

User Review of PiezographyBW6

By

Ian Lyons © 2001

With the release, early last year of the Photo Stylus 1270 inkjet by Epson I found myself with a spare A3 sized inkjet printer, namely the Photo Stylus 1200. Great I thought, I could use the new model for colour and the old model for Black and White prints. Hmmm, as things turned out, not such a great idea.

The Epson 1200 is renowned for the quality of the colour prints it produces due the variable dot technology. Using it, I could even produce reasonable black and white prints using a mixture of the five colours and black, but they were never truly neutral. However, try as I might shadow detail was always lost in a mass of black ink. Print neutrality improved with the aid of high quality profiling software and hardware, but still shadows remained unacceptably blocked. The thought of mixing my own concoctions of grey and black inks was never a serious runner. The alternatives included the various Lyson, MIS, etc. ready mixed inksets, but the more I read of these the more I became convinced that they also to had their drawbacks.

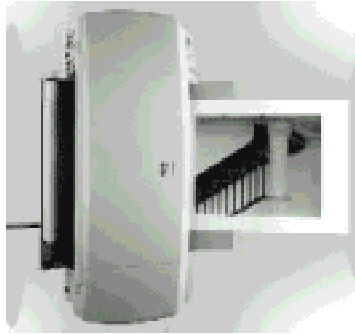
As early summer passed, I began to see references to a new ink/software combination designed for Black and White enthusiasts. The name PiezographyBW caught my attention and I followed the links to Jon Cones' Inkjet Mall web site (<http://www.inkjetmall.com>). There I found lots of info on this new technology, but stumped again, it was for the Epson 3000 only, although other Epson printer models were in the pipeline. Then in early September, a reference to the Epson 1200 appeared suggesting the imminent release of PiezographyBW6 (a special 6-ink version). By this time, the public commentary on PiezographyBW was extremely encouraging. I could hardly wait!

So what is PiezographyBW?

PiezographyBW is a combination of a specially formulated quad black ink-set (six tones for the Epson 1200) a Photoshop export plug-in and a set of dedicated media profiles. Using this ink-set/driver/profile combination, it is possible to use selected Epson inkjet printers as dedicated Black and White printers.

When you first place an order for PiezographyBW, you must buy the software and inks. The starter pack includes all that you need (except the printer) to make black and white prints on your Epson: -

- a. PiezographyBW Ink cartridges
- b. PiezographyBW Photoshop software plug-in (includes the media profiles)
- c. PiezographyBW User Manual on CD-ROM



Supported printers include the Epson 3000, 1520, 1160, 860, 850, 800, 760 and most recently the Epson Photo Stylus 1200. There is also support for a continuous ink supply system for the Epson 760, 860, 1160, 1520 models. More details on pricing, etc can be obtained at <http://www.inkjetmall.com/store/piezography-purchase.html>

Printer Setup and the PiezographyBW Ink-set

The Piezography inks are pigmented black inks specially formulated for Cone Editions to print with the degree of sharpness and density required by specially written software driver (more details later). The present ink-set is carbon pigment based and slightly warm in appearance. With some types of media, this warm tone can be quite pronounced. However, there are strong indications that a cooler toned ink-set will be released sometime in early 2001.

The user manual is quite specific in the procedure for setting up the printer and installing the ink cartridges and head alignment, there are NO shortcuts. New printers must have the original Epson coloured inks run through the heads before even considering the installation of the PiezographyBW inks. It is also advised that you then follow this up with a special flushing agent (supplied at extra cost), finally the Epson head alignment routine must be run. Head alignment should be undertaken using the actual media that you intend to use.

Generally, it's found that after the inks are installed and the printer purged (cleaning cycle) a few times some of the jets may still be clogged. In such circumstances turn the printer off and leave overnight, the clogs should be cleared when you power up the printer the next day. If not, run another cleaning cycle and all should be well.



Look at the printed pattern and compare it with the illustration below, which shows a correct pattern.

If you find any faint areas or gaps, you should click "Clean" to clean the print heads using the Head Clean utility. Otherwise, click "Finish".



Epson Head Clean Utility

In terms of actual output, my own experiences with the current inks are quite positive and I find the slightly warm tone quite attractive. Actually, if you don't have a perfectly neutral print to compare with, the warm tone is very hard to distinguish. That said I have tended to concentrate my printing efforts to Epson Photo Paper (glossy finish) and Epson Heavy Weight Matt, so I might not be seeing the warm tone to the same extent as other users. The prints I made are beautifully rendered and the smoothness of tones must be seen to be believed.

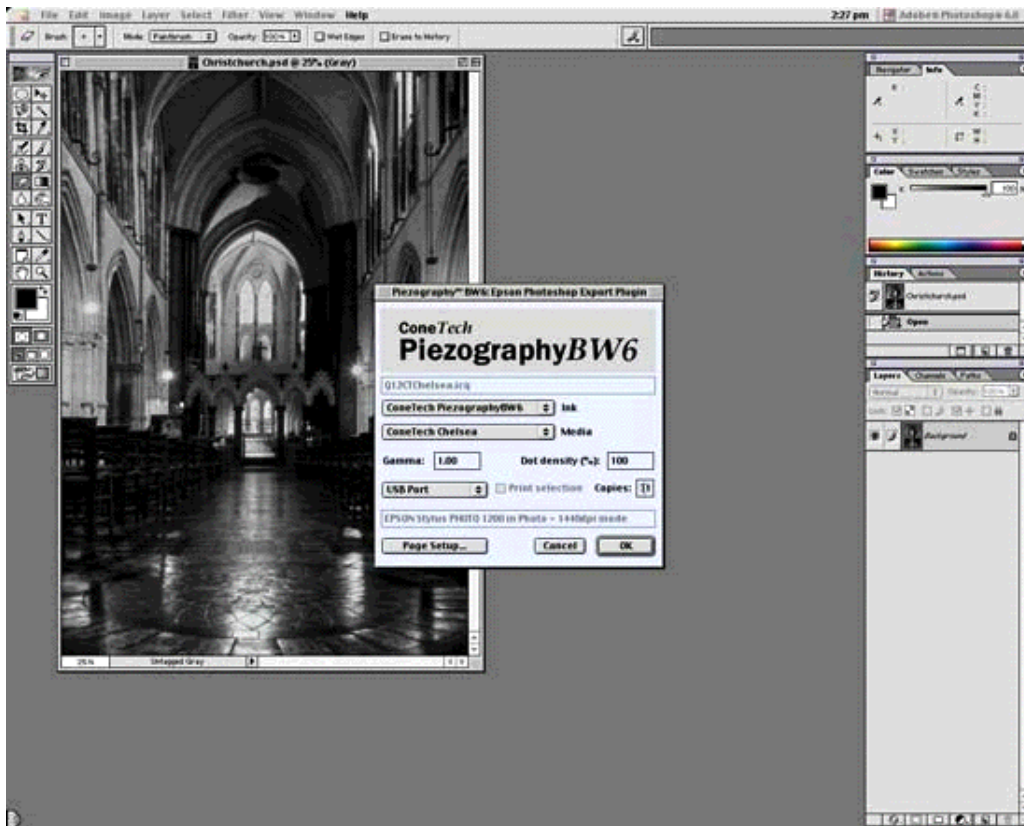
To be honest, the first couple of prints weren't as good as I expected, but as it turned out my images were at fault, not PiezographyBW. I had neglected to read the excellent user manual provided with the software. Only after viewing my miserably flat results did I think to check the user manual and there it was, an explanation on how to optimise the image for PiezographyBW, silly me!

Optimising the Image and Configuring the PiezographyBW Plug-in

PiezographyBW is capable of printing a full range of tones from pure white to black. The range of tones in between is exceptionally smooth and the amount of detail held in the shadow regions is well beyond what can be obtained by all but the very skilled conventional wet-darkroom printers. In terms of the majority of black and white workers, the quality of print that can be obtained from PiezographyBW is quite remarkable.

The key to success lies in three areas:

- i) Capturing a full range of tones from the scanner or digital camera
- ii) Careful editing of the image
- iii) Printing at the highest possible resolution without upsampling the image.

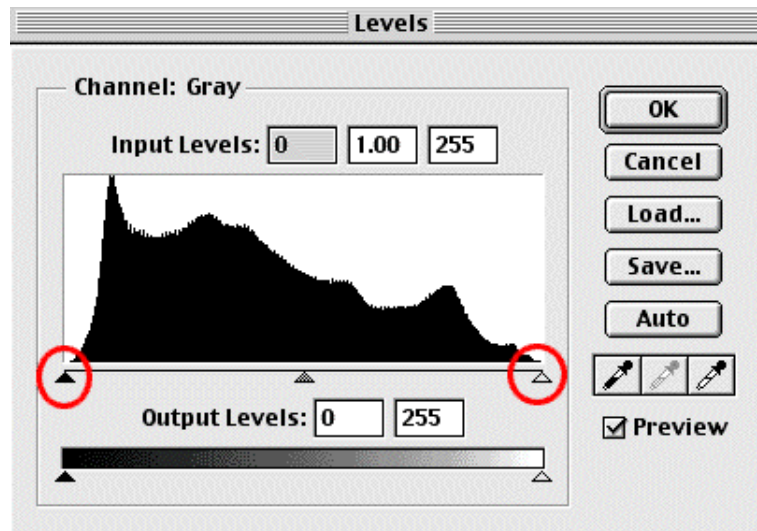


Photoshop 6 and PiezographyBW6 (Epson 1200) Plug-in Printer Driver

i) Capturing a full range of tones from the scanner or digital camera

PiezographyBW is capable of rendering 100% of the greyscale tones. It is therefore important that we capture the full range. When scanning a negative, we should attempt to set the highlight point at level 255 and shadow point at level 0. In addition, most Photoshop users should already be familiar with "Histograms", and how to read them.

The screen grab below shows an example histogram for a negative that I have managed to capture all the available information. Notice that neither the shadow or highlights have been clipped, there is still room for manoeuvre. The histogram also shows that the bulk of the image data lies in the 3/4 tones (darker greys), although there is still plenty to work with in the lighter regions.



Maximising the range of captured tones

The user manual supplied with PiezographyBW explains the subject of optimising the range of tones for the image in considerable detail, so I won't repeat it here.

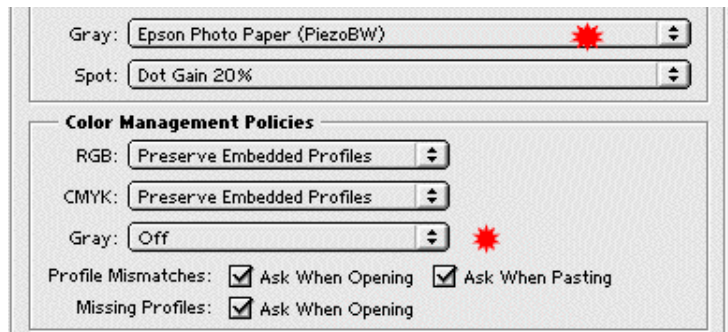
ii) Careful editing of the image

At first, this heading might appear to be a repeat of the previous section, but it isn't. This section differs; in so far as, it deals with calibrating the monitor and setting up Photoshop for PiezographyBW. I now use Photoshop 6, so the screen grabs shown relate to that version of Photoshop. Nevertheless, the concept is similar for Photoshop 5 and of course, the Piezography manual provides lots of help.

The dot gain of the PiezographyBW inks vary with the media used, so achieving an accurate preview of the print on the monitor is important before we can even begin to edit the image. Each type of paper media we use will have its own preview setup. This may all appear a tad complicated, but once completed you'll immediately realise the benefit. The process involves modifying (customising) the "Dot Gain Curve".

First, we get Photoshop Color Setting setup correct for PiezographyBW. This is achieved by selecting the Photoshop Edit menu, followed by Color Settings. I discuss the configuration of this dialog in considerable detail in the article *Colour Management and Adobe Photoshop 6*, so I won't repeat it here.

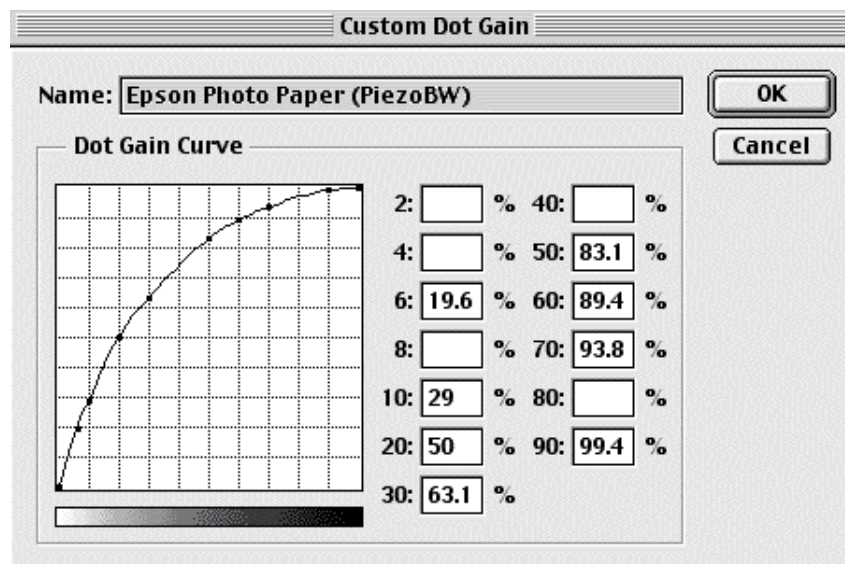
The screen grab below shows the settings I use. Notice that "Gray" has a label Epson Photo Paper (PiezoBW). This label reminds me that the selected dot gain curve for greyscale images is set for the paper I normally use for printing PiezographyBW.



Photoshop 6 - Color Settings Dialog

The user manual also recommended that the "Color Management Policy" for greyscale images is OFF. This means that NO profile will be embedded in the image when it is saved. It also means that we can accurately preview our greyscale images using the custom dot gain curve.

After a few trial prints that included the supplied "21-step greyscale" image, I arrived at the following dot gain curve for Epson Photo Paper. Other users will probably find different values, so don't take it as gospel!



Custom Dot Gain Curve for Epson Photo Paper

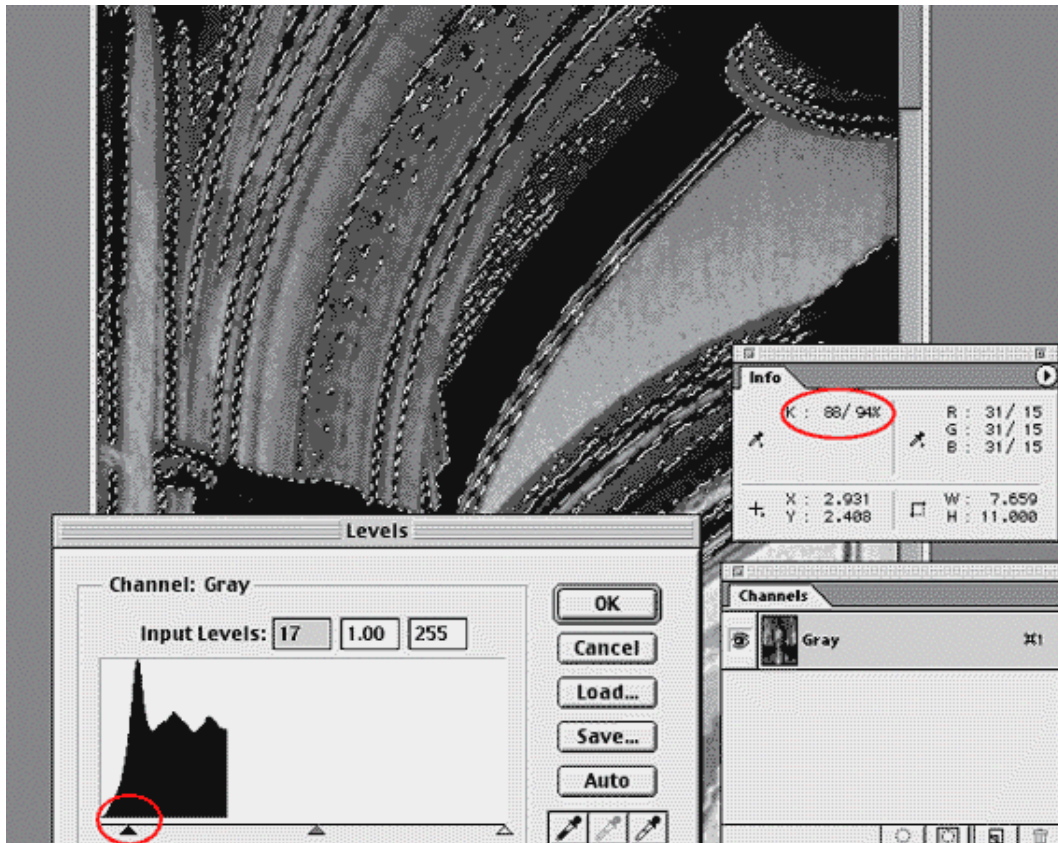
This curve has NO effect on the actual image data, only the preview and with it in place I am assured of a print that replicates the image as viewed on my monitor.

One of the comments that I often read regarding PiezographyBW is that it doesn't produce deep blacks. This is absolute nonsense! PiezographyBW will produce deep blacks with little effort, if that is what the user decides to print. However, the key to getting deep blacks is to have areas of true black within the image.

The Histogram I showed above does NOT have pure blacks within it. No part of the image that it represented (see the Cathedral Interior screen grab, above) is at Level 0. However, getting some of the image to be at Level 0 is relatively easy. The secret is to edit the shadows and leave the remainder of the image alone.

Again Jon Cone comes to the rescue, he has produced an excellent tutorial on the subject of editing our image files for better blacks. The tutorial can be found at the following URL: - <http://www.piezography.com/ts/shadows.html>

Basically, the technique involves making a "Channel" mask as shown in the screen grab below.



Channel Masking for Selective Editing

Notice that the histogram only includes data in the shadow region of the image, all other data is masked and therefore protected from the edit. In the example shown I pulled the shadow point towards the centre so that an area that originally had a value of Level 31 became Level 15 (88% became 94% black). Even at 94% black, this region will print with detail, but now the print will have a bit more depth to it.

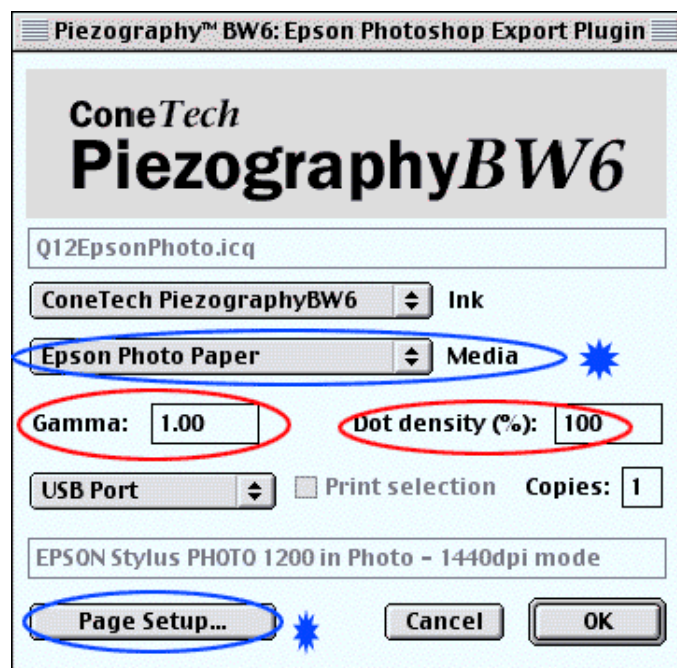
ii) Printing the Image

PiezographyBW actually prints at 2160dpi and likes to have as much image data in the form of pixels as it is possible to get. When using PiezographyBW it is better to keep the image resolution as high as possible without upsampling. Most of my images were printed with Photoshop set for anywhere between 240 and 360ppi. Precise values do not seem to be important so size the print according to your needs and if the Photoshop output resolution falls above 240ppi, great. If it's less then make the print smaller, do not upsample if you want to retain all the qualities of PiezographyBW.

Making a print in PiezographyBW is slightly different to the normal process of selecting Print from the Photoshop File menu. With PiezographyBW you actually print via the Export command, again found under the Photoshop File menu.

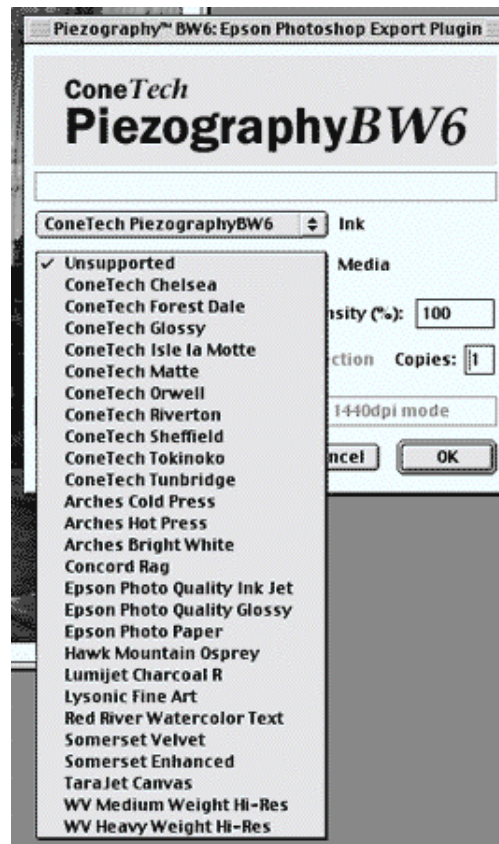
The "Gamma" and "Dot Density" options are designed to allow the user the opportunity to fine tune the printer output. The user manual explains both in detail, so I'll give them a miss.

Setting up the printer is also fully explained in the user manual. However, you should notice the option for Page Setup in the PiezographyBW dialog shown below. The option will give you access to the standard Epson driver from where you will choose the media type, printer resolution (ideally 1440dpi) and paper size. The other settings are all pretty much irrelevant; PiezographyBW does its own thing.



Piezography Export Plug-in (Epson Stylus Photo 1200)

Choosing the correct media profile is important. Each paper type listed has been profiled to achieve the best possible output. If you find yourself testing a paper that is not listed, try the "Unsupported" option. However, you'll probably have to create a new dot gain curve for previewing the image.



PiezographyBW Media List

One thing that becomes very apparent with Piezography is the speed of printing, it is much quicker than the standard Epson driver.

Final Thoughts

With a little effort in Photoshop and the PiezographyBW system, just about anyone is capable of producing superb Black and White prints from even the most ordinary of negatives (also colour slides converted to greyscale).

It takes a while to get used to the nuances of PiezographyBW, but once you kick off the shackles of conventional black and white printing (wet darkroom) and begin to make use of its properties you will be converted. The incredible shadow detail and smooth midtones are what PiezographyBW is what about. I have only tried two papers, I'm told they aren't even the best at the showing the full potential of PiezographyBW. If that is true, then black and white printing

has entered a new era, an era were drop dead gorgeous black and white prints will for many, become the norm rather than the exception.

The image presented below is the one from which the histograms and screen grabs were taken. The final print was scanned back into Photoshop in 36 bit RGB mode using LaserSoft SilverFast software. The image has undergone NO adjustment, the tone you see below is the tone of the final print



Christchurch Cathedral, Dublin

In the last paragraph of the user manual "Introduction" Jon Con writes the following:

While PiezographyBW handles the reproduction of scanned negatives with ease. It might be better exploited by printing digitally captured images which have a dynamic range as wide as PiezographyBW. I hope that you will join me in redefining black and white photography.

When I first started to use the PiezographyBW system, this paragraph was of no significance to me. It appears that a majority of users to date are of similar mind. We all appear to be trying to

replicate the processes of the conventional darkroom. Worse, we appear to be tied up in scanning, resolution, ink-tone, degree of sharpening, etc. I agree that all these points are important. However, I also believe that when Jon Cone wrote that paragraph he had something more in mind.

All those who have used the system agree that PiezographyBW has the ability to reproduce a much wider tonal range than conventional darkroom paper. Many users have remarked at the ability of PiezographyBW to print into an area of the negative that is well beyond conventional photographic prints. It also has a much greater ability to render the subtlety lit highlight areas. The tonal range PiezographyBW is to all intents and purposes infinite. However, many of the scanners we use simply cannot deliver the goods when it comes to TRUE shadow detail. We think we see detail, we think we see grain, but are we just kidding ourselves?

A raw digital image of a Canon D30, Nikon D1 or even the Olympus E10 will show very little, if any, noise in even the deepest shadows. The dynamic range of today's digital cameras probably exceeds that of conventional film and so the shadow regions in particular will contain significant detail. Even after interpolating the image up to a reasonable print size, say 14 by 11 inches and printing at 240 dpi the quality of the shadows in a PiezographyBW print can surpass a 35mm scanned at 4000ppi. As things stand, these cameras still provide insufficient number of pixels to truly allow the larger prints we so desire, but given the pace of digicam development that may soon be rectified. When that day comes, I think we will understand the full capability of PiezographyBW.