

October
2014



MEETING NIGHTS

First & Third Thursdays of the Month

MEETING VENUE

Figtree Heights Public School, St George
Avenue & Lewis Drive

Vehicle entrance off Lewis Drive

FIGTREE

CONTACT DETAILS

www.wollongongcameraclub.com

www.youtube.com/wollongongmm

IN THIS ISSUE

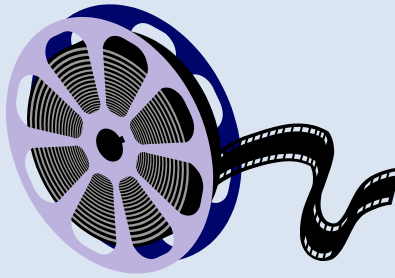
Last Month at the Club Page 2

What Camera to Buy? Page 10

Pot Shots Page 11

2014 Programme Page 13





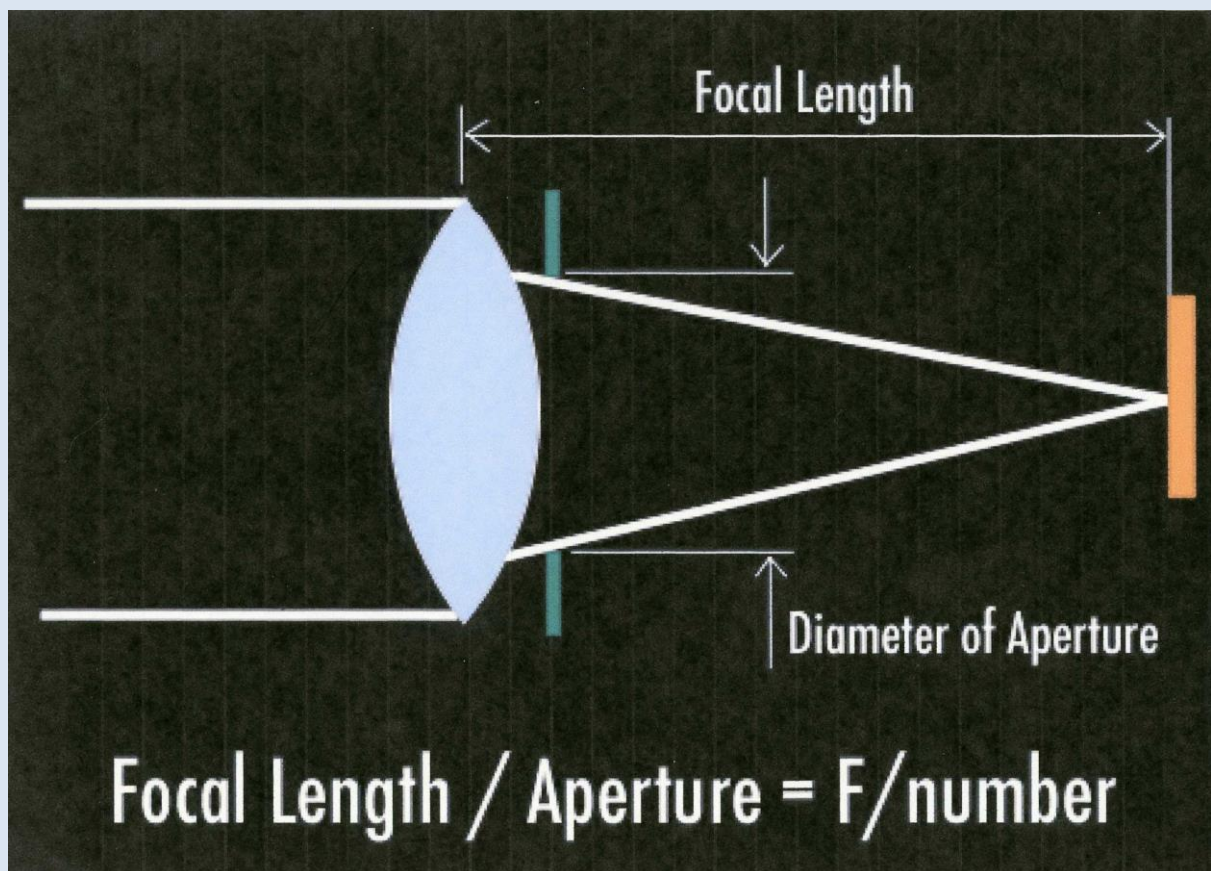
Last Month at the Club

4th September 2014

In our President / Chairman's absence, Ian Simpson conducted the meeting of which 9 members were in attendance. Ian began with requests for entries in two upcoming competitions. Firstly was the *NSW Inter Club Drama Competition* run by the *Sydney Video Makers Club*. They require a short, 5 minute maximum, drama to be submitted as a data file on either a USB stick or disc before the 22nd of October. The second competition, the 44th *Annual Australian Widescreen Festival*, is run by the *Australian Widescreen Association*. The competition rules and entry forms can be found at:

<http://www.awa.netii.net/AWAFestivalA4.pdf>

The topic for the meeting was camera techniques. Ian began by going over a few principles of our cameras. First off was the definition of the focal length of a lens and how the aperture F stop numbers are determined.



The physical size of the aperture hole is related to the focal length of the lens, which in turn is related to the size of the sensor used to capture the image. This means that as the size of the

sensor is decreased from the so called full-sized sensor (36mm x 24mm), then the focal length of the lens required to produce a “normal view” of the subject also decreases. Then, as we see from the previous figure, for any given F number, the diameter of the aperture has to decrease as the focal length decreases. The significance of this for users of camcorders with small sensors, such as 1/3” or 1/4”, is that eventually the diameter of the aperture becomes so small that it actually starts to degrade the image by producing a lower contrast and softer

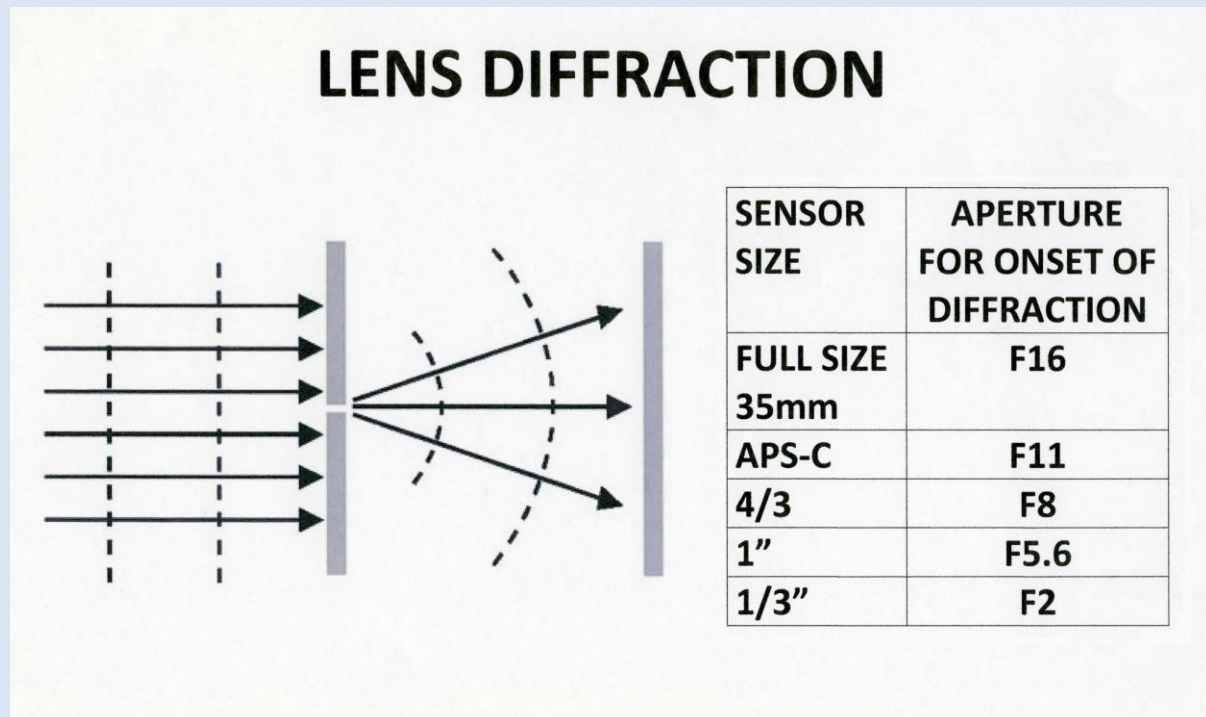
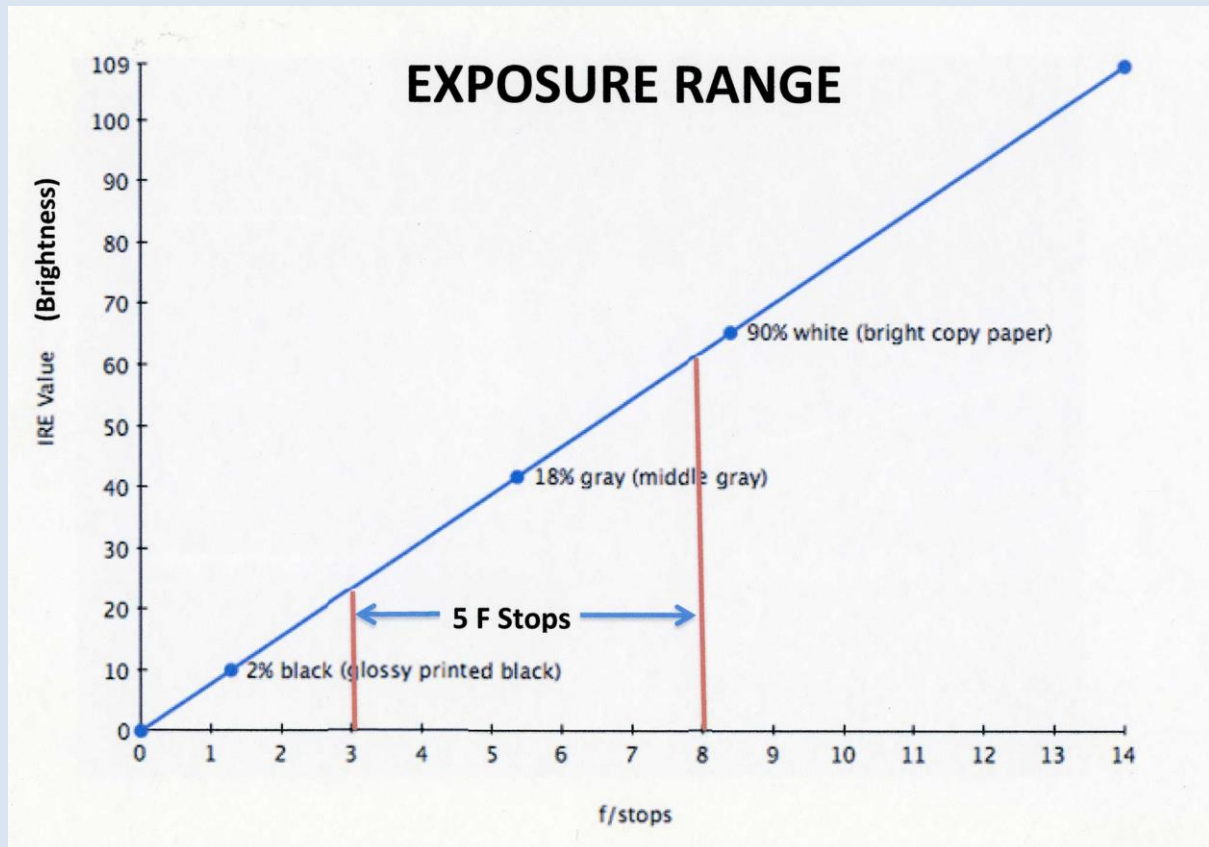


image. Why? The figure above diagrammatically shows how the light going through a small hole starts to diverge thus affecting the clarity of the image. Also in this figure are the F stop values where this effect starts to occur. For small sensors like 1/3”, the F stop is almost, if not equal to, the maximum aperture of the camcorder lens. Luckily the image degradation due to diffraction is a gradual process and so you can use higher F numbers without too much loss of image quality. What also can be observed from the table in the above figure is the advantage of having a camera with a larger sized sensor. There is more choice of F stops before diffraction sets in. Also from the above figure you can understand why some cameras have neutral density filters built in. It allows the cameras with smaller sized sensors to be used in bright conditions without having to go to larger F numbers and thus potentially degrade the image because of diffraction (aside from reducing the depth of field).

Another limitation of small sized sensors is the restricted dynamic range of the image that can be captured. Again for small sized sensors like 1/3”, typically the sensor can only capture a 5 F stop range as shown in the following figure. For the “ideal” subject and lighting this would mean 2 ½ F stops either side of the 18% gray exposure reading. This is a generalisation, as the dynamic range of a sensor depends very much of the individual pixel sizes. Usually to achieve the same image resolution as the size of the sensor decreases then so do its pixels. Smaller pixels cannot capture enough light in the 1/50th exposure time if the light is low and so the images suffer from too much noise, that is, the images can look “grainy”. Whilst if there is too much light, the small pixels can get quickly swamped.



The above figure shows the 5 F stop range for a small sized sensor. For larger sized sensors this dynamic range expands up to 10 to 12 F stops for a typical DSLR camera.

The consequences of having a camera with a restricted dynamic range can be seen in the image below. Although the building in the background is captured reasonably well, neither the statue of Benjamin Franklin nor the American flag are exposed correctly. Both are at the



extremes of the tonal range of this image. Thus you can not see details in the face of the statue and the flag is overexposed. In a histogram representation of this image these items would be bunched up at either ends of the tonal range. An example of a histogram is the bottom figure on page 5.

The rest of the night was devoted to members using their own cameras to experiment with both the automatic exposure and the manual settings for exposure on their cameras. Ian set up a display that consisted of basically a white box along side a black box with a tarten rug draped over the top of the boxes. The members were asked to first set their exposure just imaging the white box, then do it again for the black box and again when imaging 50% white box and 50% black box, and then finally the scene as a whole. When Ian originally set up this exercise he found the following results:

Area Imaged	Automatic Exposure		Manual Exposure		Exposure Difference in F Stops
	Setting	Look of Image	Setting	Look of Image	
White Box	F2.8 @ 0dB	Light Grey	F1.7 @ 3dB	White	2 ½
Black Box	F1.7 @ 0dB	Grey	F3.4 @ 0dB	Black	2
50% White and 50% Black Boxes	F2.8 @ 3dB		F1.7 @ 3dB		2 ½
Overall Scene – Boxes and rug	F2.8 @ 0dB		F2 @ 0dB		1

The manual setting was selected based on both the use of zebra stripes and the histogram of the various tones in the image. The aim was to keep the tonal range of the image within the limits of the acceptable range as shown in the diagram below and to adjust the aperture to just remove the zebras on the highlights. The camcorder used by Ian was a Panasonic SD 700 which has only one setting for the zebras, presumably set at 100%.



What can be observed from the above table is that when the camera is operating on automatic exposure, it tries to set the average brightness of the scene to that of the 18% grey card (mid-tone). When the scene is almost all white, the automatic exposure adjusts to make that white appear light grey. Similarly if the scene is almost all black the automatic exposure setting tries to make scene grey rather than black. It is only when you adjust for these extreme tonal

images using aids such as zebras and the histogram that the true tone of the subject is achieved.

After the extremes were tested, an 18% grey card, supplied by Brian Harvey, was attached to the setup and members were asked to image just the card and take an exposure reading and then zoom out and see what the whole scene looked like. Depending on each person's camera, members generally found that the 18% card exposure setting gave the best compromise exposure setting; the rug seemed correctly exposed, the black box was almost black and the white box did show some loss of detail in the highlight areas.

Note: For those who wish to print their own 18% grey card here are a couple of links:

<http://www.diyphotography.net/diy-making-your-own-gray-cards/>

<http://picasaweb.google.com/VerizzoPhotoEstate/18GrayCard>

18th September 2014

The mid-month meeting saw the return from holidays of our President / Chairman, Tom Hunt. He began the meeting with the announcement of the club's purchase of a new PA / Audio system. Tom also demonstrated the new *Shure* lapel microphones to an audience of 10 members.



Tom Hunt gives the thumbs up to the club's new microphones

The *Hot Spot* for the evening was conducted by John Devenish who demonstrated how to create an animated route on a map. The following is the handout John prepared for the meeting.

Marking a Moving Travel Route on a Map.

For AV or Video.

by John Devenish

Marking a line on a map with "[Route Generator](#)" can be a simple matter, however, there are a few pitfalls.

- First problem is encountered when compiling files with **Route Generator**. It can take a long time. There are two reasons for this: the map file size is too big &/or the computer is slow.
- Second problem is that the map, when produced, will not play in Windows Media Player and probably not in an editor. If this output avi file is then converted in something like **AVS Video Converter** the output file will be distorted and useless.

To ensure the best outcome the map file in *.jpg or *.bmp form needs to be 1920:1080. Best results have been to set the camera to 16:9 and photograph the map or part of the map. Import this photograph into a folder on your computer.

The method.

- Load **Route Generator** and open the map photograph.
- In **Edit/Preferences** check the Delete BMP's. **NOTE:** the first and last BMPs will be retained.
- Select **Line Width** (20pixels)
- Select type of line (Solid)
- Select **Colour**
- Select **Set total time** of line (10s) This is the time the line will take to get from start to finish. May need adjusting.
- Select **Line Smoothing**. Alternatively leave smoothing until ready to "play" the route.
- Select **Line Tool**. No choice here.
- Left click at start of route and click along the route to its end. Be aware that Line Smoothing may cause line to take a short cut, adjustment of waypoint may be needed: hover cursor over waypoint then drag it.
- Select **Play** and watch the route. Adjustments can then be mad. Note: there is a limit to "Undo".
- **Generate the Route** into a selected empty folder. This folder **must** be empty. An auto two stage process will start. (Firstly 250 bitmaps are made. Second stage is making the animated avi file from the bmp files. Happens by magic.)
- When process finished look in the selected folder and play the avi file.

My preference is to then make an HD MPG file in AVS Video Converter. This file will play in my editor, the avi file will not.

Hint:

To give a piece of *still* map at the start and finish: make a picture of the first and last frames of the video file and flank the video on the timeline with them. Alternatively use the first and last bmp files generated by Route Generator but be aware the bmp picture on the timeline may need dimension adjustment.

For info go to <http://www.routegenerator.net/>

To Download use <http://www.routegenerator.net/download.html>

I have found this to be the simplest and best way of making a line move along a map.



The main activity for the meeting was a workshop on creating an Audio-Visual (A/V). The following is the handout prepared by Tom for the meeting.

AV production workshop

by Tom Hunt

- Audio – Visual 50 : 50 ?
- Story - created by image progression, narrative and or music

Audio important

- ambient sound – very good if you have some from the location
- music – suited to the subject and mood desired
- narrative – brief, to the point, only additional information to what can be seen
- sound effects – to fill in and add to imagination, or as ambient sound to match the scene
- mixing to achieve ideal volume so narrative clear and right mood is created

Visual

- traditionally still photos – slides
 - Animation added through
 - image progression
 - dissolves, cuts, flashes,
- now animation options are much wider
 - still have image progression
 - any number of transitions
 - crop to any part of photo
 - pan or zoom (Ken Burns effect)
 - add pieces of video – but does that make it a video production?!
- Choose images that tell a story, rather than just the artistic ones
 - Ideal if they can be both storytelling and good photos
- Avoid using photos just because they are good, consider if they fit the story
- Consider transitions, and 3rd image
- Avoid jump shots and mismatched images, different lighting, subjects etc
- If needing to use vertical shots in amongst horizontal shots, minimize the number of transitions between formats
- Better to stick to one frame format

Putting them together – much like video editing

- Write the narrative (if you are having one) and record it
- put images into an order that has a natural progression
 - tie in with the narrative, or
 - follow phases of day, steps in progress, themes, etc
- consider the types of music that will suit and find some options
- piece it together on a timeline, structured around the narrative and/or music
- include breaks in narrative and changes in music to keep it interesting
- Have a start, a middle and an end
- Stay to one theme
- Try to start with a hook for that theme
- Aim for a climax towards the end

Exercises

Choosing image progression

Choosing Music

Writing and reading a narrative – at another workshop perhaps



What Camera Should I Buy?

Quite often we approach this question from the equipment side. We search the internet for

reviews on cameras, we visit camera shops to get the “feel” of different cameras, we ask fellow members of our camera clubs what their cameras are like, and we might even make a list of cameras within our budget. We may be concentrating on value for money, that is, on features per \$, or we may want the best image quality, or

the longest zoom lens, or the smallest body, or a camera that shoots equally good stills as well as movies. In all these instances it is the camera and its features we are concentrating upon, as well as price of course. However, perhaps we should approach this question of the best camera for “Me” from a different viewpoint; what do I want to use the camera for? What type of photography / videography am I interested in? Once you attempt to answer these questions you find your choice of camera becomes a little easier. The following table tackles the decision process from the viewpoint of what do

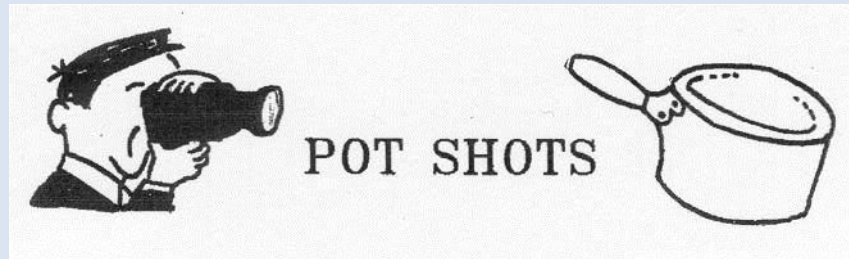


Main Purpose	Personal Requirements	Camera Features	Camera / Type
Travelogues	<i>Small & light weight camera</i> <i>Waterproof</i> <i>Ease to use</i> <i>Good automatic systems</i> <i>Good anti-shake system</i>	<i>Small sensor camera for maximum depth of field</i> <i>Good low light sensitivity</i> <i>Perhaps a long range zoom lens</i>	NOT a Full Size, APS-C sized sensor <i>Lens with a large maximum aperture</i>
Scripted movies	<i>Ease of setting manual controls</i> <i>Allow external use of an external microphone / headphones</i>	<i>Recording in low compression Codec</i> <i>Interchangeable lens camera</i> <i>Record in RAW</i>	A DSLR, CSC or a Semi-Professional Camcorder
Family Events	<i>Ease of use</i> <i>Good automatic systems</i> <i>Good anti-shake system</i>	<i>Small sensor camera for maximum depth of field</i> <i>Good low light sensitivity</i>	NOT a Full Size or APS-C sized sensor
Dual Photographer Still & moving images	<i>Equally at ease as still or movie camera</i>	<i>Full Size, APS-C & four-thirds sized sensors but no smaller than 1" sensor</i>	A still camera design with strong video facilities

you want to do in the hobby of photography / videography. Your interests or the types of movies you want to make should help decide your camera. The reality is that if most of the footage you are going to shoot is unplanned, event driven, like capturing family events or your travels or community events; events over which you have no control, then you are best with a camcorder with a relatively small sensor which will mostly likely have a zoom lens with a large maximum aperture for those low light scenes and a large depth of field so you can always keep the moving subject in focus.

However, if most of your movies will be scripted ones, where you have time to plan each shot, then a larger sensor DSLR, CSC or camcorder is the best choice as you will usually have a variety of lenses to choose from, and the larger sensor will allow the composition of scenes with shallow depths of field. Also many of the semi-professional cameras can shoot in RAW, thus allowing considerable adjustments to be made in post-production.

So when next you want to buy a camera, think first about which camera and design best fits your style of movie making.



The 4K Move is On

At the International Broadcasters Conference in Amsterdam this September, the stand out topic of conversation was the rapid advances in 4K. A survey body, *DisplaySearch*, released results at the Conference which predicted the sales of 4K displays over the next three years: 30 million in 2015, 45 million in 2016 and 62 million in 2017.

Now it's Point-and-Shoot 4K Video

Panasonic has announced a small, fixed lens, point and shoot camera that will also capture movies in 4K resolution. The camera has a larger than normal sensor for a point and shoot camera, a four-thirds size sensor. This is coupled to a fast F1.7 – F2.8, 24mm to 75mm zoom (35mm equivalent) Leica DC Vario-Summilux lens. It will shoot 4K at 25p and HD at 50p. To keep down the size of the camera and lens, Panasonic does not use the whole of the sensor but crops it. So the actual image area used to make a 4K image is only 1.5 x that gained from the smaller 1" sensor.



Sony adds 4K Portability to Its Professional Camera Range

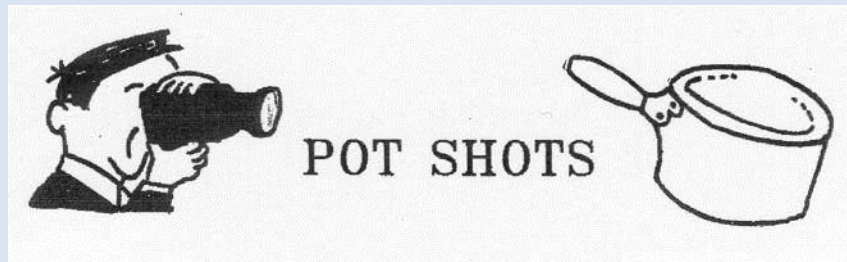
The PXW-FS7 is Sony's first 4K XDCAM to have a Super 35 CMOS sensor, all bundled into a camcorder which a single person can handle. The 11.6 million pixel sensor records with 4:2:2, 10 bit sampling at rates up to 600 Mbits/s. As well as recording in QFHD resolution at up to 60fps, it will also do slowmotion up to 180fps.



Samsung Launches a World First at Photokina 2014

Samsung's new top of the line, mirrorless, NX1 camera can not only shoot 4K video, but does it to the new H.265 codec which is claimed will replace the ageing H.264 codec (eg., AVCHD). The new H.265 codec is claimed to be 50% more efficient than the old H.264 for storage of data, but the down side is that the H.265 codec requires a lot more computing power to decode and so once again we have the situation where what we have in the camera requires a much powerful computer to handle the data. Alternatively, like we had to do in the early days of NLE or when HD arrived, we may have to transcode our camera files to an intermediate codec that our computer can handle until we can afford a faster computer.





Michael Moore Explores His Style of Documentary Movie Making

At the Toronto International Film Festival's 6th Annual Documentary Conference, Michael Moore laid out his approach to documentary movie making. He then proceeded to give his 13 point manifesto. The most important point, however, for Michael was for documentary movie makers to make *entertaining* movies. If he has a depressing topic to present, he makes his audiences laugh as "laughter is cathartic" and he wants his audiences motivated after they see his movies; "I don't want people leaving the theatre depressed I want them angry." For Michael, "humour can be devastating", it can be used "to shake people out of their seats and do something...", "humour, ridicule, can be a very sharp edged sword to go after those in power.."

For Michael Moore what he calls the "art of the movie", the entertaining way the documentary is constructed, is more important than the message being conveyed. For him the concept of cinema as that magical world you draw people into and for a brief time separate them from their worldly care is far more important to get right than presenting a point of view.

'Cloud' Based Storage – Universal Access

Imagine you are visiting relatives in a different town, city, state or even country, and the conversation comes around to a particular holiday you went on or a particular event you attended, now wouldn't it be great if you could bring up on your iPad almost instantaneously those images. Well now you can with your own private cloud based storage, care of *Western Digital*. Their *My Cloud EX2* is the normal home network storage device which can be accessed anywhere via the internet, but it has the added feature of secure data access over the web. It will work with both *Mac* and *Windows* operating systems. When there is no demand on the *EX2* discs they will power down and in the event of a power failure they will automatically restart; there is no on-off switch with the *EX2*. The *EX2* contains two HDD slots so its maximum capacity is 2 x 4 TB which can be configured in RAID 0 or 1.

Building Your Own 4K Editing System for About \$4k by Brian Harvey

Building your own editing system can be a little scary at first, but a DIY rig can save you thousands of dollars. If you need help, there are many tutorials and guides to computer construction online. Here is a list of parts with prices sourced from one online retailer.

CPUs: Dual Xeon 2GHz six-core - \$819 & **CPU Cooler:** CoolerMaster Hyper T4 (2) - \$60

Motherboard: Supermicro MBD-X9DA7-O - \$520 & **Case:** Habey RPC-800 - \$90

GPU: GIGABYTE GeForce GTX 760 4GB (2) - \$600

RAM: Kingston 16GB DDR3 1600 ECC (2) - \$360

Boot Drive - Kingston 240GB HyperX 3K SSD - \$175

Project Drive - Kingston SSDNow V300 120GB SSD - \$89

Media Drive - Seagate NAS HDD 2TB (6) - \$720 &

Blu-ray Disc Drive: ASUS BW-12B1ST - \$90

OS: Windows 7 Pro 64-bit - \$140

Power Supply: Thermaltake Toughpower 1200W - \$250

Cables and misc: \$50

Total: \$3,963

Note: In addition to your computer, you'll need monitors, speakers, a UPS and any computer peripherals you don't already own. That could ultimately bring your cost up to approximately \$6,500.

2014 Programme

Date	Meeting Agenda	Place	Responsible Member
October 2	Camera Choice Workshop – What to Look Out For	School Hall	All Members
October 16	Planning 2015 Programme & YOTY and A/V entries are due	School Hall	All Members
October 18	Combined Clubs Meeting – Video Challenge topic – “Assumption”	Milton / Ulladulla	All Members
November 6	Video Journalism & the Amateur Videographer	School Hall	All Members
November 20	Workshop Skit & Training- mixing sound	School Hall	All Members
December 4	Gala Night for screening entries in VOTY & A/V competitions	School Hall	All Members
December 9	Club Annual Dinner & Presentations	Builders Club	All Members

Colour Code: Normal Monthly Meeting Extra Monthly Meeting Special Meeting

WCCMM's Theme for 2014 – “Share and Learn”

“Share” our talents to make a good video production team, and “Share” our ideas to make our individual efforts better.

“Learn” from our team productions to make better club videos, and “Learn” from other’s videos how we can make our own videos better and more interesting.

