



FLAAR Reports

Digital Imaging, Report on Printers, RIPs, Paper, and Inks

4x5 Cameras to hold your large format scan backs (PhaseOne, BetterLight, etc)



A Report by Nicholas Hellmuth,
FLAAR at Bowling Green State University,
Based on twelve years using a Gitzo Tele Studex Tripod

4x5 Cameras to hold your large format scan backs (PhaseOne, BetterLight, etc)

With traditional film, nothing can match the quality of a 4x5 chrome, except perhaps an 8x10 chrome. There is no digital photograph, yet, that provides the depth of field and sharpness of focus of an 8x10 transparency.

I used Hasselblad for medium format and Leica plus Nikon for 35mm photography over decades. Then a Japanese publisher offered me a lucrative contract to photograph in Mexico, but required that where possible I use a 4x5 camera. This was in the mid-1990's, long before digital cameras were readily available.

So I taught myself how to handle a view camera very quickly, and within a year had moved up to 8x10. Yet two years ago I was offered another contract, which also required using a 4x5 camera. But the Spanish publisher said the job had to be shot with film; not digitally. I turned down the job. Why?



Because the film eventually had to be digitized to publish in the coffee table book, so I said it was a shame not to start with a raw digital file. But I suspect someone in the publishing company was not yet completely at ease with digital imaging. Or, more unlikely, the publisher realized you could achieve better detail with 4x5 film. So why did I not wish to take the job?

Because shooting 4x5 film is going backwards in time. Shooting in a studio it is next to impossible to balance for the different color temperature of tungsten lighting (many museums in Latin America do not allow strobe or flash). When I shoot with a digital camera I can control the color balance, white point and black point on the fly. I know, while I am doing the actual photography, that the photograph will be flawless (at least from a point of view of color and exposure).

In 1996-1997 I did my first digital photography, with a Kodak DCS 420 camera, at Japan's National Museum of Ethnology. When I returned to the US I switched to a large format BetterLight scanning back. At that time these backs were sold under the brand name of Dicomed. Since 1997 I have never again taken a photograph, in any size, with film.

To hold the Dicomed back, and then to hold the BetterLight back that replaced it, I have used a 4x5 Wisner technical field camera, a Linhof Technikardan, Sinar X, and also a Cambo Ultima. Experience from these four different cameras makes it easier for me to recommend the pros and cons of each.

If you intend to move up to large format photography I would recommend a hands-on course at any local community college or any one of the many programs in photography around the country that may feature this size camera. There are two or three excellent books on large format cameras that I include in the bibliography. You should peruse at least one of them; just realize they do not discuss much about digital aspects of large format photography.

Rather than repeating what is available in any good textbook on photography, I would rather offer the results of several years experience using a wide range of 4x5 cameras. Some of these cameras are notably more robust than others.

Wooden 4x5 cameras (field camera)

These cameras fold into themselves to make a traveling box about the size of a cigar box. Such designs are known as a folding-baseboard camera. The cheap ones are useless because they are too flimsy and they wobble. These cameras (as a group) go under various names, "field cameras" is one designation because they are indeed good to use on location.

A few brands are popular, but that still can't save them from lack of precision which is inherent in the century-old design of their brass controls. Zone VI is the generic kind of camera to avoid for any studio use with a digital scan back, especially a tri-linear scanning back.

As with other products, "reviews" are often infomercials or thinly cloaked PR releases by the manufacturer, or a captive writer who touts that brand as the world's greatest. We call those pseudo-reviews.

Special purpose medium and large format cameras: shift and pano cameras

Gottschalt Kameramanufaktur (Germany), Silvestri (Italy) and a few other manufacturers make shift cameras. A shift camera has rise and fall movements only. So you can use it with architecture front on only. This is not a camera to use at an angle to a building (where you need side shifts). I also prefer some tilts as well.

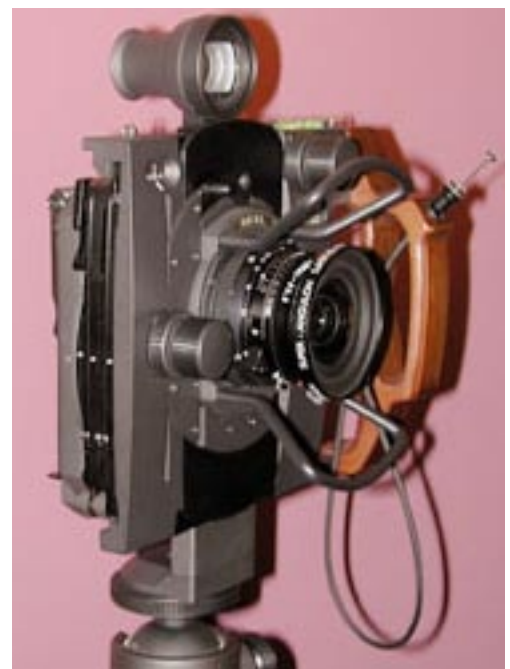
The Gottschalt DS 45 also includes tilts. Thus in some respects this might be a good replacement for my virtually useless Linhof Technikardan. The principle advantage of that camera was it was easy to fold and transport. But it wobbles too much for digital photography, a problem with most Linhof cameras other than the non-L shaped 679.

Sometimes it's tough to know if these one-man camera companies are still functioning. I was unable to find any web site for them. But **Gottschalt Kameramanufaktur** had the same booth at Photokina 2002 that they had at Photokina 2000. Their cameras look well designed and well made. This is a typical German camera company, a 1-man enterprise based on precision engineering and innovative design. What is unique about their camera is the bellows which allows you to tilt the camera. In effect the Gottschalt is the most flexible of the shift cameras.

Horseman makes a medium format SW6x9 (cm) model which uses the Rodenstock Apo-Grandagon series (35mm, 45 mm, and 55 mm) as well as a few other comparable lenses. In medium format these are ultra wide angle lenses. Although this is a medium format, not a large format, it is the same kind of shift-lens camera concept as the Silvestri, which also takes medium format backs.

We tried an older model **Cambo Wide**, the model with 90mm lens. It did not have enough movements to really be useful. Perhaps the newer Cambo wide models are better. I understand they have added more movements. Otherwise, Cambo makes the best 4x5 I have used so far, the Cambo Ultima. In my experience better constructed than the Sinar X.

On some of these cameras you need a focus-mount for your lens since the camera itself may not have a focusing mechanism. In this case you need a Rodenstock focus-mount.



Silvestri (Italy) makes the widest range of shift cameras that I know of. However I would need to try them out on an actual location shoot to judge how they function. All too often a mere rise and fall is simply not enough for architectural photography. However in most respects the Silvestri and Gottschalt cameras are what Hasselblad should have copied in their ill-fated ArcBody and FlexBody attempts.

Silvestri also makes attachment gizmos so you can put a modern scan back on older Hasselblad 500cm bodies.

The Linhof catalog now includes Silvestri cameras, at least the German version of the Linhof catalog.

Several other shift cameras could be seen at Photokina, but Silvestri and Cambo were the larger companies.

***What camera do you need in the studio for product photography?
Or outside for architectural or landscape photography?***

In a studio, however, you absolutely need zero detents or at least micrometer movements and locks that don't wobble. Thus any camera with sliding movements, or simple turn-screw "locks" or levers are insufficient.

These problems are by no means only with sliding brass fixtures on wooden cameras. With the Linhof Technikardan (original model not the improved model) merely locking a lever can throw the camera out of digital focus. The weight of a digital scan back is enough to pull down the Linhof Technikardan as well. It's not a camera I would buy in the digital millennium. Too bad, it folds flawlessly and is easy to transport. This Linhof lasts forever too, albeit wobbly the whole time. But it sure is easier to carry around than a 10 ton gorilla. The Linhof 679, however, looks like a great studio camera for 1-shot or 3-shot digital backs but is just a few millimeters too small for a trilinear scanning back such as BetterLight.

Zero detents means that the camera automatically stops at its zero point for every movement. In those cases where no zero detent is present, you at least need non-sliding movements. Thus, for example, the Sinar P has zero detents but I believe the Sinar X does not have that feature. Nonetheless, the Sinar X is vastly superior to 75% of the other cameras on the market, namely to any camera with sliding movements. If the movement slides, then it can also slip or slide a bit while you are tightening down the turnscrew.

We frequently get e-mails from photographers who want to buy the Sinar P2 with all the trimmings. Yes, this is the ultimate professional studio camera. If you can afford it, or if you are good enough that you will earn enough to pay it off, then go for it.

But, if like FLAAR, you are at a university and museum (in other words, no one really pays us for our photography), then you need to be frugal, yet you still seek the same quality as Sinar. Since Arca-Swiss lacks a web site and its hard to find their catalogs I can't easily compare their prices with Sinar, but I would estimate Arca-Swiss is a bit less cost, and yet every bit as rugged (especially since the demo Sinar I had totally collapsed; its fabled gears had evidently lost their teeth over the years; the Cambo was much superior).

If you do go for Sinar, the Sinar X is just fine; I am not convinced I would go for the P unless I just won the lottery. I am sure that a brand new Sinar would be as good as a brand new Cambo. I just had bad luck to get one from the Sinar demo pool. Plus someone had packed it in a way it slipped out of its form-fit enclosure, but that is not what caused the worn gears on the inside; that came from years of use at tradeshow and out on loan.

4 x 5 cameras with brass fixtures and sliding locks

Most of the beautiful wooden cameras have brass fixtures. Some cameras made of metal or synthetic composites also have brass fixtures. Certain fixtures are more secure than others. I would have to try every camera, out in the field, to judge each one fairly. But many different brands all seem to buy their brass fixtures from the same source. These brass fixtures have a sliding mechanism.

We are unable to comment on folding field cameras made of materials other than wood. We would have to take them out into the field, and then into a studio, to evaluate them. However some of these non-wooden cameras have what look like the same brass fixtures as their wooden ancestors. It's the sliding mechanism with turn screw which is the weak point, especially when the control on the right side of the camera is totally independent from the control on the left side. You end up with a lopsided focus. Nothing is parallel to anything else, not even to other parts of the camera, and even less parallel to the object you are attempting to photograph.

For fine art photography (with the painting on the wall, the camera on a tripod) you will get an amateurish image which is almost guaranteed to be out of focus and not even rectangular when you attempt to make a fine art giclee print with a large format inkjet printer.

The reason why cameras with brass fixtures won't work with a scan back is because the CCD requires a nearly flawless focus.

The **Wisner** is by far the most attractive wooden camera and evokes the most favorable comment. Everyone asks whether its wooden design comes from a museum. The downside is that I don't yet have a viewing prism nor a wide-angle bellows capability. A nice feature is that the camera folds up for easy traveling. For field work on location this is a viable option since it has tilts and swings. When you are out on location your plane of focus is relatively lenient so it does not require precision micro-step nor zero detents that are absolutely required in the studio. FLAAR has successfully used the Wisner out in the field with the BetterLight tri-linear scanning back for shots at infinity. The Wisner is considered as one of the better wooden field cameras made today.

If you need training in the use of large format wooden cameras (the camera movements portion, not in large format digital aspects) we recommend the workshops by Ron Wisner. Telephone (800) 848-0448.

4 x 5 cameras made of metal

Arca-Swiss

Arca-Swiss makes only view cameras, from medium format size (for 6 x 9 cm) up to 8 x 10 inches. A combo model with F-metric front standard from the 6x9 cm series and a back standard from the 4x5 inch series is one possible solution for holding a tri-linear scanning back. One advantage of the choosing the F-metric would be the ability of adding an orbix extension. The orbix allows "marked increase in movement with sort focal length lenses." In other words, I won't have a fit trying to use a 58mm lens on a Linhof Technikardan which in addition to wobble has limited movements with wide angle lenses.



The Arca-Swiss M-line (monolith) looks more similar to the Cambo Ultima. The rise and fall movements appear to be geared or at least substantially stable. The F-metric has rise and fall within an open groove. Sliding grooves are what does not work with brass-fitted wooden cameras. Of course an Arca-Swiss is light-years ahead of any wooden camera but I have been so burned by sliding groove mechanisms on wooden and comparable lesser cameras that I would prefer to recommend the Arca-Swiss monolith for holding a digital back. The orbix attachment would be one feature of the F-metric which might make me consider that model.

Since I have never used an Arca-Swiss I am not able to judge how they hold up in the field nor whether the F-metric groove system is superior enough to that of a traditional wooden camera to be recommendable. Also, I do not have a recent catalog

The Arca-Swiss camera system has such good word of mouth advertising that the company has never bothered with a web site.

I see the **ArcaSwiss** cameras only at Photokina and PhotoExpo East trade shows. I can't say anything more about it, nor picture it, since FLAAR does not have one available.

Actually the Cambo Ultima is the only large format camera designed to give digital studio photographers the precise precision that they need to hold the CCD in absolutely perfect position, so that when you tighten down the knobs you don't lose your plane of focus.

That is precisely the downside of the Linhof. You get it all lined up, but when you turn the lock knobs, the whole system gets skewed out of focus all over again. Also, the Linhof uses an L-shaped support which is inherently weak. It sags with the weight of a digital scan back combined with the drag of the SCSI cables.

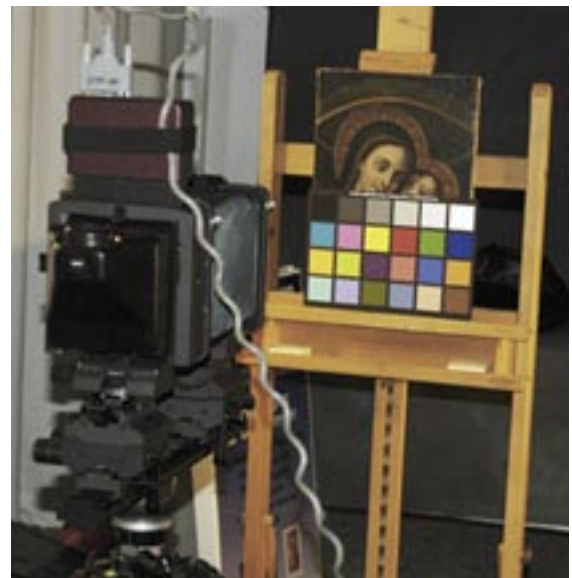
Cambo large format

The **Cambo** Ultima is the most precisely designed and manufactured camera I have ever seen; it rivals the Arca-Swiss. Although I have used an Arca-Swiss for several months, it fell apart (was a used demo). I do have a Cambo it's a lot easier to discuss and showcase the Cambo. It arrived brand new, so was not all worn out. It works flawlessly.

I have used a circa year 2000 model of the Cambo Wide. It did not have enough movements. The newer model is better. But I prefer tilts, swings, in addition to rises and falls.

Although the Cambo Ultima is an exceptional camera, and I recommend it wholeheartedly, this recommendation does not apply to entry-level Cambo cameras. They are okay if you need an economical camera for using with 4x5 film, but in my opinion are not adequate for holding the weight of a digital scanning back.

The sparse Cambo web site is www.cambo.com.





Sinar X and Sinar P large format

The **Sinar X** camera kindly loaned by Sinar USA was a demo which had seen to many trade shows and too many loans where I guess the other photographers did not take care of it. So by the time it got to me the innards were ground down to stumps and the camera had severe gear problems.

In distinction the Cambo that was provided was brand new, never used and hence never abused. Its gears were in flawless condition and hence made a better impression. I am sure that a brand new Sinar X would also look wonderful, but the only Sinar I had my hands on was old and worn out. I hope to try out a new Sinar to give this Swiss-made camera another opportunity to regain its crown.

Sinar P is their Rolls Royce model. Frankly I found the Sinar X okay; I am sure that if brand new I would have been impressed, but made-in-Switzerland is supposed to mean they are well built. I used to live in Zurich and everything in the country was impressive, from my Swiss girlfriend at the time, to the watches. But the Cambo is the camera I happen to use.

Linhof large format

Most Linhof cameras suffer from disorientation during tightening. As you tighten the system, this very movement moves the camera out of focus. This does not mean Linhof cameras are poorly made. Countless other brands of camera suffer the same malady. The problem is that these famous German brand name cameras were made for use with film. Film is much more forgiving than a CCD.

The **Linhof M679cc** in distinction, looks very nice. Looks like a miniature version of the Cambo Ultima. The Rollei X-act is comparable, but I believe it and the Linhof are not large enough for the 7 x 9 cm scan backs. Hasselblad flex-body cameras were too little too late and also won't hold a large format scan back anyway. For a medium format back I would rather have a Linhof or Rollei than a Hasselblad.



Plaubel

I have not noticed Plaubel cameras before seeing them in several booths at Photokina 2002, nor have I seen any in a studio that I have inspected over past decades. Their equipment looks okay, but without having used one myself it is best if I do not pass judgment.

Plaubel seems to make a wide range of cameras. Just remember that L-shaped camera supports may not be ideal to hold digital backs steady. Until I can see and hold a Plaubel in my hands, I am content with a Cambo Ultima.

Toyo large format

Toyo makes an acceptable wide format camera, indeed this is the 4x5 camera Michael Collette has used on occasion to test his BetterLight tri-linear scanning backs.

I have not personally used any Toyo camera. I have been spoiled with the Sinar and Cambo Ultima. It would be difficult for me to be convinced that another camera could match or beat the solid construction of a Cambo, Sinar, or ArcaSwiss. Even the Linhof 4x5 cameras do not meet my wobble standards (I know, I have two, a 4x5 Technikardan and an 8x10 Linhof Kardan GTL; both wobble). The Cambo and ArcaSwiss don't flinch. The Sinar was a used demo camera and had wobble due to its excessive wear and tear. I would guess that a brand new Sinar would have been better. ArcaSwiss I have handled only at two Photokina tradeshows, where I have also looked at the Toyo cameras.

Other large format cameras

Another dozen large format cameras exist. Most use sliding brass fixtures, precisely the age-old tilt and swing adjustments that are too flexible to recommend. Other cameras have L-shaped supports (Horseman LX series; they are very similar to the Linhof Technikardan, indeed on paper look like a copy; the Linhof original Technikardan is not recommended either. Since Linhof, Arca-Swiss, Cambo, Sinar, and to some degree Toyo make perfectly good cameras, there is not much need to look around for unusual brands. Of course if you already have some other brand, and lack the money to buy a sturdier 4x5, then you can make do with what you already have. But if you are doing serious professional photography with a tri-linear scan back you should be earning enough profit to be able to afford adequate equipment. Besides, if you have sliding brass fixtures and attempt to do precise macro photography you may be getting poor images. Our recommendation is to use only the better equipment. Life is too short to keep attempting to jerry-rig or simply make do with something less than the best.

Reprographic Scanning Cameras

A BetterLight or Anagramm on a repro stand creates a reprographic system from components. Difference is the Cruse is dedicated, a turnkey solution. FLAAR has one of each: one Cruse and one BetterLight. We feel each has positive features; depends on your needs.

METIS, an Italian distributor of digital equipment, showed their DRS reprographic stand. It sure looked like a cheap copy of the Cruse. Since Cruse has a patent on synchron lights it is my understanding they filed a patent infringement suit against METIS. The METIS unit looked like simple sheet metal around a basic structure.



Cruse GmbH showed a unit that had looked solid. Indeed the new Cruse moveable-table repro system wins our award for innovation.

The Cruse CS 185ST features a synchron table. This precision equipment moves the table past a fixed scanning head. You can have a table as long as over two meters (225 cm to be exact). These longer lengths were original designed for scanning hardwood for the veneer industry. But it turned out that the same system was ideal for scanning paintings. By setting the scan head at a 10° or 20° angle it is possible to capture the topographic details of brushstrokes of an oil painting. Thus when this image is reproduced on an inkjet printer, the three-dimensional effect makes the print appear as if it were the original painting.

The Cruse scanner overhead digital camera system is ideal for archives, museums, libraries, photo studios, and naturally any commercial fine art giclée studio.

Summary: Large Format Cameras to hold your Tri-linear Scanning Back

What is the best 4x5 camera for large format digital photography?

I spend a week visiting Photokina 2000 tradeshow to answer this question. At Photokina 2000 we selected the Sinar X and Arca-Swiss 4x5 cameras as the best. Since at that time Arca-Swiss was in the middle of moving its office from Switzerland to France (to gain entry to the Common Market), no Arca-Swiss was available to test. But Sinar Bron kindly made a Sinar X available to evaluate.



The Sinar X is an impressive piece of precision machinery. Unfortunately the demo unit they sent had two problems: first, it had evidently been used as a demo unit for years by people who did not treat it kindly. Second, it worked itself loose within its shipping container. So when it arrived it was a bit disheveled. But after a month of use I learned that its wear-and-tear were much deeper: the internal gears had worn out.

Nonetheless, Sinar has a solid reputation for well-made cameras. Even after my unfortunately experiences with a demo model, I felt that Calumet was very brave when they suggested that I test their Cambo Ultima against the Sinar X.

When we unpacked the Cambo it made a good impression from the very beginning. We have used the Cambo now off and on for over two years (we dislike getting 30-day loaners; can't learn whether they really hold up).

Based on the several years of testing the prototype Better Light scan back with various 4x5 cameras, I would not advise trying to use a cheap 4x5 camera. That is not the place to safe money.

You need a solid camera to hold the weight of the scan back without sagging (the Linhof Technikardan sagged the most; the Sinar X sagged a little, but it was an older demo and possibly loose from all the years at trade shows and all over the country as a demo unit. Perhaps a new Sinar X would not sag as much.

The Wisner portable technical 4x5 camera sagged the least. It was rock solid. But you absolutely need micrometer movements. Sliding movements (movements that slide along an open groove) are the worst kind if you need to do product photography (close-up and macro photography).

At Photokina 2002 I spent another week checking out the latest photography equipment.

CamDynamics

Prior to the advent of the CamDynamics model, Sinar was top name. Today, Sinar holds the top name still, but CamDynamics is the new Rolls Royce of large format cameras.

You have to read their specs, info@camdynamics.de. I saw the camera in person. Sure evokes instant envy. CamDynamics deserves the FLAAR award for most innovative 4x5 camera at Photokina.

Since we do not have this camera, there is no way to describe what it does. But if we ever do obtain one, will write a special report on it.

Automatic lens control

With a digital camera there is really not that much need any more to open up the lens to focus and close the lens down to shoot. First, you can focus with the lens down because focus is electronic via the software. Second, you won't be shutting your lens down to f 32 anymore anyway. Can't do that with a digital scan back. You will probably be shooting at f 11, or even f 8. At best at f 16 if you have lots of light. With HMI possibly at f 22 if you are lucky.

Thus I don't personally see a need to spend the extra money for any kind of auto shutter. But then again, I don't have to take photos 8 hours a day all week. So if you are shooting every day, hopefully you are earning enough profit to afford an automatic lens diaphragm control.

Portability

BetterLight has an economical portability pack that is sturdy. I have used this portability pack on location in Central America. After Sept 11th its tough to get a complex electronic anything on board, especially something with a giant battery, but you can always put it inside a hard case and ship it.

Just add your own Macintosh laptop computer and you are all set.

Only downside of the portable version is the SCSI connector. Mac laptops are not SCSI friendly. Yes, you can get the Adaptec PowerDomain Slim SCSI 1480 UltraSCSI in cardbus PC card. But conflicts are legendary. I had to go out and buy several older Wallstreet model Macs, with built-in SCSI, to power my BetterLight on location. I actually found an outlet that still had this model laptop brand new even with manufacturer's warranty. But you can buy them used as well for even less.

There is no pretense of carrying the portability option while you are actually taking the photographs (as shown by Sinar or PhaseOne). Those solutions, which are only medium format, are unrealistic due to their weight. Most assistants would start to whine within minutes if they had to carry that weight. So no, the BetterLight system is intended to sit comfortably on the floor, or outside, on the ground. Besides, the camera will be on a tripod. You will need a table for the computer anyway (be sure to get a Hoodman sun shield for your laptop).

Why use a 4x5 camera to hold a 1-shot or multi-shot scan back?

The chip inside virtually all "medium format" scan backs was less than the size of 35mm film negative. Hence there was not much need to have even a medium format system. Large format was absurd over-kill.

Gradually the CCD sensors are getting a tad larger, and to hold all the electronics surrounding the chip, the "back" tends to be the size to fit onto a medium format camera. But still, a large format camera is no advantage whatsoever (other than impressing your clients). All you need is a Linhof 679 or Rollei X-Act if you prefer camera movements.

To see how much electronic baggage has to accompany the tiny chip, look at any Kodak 35mm class of their DCS digital cameras. You will note the size of the body required to hold all the parts. The CCD chip itself is a miniscule portion of that.

The real decision of which size studio camera to buy rests with, what size camera do you already have. If you already have a Hasselblad, then all you need is the back. You already have the camera and the lenses. If you require a hand-held solution for spontaneity, then either a Hasselblad or Nikon system is good.

Only if you shoot primarily from a tripod (which we strongly recommend) would it be good to move into a Linhof 679, Rollei X-Act, or comparable Arca-Swiss. The reason why FLAAR favors a full-sized 4x5 (Cambo Ultima) is because we have one in-house, so we know how good it is. It's a challenge to get excited about a camera we can't use on a daily basis. Personal usage is the strong point of the FLAAR reviews. However since we obviously don't own every camera ever made (despite my girlfriends belief that this is where all my money has been spent over the decades), we do use tradeshow to check up on other cameras.

We have lusted in our heart for either the Linhof 679 and the Rollei X-Act, especially the newer X-Act-D (for digital). There are over 10,000 photographers every month who read our reviews, often curious to know which competing camera do we prefer. So as soon as the opportunity presents itself, we will test out one or the other or both.

The Foveon CMOS camera is really a camera, not merely a back. So you can't put the Foveon onto a 4x5 or even onto a medium format camera with tilts and swings. The Leaf C-Most is a digital back, which requires a regular camera to hold it. So you can put a C-Most onto a large format back if you wished to, or onto the Horseman 35mm holder for that matter since the chips in most of these cameras is really only about the size of a postage stamp.



Standard Myths

It is ludicrous to use a 4x5 camera with a puny 2 x 3 K sensor. That's like putting the engine from a Yugo into a Mack truck. Of course if you already have a nice 4x5 camera, yes, use it for your 1-shot or multi-shot back. But don't kid yourself that such a giant camera will really produce a large format image.

I suspect that most people at first presume these digital backs actually produce 4x5 quality. Sorry, they don't, at least not the current generation. These costly backs are just the digital equivalent of a good 35mm image in traditional film.

The best camera to use to hold a postage-stamp sensor is the Rollei, ArcaSwiss or Linhof 6x9 class of camera with full tilts and swings. Anything larger is overkill and produces no useful benefit in the resultant picture whatsoever.

Same with the tri-linear sensors which move across the 7 x 9 cm space. They can be squeezed to fit onto the Linhof M679, but most such medium format cameras don't accept the full 70 x 90 sensor area of the

BetterLight, JOBO, etc, so indeed a large format is ideal. A large format camera does not enlarge your image but does allow you to get all the image area size you are provided from the sensors.

All this is changing as the sensors get more powerful and physically larger in scale as well. But why wait, BetterLight, PhaseOne and other tri-linear scan backs already are at large format quality. Their only downside is the inability to capture motion.

Hype

One gem we found in an attractive PhaseOne brochure that we got at Photokina or PMA: “*The quality of a LightPhase image is similar to a digital file of a 4” b 5” film.*” But, if you take a 4x5 film and scan it on a drum scanner, surely the LightPhase could not match that. Even if you scanned the 4x5 film on a flatbed. Now perhaps the image from a PhaseOne scan back might be similar, as would the image from a JOBO, or BetterLight scan back. But from a one-shot camera? I am not sure too many pro photographers would take that claim seriously.

To the credit of PhaseOne, they did state that this LightPhase image was enlarged to 728 x 1,030 mm, which is about 3 feet in maximum dimension, which is a good-sized image. That is about what I can enlarge a 35mm Kodachrome slide to if I use a CreoScitex flatbed scanner to digitize a 35mm slide. So all PhaseOne has demonstrated is that their LightPhase is as good as a 35mm image, yet with hopefully less grain, since the scan of the slide at over 3300 dpi ends up scanning into the grain of the film. However I still don't see how this can equal a 4x5” chrome! A 35mm is rather small piece of film, as is the sensor in the LightPhase. Besides, one of the other LightPhase brochures states clearly, “image quality: higher than 6 x 6 film” (which is also debatable). But they need to make up their mind; is it 4x5 or medium format. Or do they wish an outside jury test to decide, where it may end up back at 35mm size. After all, the CCD is only 36.9 x 24.6 mm in size. A 35mm slide is 35 x 23.3 mm.

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The two classics are Stroebel's 7th edition and a book by Simmons. Shaman's book is too early to include comments on digital backs on the view cameras.

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View Camera Technique, 7th edition. Focal Press.

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Stroebel's View Camera Basics

Sources and Resources from Manufacturer's Brochures

The brochures of Sinar-Bron and Rodenstock are excellent, especially the illustrations of the Rodenstock lens brochures.

Sources and Resources on the Internet

<http://advocacy-net.com/largeformat.htm>

Comprehensive selection of large format links.

www.cs.berkeley.edu/~qtluong/photography/lf/

Informal discussion of various issues of large format photography.

<http://bigcamera.8k.com/index.html>

Covers lots about medium and large format photography.

www.nd.edu/~sborman/personal/photo/LF_faq.html

Short (five pages) and useful discussion and definition of basic concepts of large format cameras.

<http://photography.about.com/cs/camerasother/index.htm>

Commercial site filled with ads but has convenient links to medium format and large format camera manufacturers.

