

Aspect Ratios – Part 1

DISCUSSION ON ASPECT RATIOS

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By Joe Cornish | November 24, 2010

For photographers of a certain (ahem) age, the aspect ratio of 35mm film, 24mm x 36mm (ie 2x3), was fed to us like mother's milk. While there were alternatives, we tended to develop the assumption that 2x3 was the best all-rounder. Since I had my first eastern block slr back in 1976, I have gone on to use 6x4.5, 6x6, 6x7, 6x9, 6x12, 6x17, 5x4 and more recently 4x3 aspect ratio cameras. (To complicate the issue, the so-called '6' in the aforementioned aspects refers to cm, but in reality is around 56mm, muddying the waters slightly.) I hope this qualifies me to explore the topic.

In theory, creative endeavours such as photography involve thinking 'outside the box'. However, in one sense we are nearly all guilty of remaining firmly inside it, and this is when it comes to the aspect ratio of the camera system(s) we use.

Perhaps the first concern of any lateral thinker should be, 'why does our working format always have to be four-sided?' Throughout art history, the square or rectangle has predominated, although at various times artists have made two-dimensional art on different shaped grounds. Gable and arch-topped format shapes in church buildings are common, and circles and ovals are by no means unheard of. Indeed, photography has its example of work made in these more organically-shaped forms. But where are the triangles, pentagons, hexagons and other polygonal figures? Or artworks with random edges, or edges that have been defined by the content of the work?

It is a fact that, culturally, the rectangle holds us in a 'framework of assumptions'. Just look at the computer screen in front of you, or the magazine or book you are currently reading. Of course, it is undeniable that the four-sided figure has compelling reasons to predominate. It is far easier to make and manufacture this shape than any other. But I do think that it is worth questioning a paradigm which we all take for granted.

One assumption I have long held (although with increasing uncertainty in recent years) is that photography seeks to replicate the experience of human vision. If that is true, then the indefinable edge of our peripheral vision would seem to suggest a non-geometric edge for our working space. Indeed, since we have two eyes working side by side, the nearest we could approximate to this (with a hard-edged space) might be an oval. Some might argue that the 2x3 rectangle (35mm and 6x9cm) is the closest four-sided figure to this hypothetical oval.

Another line of thinking is exemplified by Viktor Hasselblad, whose legendary camera system is based on making the maximum possible use of the image circle generated by the lens. That a square shape cut from out of a circle gives the largest surface area for a four-sided figure can be confirmed by GCSE level mathematics. Of course, the true maximum possible use would be to have a circular-shaped space. But the great man probably made the wise judgment that this might not catch on. Square format cameras remain popular with connoisseurs, and this aspect ratio is the choice of many fine art photographers.

My assumption that photography seeks to replicate human vision is just that, an assumption. It is one based on the fact that I am most impressed by photography when I am transported by it, when it gives me an authentic sense of connection to a time and place and (perhaps) unique confluence of events. But you don't have to agree that it has to be about 'eye-like' seeing. The extraordinary capabilities of digital capture and printing have introduced a new range of possibilities to photography, some of which can be confusing to old-timers such as myself. Yet one of the new potentialities



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Aspect Ratios – Part 1

Joe Cornish

Discussion on aspect ratios

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that I particularly respond to is the availability of switchable aspect ratios in some digital compacts, a feature now starting to appear on many DSLRs as well.

Looking at aspect ratios and the way we tend to use them reveals another set of assumptions. The most obvious of these is 'landscape' format and 'portrait' format. The words themselves tell us what we expect to do with them. But there is no regulatory body that obliges us to use them in this way, and defying this assumption is often a more effective way of interpreting the subject. Even if we look at the most extreme commonly-used format, 6x17, we will see some remarkable landscape photography that exploits the thin vertical strip interpretation of a landscape, often to great effect. The 6x17 format undoubtedly encourages a horizontal approach to landscape, but I use the example to emphasise the importance of defying assumptions.

Before digital capture (BDC?), the choice of camera format, and with it, aspect ratio was at least in part determined by our need or ambitions for reproduction quality. On the one hand, story tellers, journalists, mountaineers and many photographic artists insisted that using a mobile hand-holdable camera was much more important than repro quality. Even the 'ropey-ness' of 35mm, its grain and limited definition, was seen as a virtue by some. At the other end of the scale, commercial food photographers, and many in fashion and beauty, and car photographers, would never have dreamt of using anything smaller than 10x8inch. And their clients would have rejected anything smaller. So considerations of reproduction also influenced the shapes that photographers worked with. That is not to say that no-one cropped. Nevertheless, the eye and brain becomes attuned to working with a particular format, and most photographers seek to 'fill the frame'.

Digital has had a confusing effect on reproduction issues. No longer is bigger always seen as being better. If it was, then all commercial photographers would use scanning backs on view cameras allied to top-notch designed-for-purpose digital lenses. In reality, the majority now use Canon 1Ds Mk3(?) or Nikon D3x digital SLRs. A few have adopted medium format digital. In practice the high end DSLR has enough reproduction quality, when allied to smart interpolation, for most commercial end-uses. Medium format digital covers any really demanding applications. (This willingness to switch formats as well as aspect ratios suggests that commercial photographers have a highly non-sentimental, pragmatic view of the tools of the trade.)

One anecdote I can't help sharing refers to a photograph I made some years ago with a Ricoh R4 (6mp, jpeg-only digi compact). I had a request to make a print from this camera 24inches in height. At first I didn't think it could be done. But after I had enlarged it with Genuine Fractals, and done a little noise reduction in the shadows it proved surprisingly acceptable, even though I could do nothing about the in-camera sharpening that had been applied.

I digress. While size still matters, it matters less in digital, and the appearance of 'multi-aspect ratio capability' on numerous digital cameras encourages us to think more creatively about the way we frame our images.

On a personal note I admit it, I remain personally fond of 5x4inch as my default working aspect ratio. The proportions created by 5x4 are clearly rectangular, but not forced. They allow landscape photographers to use the horizontal or vertical orientations with freedom, and there are rarely issues of needing to crop heavily to fit a magazine or book format.

I now use medium format digital, so-called 4/3rds, and high-end digital compacts as well. These cameras all produce images with a native aspect ratio of 4x3. I may be wrong, but I think the nearest equivalent in film is 6x4.5cm. I find 4x3 a sensible compromise. With a ratio close to many book and magazine formats, and with minimal cropping to mimic 5x4 on the one hand, or 2x3 on the other.

2x3 is the default aspect ratio of 'standard' format DSLRs, which I would characterise as 'half frame'. Confusingly there are many slight variations of sensor size, but they approximate to 16mm x 24mm. Full frame DSLRs are the same aspect ratio, and so follow directly their 35mm antecedents at 24mm x 36mm. Strange to relate, this is now my least favourite format. I find it neither satisfyingly full, like 5x4, or sufficiently panoramic to offer the dynamic of a wide aspect ratio. However, that does not stop me using it. The Nikon D-700 is my 'go to' camera for assignment work because the camera itself is a brilliant allround tool of the trade. If it had an aspect ratio of 4x3 or 5x4 I would prefer it.

16x9 is one of the options on Panasonic's digital compacts. It echoes the cinema screen feature film shape. It's a wonderful format for panoramas of course. Close in shape is 6x12cm (an aspect ratio of 2x1), which is used by Linhof and Horseman system film cameras and is available as a special rollfilm back for 5x4 view cameras. I have great affection for 6x12cm, partly because of its affordability compared to the much greater cost of using sheet film, and because it does lend itself so well to panoramas. The cameras are also a great deal more compact than their 6x17cm cousins.

Many readers will have used the Hasselblad XPan, a 24mmx 65mm film camera, with an aspect ratio of 2.6-ish x 1. It isn't as extreme an aspect ratio as 6x17cm, which is fully 3x1, but can be seen as the 35mm equivalent of. Both the XPan and the Linhof and Fujifilm 617 cameras are gateways into the world of panoramic photography. (Beyond here lies the extraordinary world of the photographic panorama, which I suspect is another article.) 3x1 could be seen as the limit of the one shot aspect ratio for 'normal' photography. For me this is a little more extreme than I used to work with, but having learned to stitch digitally I no longer feel constrained by any specific panoramic ratio, other than by the demands of the subject and the practicality of displaying the work.

Finally, what of 6x6cm, or the ultimate aspect ratio of 1x1? The photographers who have adopted this format and made it their own are legends (Irving Penn, Michael Kenna, Charlie Waite immediately spring to mind), and there is something compelling in its 'neutrality'. I have found myself treating the square format as a 'vertical' when I have used it in landscape photography. I am drawn to frame in depth rather than in width, so to speak. Its symmetry can be seen as a limitation, but of course that is part of its appeal in landscape. Images made in this format often appear to have a stillness and power, and will use objects and space as a form of iconography. As a portrait format, that is to say, for people photography, its convenience and suitability is universally acknowledged, and Penn's square-framed portraits in particular define my idea of how a photographic portrait should look.

So where does this exploration of aspect ratio leave me? Firstly I want to point out again that the four-sided figure is in itself potentially arbitrary and limiting. Yet at the same time, the wide variety of aspect ratios of four sides provide much opportunity for experimentation and debate. Like me, you may have your own preferences and prejudice, but that shouldn't prevent you from experimenting with alternatives. 'Other aspect ratios are available' is always worth remembering, especially if you are from the 2x3 school. The provocation they can provide in our photography is a powerful catalyst.

This article will be followed up next issue by a discussion of the implication of aspect ratio on composition.

p.s. The image on the index page for this article is the '[Modena Triptych](http://en.wikipedia.org/wiki/Modena_Triptych)' by [El Greco](http://en.wikipedia.org/wiki/Modena_Triptych) (http://en.wikipedia.org/wiki/Modena_Triptych)

Read the second part of this article by [Joe Cornish - Aspect Ratios Part 2](#).

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Joe Rainbow

13 years ago

Another interesting debate. I find the 3x2 ratio of most high end dslr's as frustrating as you do Joe. I bought a Canon G12 for use at the school where I work, and really enjoy the variety of aspect ratios it offers, from 1x1 to 4x5 to 16x9. However, as soon as you switch to RAW as most serious photographers would surely do, the options soon disappear! Very frustrating. I so wish my 5D could shoot in whatever aspect ratio I want. It would probably be relatively easy to programme it so that you could specify your own exact aspect ratio and free yourself from any preformatted choice, as per say Lightroom. Photoshop I find equally irritating when trying to crop as it offers no aspect ratio option at all. I often end up cropping to 4x5 as I often feel more comfortable with this for vertical landscape work. I am never as keen for horizontal compositions and think something wider nearly always looks better. I suppose ultimately it depends on how you fit the thing you are photographing into the shape of box you have. Do that well and it will work, and

[see more](#)

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Reply 

DH

David Higgs

13 years ago

I'm one of the amateurs who crops and has a portfolio of differing aspect ratios. I prefer to choose a subject and find

an aspect ratio to fit it, rather than the other way around.

Almost a new subject in itself, but why limit yourself to one aspect ratio, or for that matter colour or black and white (film or digital etc). Although I primarily shoot monochrome, there are some subjects that demand to have their story told in colour.

To limit yourself in this way could be seen to have an artistic merit, or at very least to provide some continuity in your portfolio, but personally I view each image as an individual, and choose the most appropriate medium to represent what I see. Not because I'm lost, have no focus, or no personal style but because I choose not to be constrained by expectation.

I think I'd draw the line at polygons or circles though.

0 0 Reply 

SM Simon Miles

13 years ago

I don't hesitate to crop if the image demands it. On the other hand, I don't really understand why some people crop every image as a matter of course, for example, to change 2:3 captures into 4:5. I would rather use the full resolution capture if this makes a good composition. I agree that having more options in-camera would be a great artistic aid. I would like to see the main manufacturers would focus on developing some of these creative tools rather than simply serving up more megapixels etc.

0 0 Reply 

A adamp

14 years ago

Hello All

An interesting article indeed. I have seen round images in photo magazines, but remember nothing of the picture other than that it was round. Gimmicky, lacking substance and longevity. My own experience is 35mm, followed by 6x6 and 645 (4:3 aspect ratio) and most recently also 4:3 with the Panasonic LX3. I do find 4:3 very pleasing to work with and really like the large ground glass screen of my Mamiya. I am quite happy using both 35mm and 4:3 though I find the latter far more satisfying – both because of the camera itself and the more considered process of making the image, as well as the aspect ratio.

In my younger days I had no qualms with cropping in the darkroom to remove unwanted intrusions around the edges, or simply to tidy up the composition. But nowadays I prefer to get it as right as possible in-camera. I'm not sure why, maybe it is pride in using the tool to the fullest extent, or maybe I

[see more](#)

0 0 Reply 

S stevefrance

14 years ago

I agree.. for me the framing (or crop/format) is chosen depending on what I'm photographing and how I previsualise the final image, or the resolution needed for print. Also you can't ignore what you like and find comfortable. As Dave says,..the way you see is definitely a prerequisite to what format you tend to use. If not that.. then possibly the job you're doing (wedding...4x5? No.... 35mm, 6x45...yes)

I agree with Joe on the 35mm format. I found it hard work to get a satisfactory image using the 2x3 format...especially in 'portrait' orientation. Just too much foreground, and no sky,

or vice versa.

6x7 was my favourite crop for a while. I now use 6x4.5cm, the 4/3 crop.. with the right lens choice I seem to get what I want with no issue of having to crop later or wishing for a wider view. The only issue being, its just far too small. Hence, the move to Large Format.. and this I will work with from now on. It seems to offer the greatest number of choices to the photographer... from size, resolution, format, movements etc...It gives the photographer the ability to construct an image, and define it both technically as well as visually in a way no other camera can I think.

0 0 Reply 

JC

Joe Cornish  stevefrance
14 years ago

— 

Thanks Steve. I think it is no coincidence that the aspect ratio of canvases on which painters worked in the post-Renaissance era usually seems to be in the same ballpark as 5x4 in shape. Turner and Constable for example used this proportion widely (though definitely not exclusively). I would love to know if this mild-mannered aspect ratio arrived from a deep investigation of proportion, or rather reflects some kind of cultural 'preset' used by timber merchants and joiners, so defining the lengths of wood available for the canvas's support frame (any background insights on this topic gratefully received).

Today, the large format camera remains a uniquely enjoyable way to work, offering huge creative control without the intervention of Photoshop. And this subtle aspect ratio is so versatile, as we have agreed. Yet no consumer cameras are available with a native sensor size of the 5x4/10x8 proportion. I find that regrettable.

0 0 Reply 

DT

dav thomas
14 years ago

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I wonder what people's thoughts are on mixing your formats - there's definitely an argument for picking a format and sticking to it, even sticking to an orientation. As Joe mentioned, think of Michael Kenna or Charlie Waite (or Andrew Nadolski) and you think Square (format, not person), would their work be less iconic if they mixed formats? Equally, and I'm sure it's just down to a way of seeing, David Ward's work is almost exclusively 5x4 in portrait, does this make for a more refined and powerful portfolio? Most large format photographers stick to 4x5 - no cropping, again this leads to a more confident body of work, I suspect their reluctance to crop is down to the desire to get things right in camera and portray exactly what they carefully composed on the ground glass to the viewer.

I think it's certainly true that a portfolio holds together better as a body of work if the format remains constant - a portfolio with a different shape on every page may look disjointed and

[see more](#)

0 0 Reply 

JC

Joe Cornish  dav thomas
14 years ago

— 

Thanks for your response Dav. Yours is a strong argument, and certainly reflects my feelings and

practice over the last 12 years, when 98% of my work was shot on 5x4. Familiarity with a given format/aspect ratio builds understanding of its limitations and potential, and indeed we learn to search for shapes and forms that work effectively in this space, be they in vertical or horizontal orientation.

Nevertheless, to limit ourselves to a specific format (by implication ad infinitum) is also a comfort zone. While adopting different formats/aspect ratios are only one of many ways of challenging our creativity, they are worthwhile for that reason alone. Even if in the end, we revert to type.

Finally, part of me feels that if we "do a Kenna" by

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