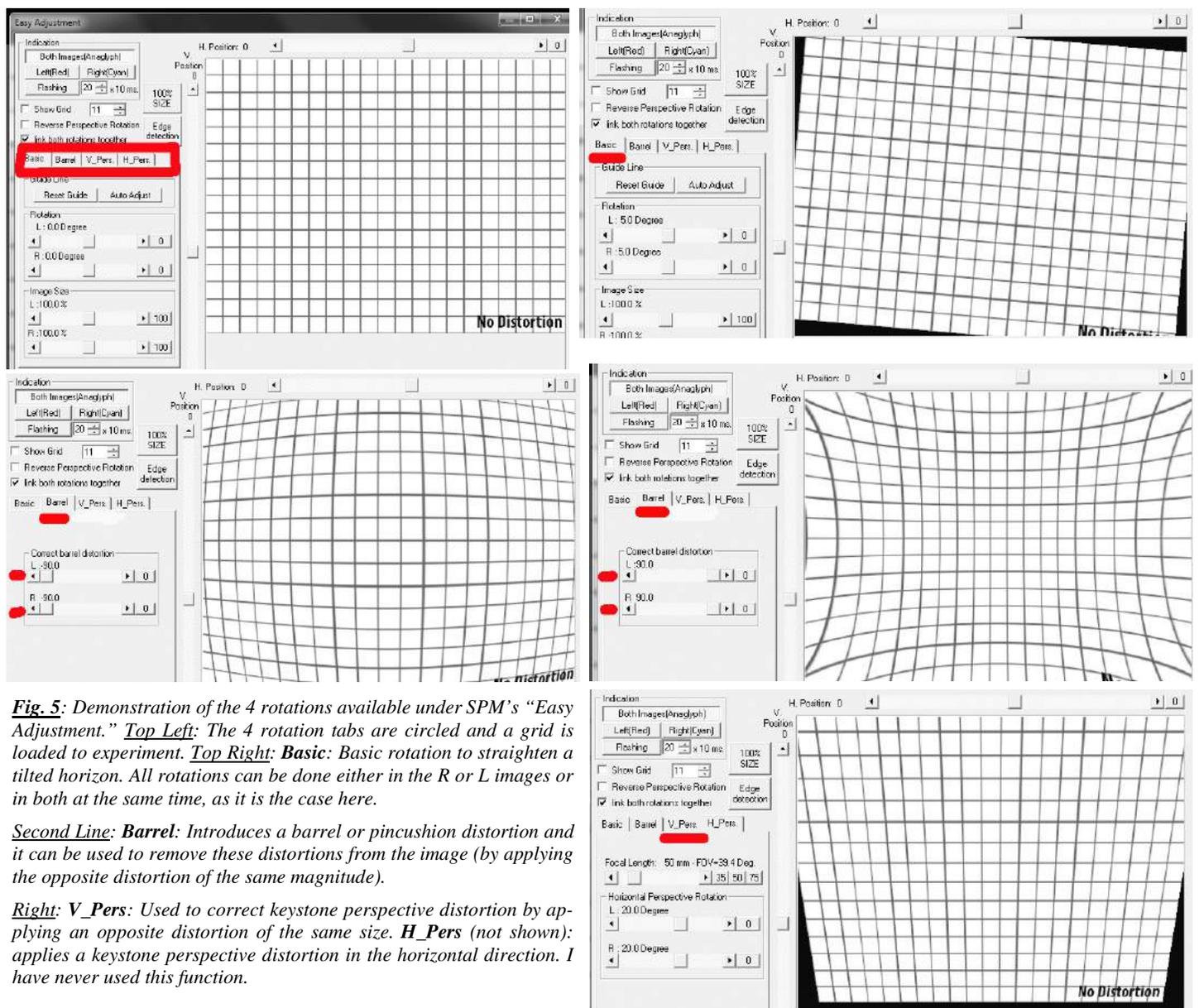


Fig. 5: Demonstration of the 4 rotations available under SPM’s “Easy Adjustment.” *Top Left:* The 4 rotation tabs are circled and a grid is loaded to experiment. *Top Right: Basic:* Basic rotation to straighten a tilted horizon. All rotations can be done either in the R or L images or in both at the same time, as it is the case here.

Second Line: Barrel: Introduces a barrel or pincushion distortion and it can be used to remove these distortions from the image (by applying the opposite distortion of the same magnitude).

Right: V_Pers: Used to correct keystone perspective distortion by applying an opposite distortion of the same size. *H_Pers* (not shown): applies a keystone perspective distortion in the horizontal direction. I have never used this function.

(Continued from page 2)

one point behind. As Suzanne commented, “we are all set for a very tight race among clubs this year.”

Two of our images won an Honorable Mention:

- Backlit Flower by George Themelis
- Live Arch by Wayne Karberg

That’s a good start for us. The next round, hosted by the Sydney Stereo Camera Club, closes on February 7. Our club representative, **John Bueche**, is always looking for good pictures. Normally, we enter pictures that scored high in our monthly competitions, but if you have an exceptional image that you wish to enter and was not entered in a competition, contact John.

2017 Will be a Busy Year

It looks like 2017 will be a busy year for some of us.

During August 8-14 we have the combined NSA/ISU convention in Irvine, CA (<http://3d-con.com/>). This is one of the rare occasions that the two major conventions coincide. This has only happened two times before, in Atlanta GA in 1995 (I was there) and in Boise ID in 2007. So it promises to be one of the largest 3d conventions in recent history. Too bad it is a bit far from us. I still plan to attend.

October 8-14 we have the PSA Conference: <https://psa-photo.org/index.php?2017-psa-conference> This year it is in Pittsburgh so it is very close

to us (as close as it has come in 15 years) and a chance to attend it. The last time the PSA Conference was in Pittsburgh was in 2002 and I actually attended that one with David Kesner, Paul Talbot, Mark Dottle and others. I think this would be a good opportunity for our club to present a 3d program, perhaps the 2017 Ohio 3D Exhibition or something else.

Another important event in 2017 is the total eclipse of the sun, on August 21. This eclipse will be the first with a path of totality crossing the USA from the Pacific to the Atlantic coast since 1918. I have been fascinated with this event for a long time now. I remember in 1990 I was figuring how old I would be in 2017 and wondering if I would be alive then. The totality of the eclipse will be close to us but towards the south. Should we start planning a trip to TN? We can find ways to do some 3d photography of this event. It is interesting that there is another total eclipse coming not far behind, in 2024, that will be visible from Cleveland Ohio.

Finally, my family and I are planning to go to Greece and run the Athens Marathon in the first week of November. I did this in 2009 (first trip with the Fuji!) and 2010 (with my wife). This time we will add our daughter too.

What are your plans for 2017?

December Meeting

We will have a busy meeting in December:

- Dinner (optional) at Memories at 5pm.
- Open House and sales. Feel free bring items for sale or to donate to the club. Also 3d items for display.
- Traditionally, **John Waldsmith** has presented a lecture on the history of stereo in December. I have not heard from John so I am not sure if he has something planned for us.
- Stereo Print Competition: Any subject, 3 stereoviews per member. This is a stand-alone competition and the First place winner will receive the OSPS Medal.

I hope to see many of you at the dinner and meeting.

Your Editor welcomes your comments and ideas. You can email any news or photos to:

DrT-3d@live.com



Two important 3d events in 2017 (top): Combined NSA/ISU (3D-Con) convention, August 8-14 (Irvine, CA), PSA Conference, October 8-14 (Pittsburgh, PA). A week after the NSA/ISU convention we have a total eclipse of the sun, visible from North America. The map here shows the totality of the eclipse. It is visible south of Ohio.

Next meeting: **December 6, 7:00pm (Dinner at 5:00 pm) - At: Days Inn, Richfield OH (77 & 80)**

DECEMBER						
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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JANUARY						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

DIRECTIONS: Days Inn, 4742 Brecksville Rd., Richfield OH 44286, (330) 659-6151. Located near the intersection of 77 & the Ohio Turnpike (80). From 77 S, exit 146 and turn right. From 77 N, exit 145. From East or West via 80, exit 173. From East or West via 480, take 77 S.

- **Tuesday, December 6 - OSPS Meeting**
 - **Holiday Dinner:** (Optional) 5 pm at Memories.
 - **Open House & Sales:** Bring items for show and tell or for sale.
 - **History of Stereo:** Program/lecture by John Waldsmith, TBA.
 - **Stereo Print Competition:** Holmes format, 3 stereo prints per member, any subject/technique.
- **Tuesday, January 3 - OSPS Meeting**
 - **Workshop:** Advanced SPM.
 - **Stereo Competition:** "Toys" (up to 3 digital images per member).
- **Tuesday, February 7 - OSPS Meeting**
 - **Open Projector:** Mystery.
 - **PSA Stereo Sequence Exhibition**

NOVEMBER 2016 COMPETITION RESULTS

November 2016— Statues / Fountains

Judges: Jay Horowitz, Paul Gauche, Barb Gauche

First Place (5 pts)

Fluid Fluid (<i>PC + I</i>)	John Bueche
She's Watching Us	John Bueche
Take your Base	John Bueche
Deep Thinker	George Themelis

Second Place (4 pts)

Towering Patriots	John Ribarich
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Third Place (3 pts)

The Whirligigs	Ron Fross
Working Stiff	Bill Kiraly
Snail Parade	George Themelis

Honorable Mention (2 pts)

<i>Member</i>	<i>S</i>	<i>O</i>	<i>N</i>	<i>J</i>	<i>A</i>	<i>M</i>	<i>Total</i>
Bueche John	7	10	19				36
Themelis George	10	14	11				35
Fross Ron	8	9	6				23
Karberg Wayne	3	14	3				20
Kiraly Bill	3	9	6				18
Bueche Gwen	8	3	-				11
Gauche Barb	7	3	-				10
Feagan Leslie	3	3	3				9
Shoemaker Chris	5	3	-				8
Darrow Jack	3	3	-				6
Horowitz Jay	3	2	-				5
Reznik Igor	-	-	3				3
<i>Total Entries</i>	33	35	24				72

Upcoming PSA Exhibitions:

- Feb 27, 2017 – **SOUTHERN CROSS** (PSA 2017-012) (Australia): Digital (Open and Landscape/Seascape/Cityscape); www.oz3d.info
- March 29, 2017 – **OAKLAND** (PSA 2017-102) (USA): Digital (Open, Creative & Human Interest) and Prints (Open); www.oaklandcameraclub.org

For a complete list, check: <http://www.psa-photo.org/index.php?exhibitions-current-exhibition-list>