

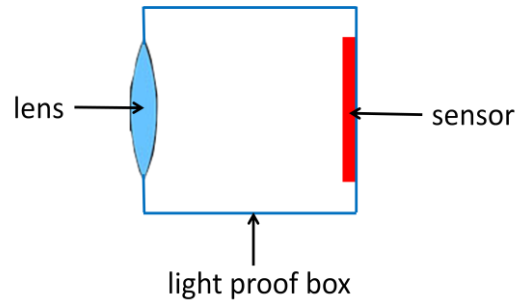
# Types of Camera

Steve Wells

## All Cameras Have Things in Common

While there are many types of camera, all have some things in common. If we stick to modern cameras, all have a lens to collect and focus light, all have a sensor to record the light which has been collected and focussed and all are contained within a lightproof box.

Despite these common features, they come in different sizes and are designed for different roles.



*All cameras have common features*

## Camera Phone

This is the commonest camera available today. The rise of the camera phone has destroyed the old market for compact cameras. It is no longer possible to buy a small cheap camera.

A typical camera phone has two cameras: one forward facing and the other rear facing. The rear facing camera is for conventional photography: everything from holiday snaps to photographic masterpieces. The front facing camera is designed for a new branch of photography which has been invented with the camera phone – the “selfie”.

“Selfies” are the pictures you take on holiday to prove that you were “there”: in front of the Taj Mahal or the Doges Palace. Since people normally only see themselves in a mirror, the front facing camera displays a mirror image. The image which is stored is, however, the right way round. Despite the difference, people are so used to mirrors that no-one notices the difference.



*Camera phone*



*A camera phone is actually two cameras*

The quality of camera phones has been questioned. On the other hand, people have made a living from images taken on camera phones.



*"Big Sister"*  
Gabriella Ciglian, iPhone X



*"Baiana in yellow and blue"*  
Alexandre Weber, iPhone 6s

## Compact Camera

As I already mentioned, the compact camera has lost out to the camera phone. While you won't find them new, you may be able to pick them up second hand: try Oxfam.

These cameras are really the descendants of the "Box Brownie": cheap and basic.



*Compact camera*

## Rugged Compact Camera

This is one corner of the market where the compact camera has retained its place.

Drop it on concrete, go swimming with it and it will survive. You can't do that with a camera phone.



*Rugged compact camera*

## Advanced Compact Camera

The Advanced Compact camera is much more sophisticated than the original Compact Cameras. It is not as small and it is heavier: you could fit it in a pocket if you have large pockets.

This type of camera gives you much more control and has a larger sensor for higher quality results.

It is, of course considerably more expensive than the original compact cameras.



*Advanced Compact Camera*

## Compact System Camera

This is a small, light camera with interchangeable lenses. Unlike the Digital SLR, this camera has an electronic viewfinder. This means that what you see in the viewfinder is what is on the sensor. It is what you will; get in your picture.

The electronic viewfinder means that the designer does not have to allow space for a mirror and a complex reflex viewfinder. So, the camera can be made smaller.

Typically it has a small sensor as you would expect with a camera where the main point of the design is to be small and light.



*Compact System Camera*

## Bridge Camera

This looks a bit like an entry level Compact System Camera. The lens is not exchangeable but the zoom range is typically large: perhaps 30 times – more on some models.

The sensor is small but the control available is similar to larger cameras.



*Bridge Camera*

## Digital Single Lens Reflex (DSLR)

This is at the large end of the cameras which photographers might normally carry around.

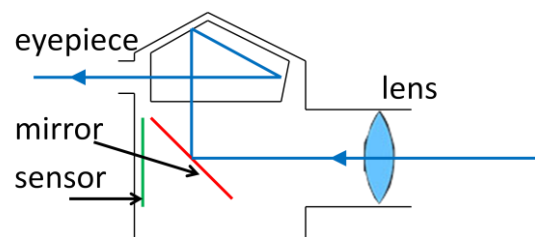
A DSLR camera is part of a system which typically includes every lens gizmo and gadget you have ever heard of and more besides.

The viewfinder provides a direct view through the lens. Unlike the Compact System Camera, you don't see what is on the sensor.

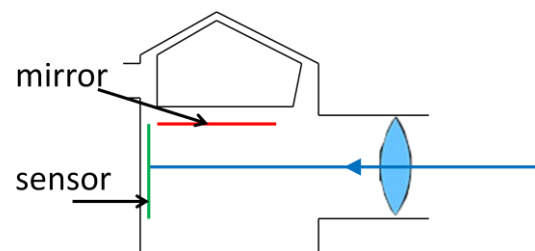
This form of viewfinder also means that at the moment the picture is taken, the viewfinder goes blank as the mirror moves out of the way. Some photographers claim that this means they lose contact with the subject for a moment. Most photographers don't have a problem.



*Digital Single Lens Reflex*



*Light Path when Viewing the Subject*



*Light Path when Taking the Picture*

## Twin Lens Reflex (TLR)

The TLR has separate viewing and taking lenses. It is typically held at waist level with the photographer looking down into the viewfinder where the simple optical system gives a reversed image.

ATLR is mechanically simpler than SLR and has the advantage that the view is not blocked as the picture is taken.

The camera was invented in the nineteenth century to make focussing quicker and easier between exposures.





## Medium Format Camera

It is ironic that, due to marketing hype, we have cameras called “Medium Format” which are actually larger than cameras called “Full Frame”. (The format we call “Full Frame” today was called “Miniature” just a few decades ago.)

A medium format camera is any camera which uses a format bigger than 24mm x 36mm (full frame) and less than 4” x 5”. Typically, in the days of film, this meant using a 120 film producing negatives 6cm x 6cm or 6cm x 7cm. You will sometimes hear the 6cm x 6cm negative called (in imperial measure) “two and a quarter square”.

Most TLRs are medium format as are single lens cameras such as the Hasselblad.



*Medium Format Camera*

## Large Format Camera (View Camera)

These large cameras usually take sheet film of 4” x 5” or larger. Some models will take roll film backs in addition to sheet film. They can be slow to use and so are most often found in studios.

These cameras consist of a front standard containing a lens and a rear standard containing ground glass for focussing which is then replaced by a sheet of film to take the picture. These are separated by a flexible bellows which allows the lens and film standards to be set at any angle to each other.

This arrangement allows the plane of focus to be adjusted in ways which are not possible with a conventional camera. A particularly flexible form of large format camera, known as a “monorail”, has the standards clamped to a rigid rod.

While the monorail camera is usually limited to studio use, there is a collapsible form of large format camera known as a “Field Camera” whose design goes back into the nineteenth century. It is more compact but the adjustments are more limited.



*Large Format “Monorail” Camera*



*Field Camera*

## Camera Movements

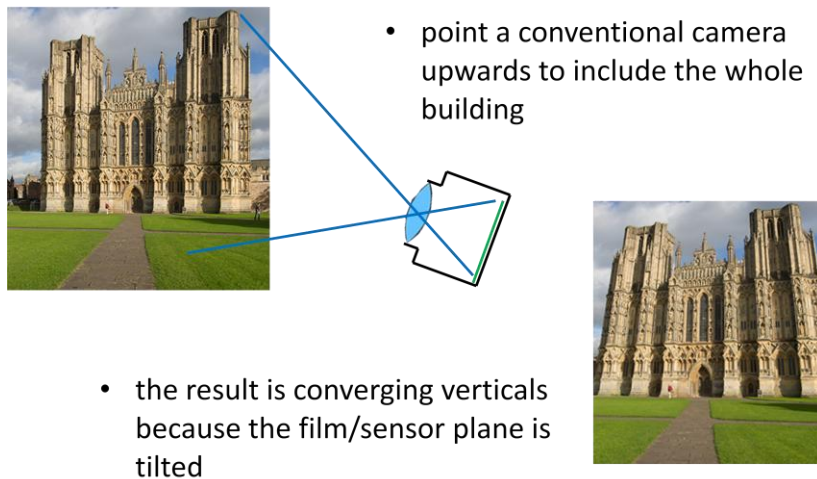
The adjustments (known as “movements”) which are possible with large format cameras are not typically available on smaller cameras. Having said that, some manufacturers have produced “tilt/shift” lenses which replicate some of the movements (at a price.)

There are two classic movements: the “rising front” and the “swing back”.

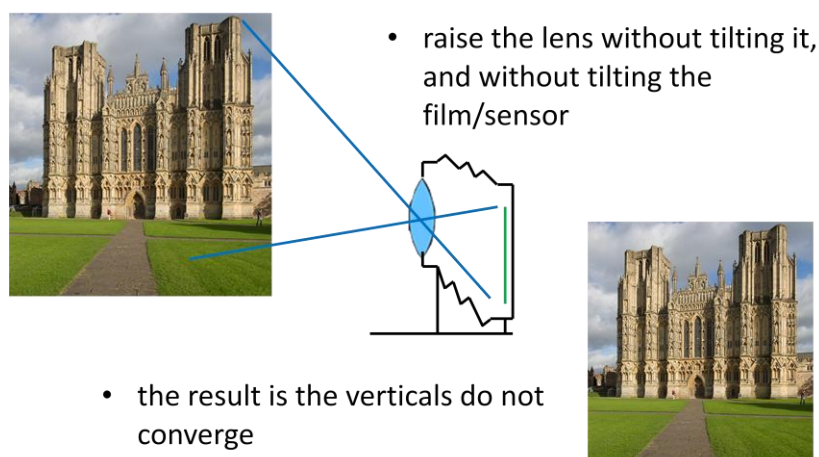
### Rising Front

This is a way to preserve verticals in architectural photography. The typical problem to be solved is that if you point a conventional camera up to include the whole of a tall building, the verticals will converge in the final image.

The solution is to keep the axis of the lens horizontal (ie perpendicular to the front of the building) and the film/sensor plane parallel to the front of the building.



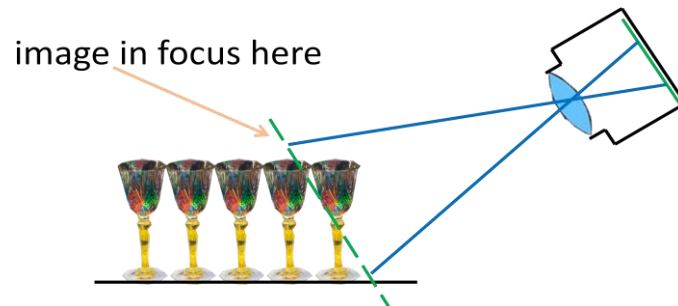
*Converging Verticals*



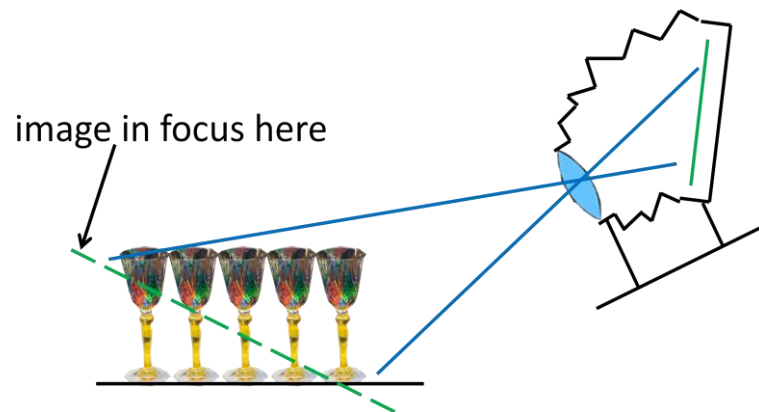
*Verticals Corrected with a Rising Front*

## Swing Back

The Swing Back is a technique used in still life studio photography. It allows that plane of focus to be tilted to include more of the subject in focus. It could be used, for example in food photography to ensure that the near and far sides of a plate are in focus.



*Most of the subject is out of Focus*



*Tilting, or "Swinging", the Back alters the focal plane*

## Yet More...

### Leica

The Leica is the camera which invented 35mm film. Other well specified cameras have fallen by the wayside: Contax, for example which was made by Zeiss. Unfortunately Zeiss was split in two after WWII when Germany was partitioned.

The Leicas of the 1940s and 1950s were working tools of photojournalists. Henri Cartier-Bresson used a Leica. Today's Leica addresses a specialist collectors market which is prepared to pay exceptional prices for the quality and the name.



*Leica*

### Lomo

The Lomo was originally a toy camera. It was cheap, had a plastic lens and suffered from light leaks.

These problems were seen as advantages by artists wanting unusual effects.

Today devotees are prepared to pay for effects which would normally cause a camera to be sent back to the manufacturer for repair or replacement.



*Lomo Camera*



*A Lomo Image*

### Toy Cameras

Despite the fact that every child over the age of 18months has a phone with a camera, there is still a market for toy cameras which are capable of taking a picture.

I would argue that they produce better results than a Lomo... but a Lomo artist would, undoubtedly, not agree!



*Vtech Kidzoom Duo*