Booklet #5: The Northern Virginia Alliance of Camera Clubs

# SELECTING 35mm CAMERA EQUIPMENT

by

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# PREFACE

The Northern Virginia Alliance of Camera Clubs (NVACC) is an informal organization started in 1997 by Joseph Miller with the assistance of Dave Carter* and Ed Funk. Our purpose is to promote communication and cooperation among camera clubs. We accomplish this by (a) publishing a monthly calendar of the member clubs' activities; (b) conducting training seminars for photographic judges; (c) maintaining a registry of trained judges who serve the clubs' monthly competitions and critiques; and (d) maintaining a directory of speakers who have been recommended by the various clubs. You can learn more about NVACC by going to our web site at www.NVACC.org.

This booklet is one of a series that was developed by NVACC during the period 1998-2008 to capture the considerable expertise of the many accomplished photographers in Northern Virginia and share it with others. Over recent years, we have seen significant change in the photographic art form and very rapid technical advance in both the media of photography (film and digital) and the tools (cameras, lenses, computers, and software). For that reason, the detail of some of these booklets may seem "dated", although the ideas and techniques presented transcend "progress" and the digital-film divide. Watch the NVACC web for new booklets as well as revisions that incorporate new technology and ideas into the existing ones.

Originally, our booklets were made available through member clubs for a small fee that covered the cost of reproduction. Now, however, the booklets are available on www.NVACC.com where individuals may download one machine-readable copy and one print copy per page for personal, noncommercial use only. Written permission from NVACC is required for any other use.

If you would like to know more about NVACC or have questions or suggestions concerning our booklets or services, please feel free to contact us at JoeMiller@NVACC.org.

* Dave Carter, one of the creators of this booklet and a founding father of NVACC has passed but his photographic skill and artistic vision live on in the technique of all photographers who were fortunate enough to work with him.

# Selecting 35mm Camera Equipment

The following comments are the personal opinions of the authors. Each has used 35mm cameras for more than 45 years. The authors do not recommend any particular name brands except where one is distinctly superior. It is our view that many different name brand camera bodies and lenses can produce excellent results.

The purpose of this booklet is to outline the features which you might wish to look for when buying equipment. We strongly feel that too much emphasis is placed on the hardware aspects of photography and not enough on visual design. It is the photographer and not the equipment that makes the picture. All too often one is tempted to buy equipment that is unnecessary.

We have intentionally concentrated on 35mm equipment because it is used by more photographers than medium format and large format combined.

## Types of 35mm Cameras

There are three types of 35mm cameras: 1) point and shoot cameras; 2) rangefinder cameras; and 3) single lens reflex cameras.

Point and shoot cameras are usually fully automatic. Often they are quite small, light in weight, and easy to operate. Point and shoot cameras have the disadvantage of being inflexible. They are rarely used by serious photographers other than for snapshots.

The rangefinder camera can produce excellent results. Like the point and shoot cameras, viewing is not through the lens which makes close up photography difficult. This is because you don't see through the viewfinder what the lens actually sees. The rangefinder camera is more flexible than the point and shoot, but not as flexible as the single lens reflex.

We recommend the 35mm single lens reflex camera because of-its flexibility. We cannot stress strongly enough the importance of seeing through the viewfinder what the lens is seeing. Because of this design feature, a wide range of lenses from extreme close-ups to powerful telephotos can be used.

## Decision Factors

If you are just starting in photography, select a name brand system which allows for growth. Some systems have as many accessories as you can possibly use while others have relatively few accessories. We think growth potential is one of the most important factors in choosing a camera system. Remember, your needs will expand as you become proficient.

Ease of operation is a very important factor in selecting any camera system. Be aware

that the most sophisticated cameras are often the most difficult to use. The most advanced cameras frequently offer features of little use even to the serious photographer. A camera that is difficult to use is often not used at all.

Some cameras are more rugged than others. In general, the most rugged cameras are the heaviest. The well-built camera has the advantage of spending less time in the repair shop. The light weight camera has the advantage of being carried more often. We recommend that you get the most rugged camera that you will carry with you.

It is both a blessing and a curse that modern cameras are technically sophisticated. No automatic system is foolproof, nor can any automatic system replace the thought processes of the photographer. As you become more proficient, you will have an increased need for manual override of the automatic features of the camera. We do not suggest a camera that operates only in the automatic mode.

Cost is always a factor. Good equipment is expensive. However, when spread over a period of years, the cost of good equipment is warranted. Cheap equipment that you outgrow quickly or that does not last is never a good buy.

## The Camera Body

The camera body is the command center for photography. With it you count the number of frames, set the film speed, the shutter speed, perhaps the aperture, etc. In short, almost all the decisions you make are settings on the camera body. We list those key features we believe should be considered when selecting a camera.

- *Aperture Priority.* This means you select the aperture and the camera selects the corresponding shutter speed. If the camera has only one automatic mode, this is the one to have because it gives you, not the camera, control over the depth of field. The authors use aperture priority virtually all the time.
- *Depth-of-Field Preview Button.* This feature is often left off cheaper cameras. However, we feel it is essential. Pressing the button allows viewing the picture at the stopped-down aperture which has been selected, rather than wide open, thereby giving an idea of what is sharp. The image is often dark but allowing your eye to adapt to the darker image for a few seconds will help you see better.
- Shutter *Priority.* This means you set the shutter speed and the camera sets the corresponding aperture. This feature is useful when you shoot fast-moving subjects such as in sports photography.
- *Program Mode.* In this mode you allow the camera to select both the aperture and the shutter speed, converting your expensive camera into a point and shoot. Between the two authors, only one frame has been taken in the program mode in 90 collective years of experience! Need we say more?

- *Exposure Compensation Control.* With this control, you can set your camera to automatically under- or over-expose by a predetermined amount, usually up to two stops. Since all camera meters are designed to "read" middle tone, this feature is extremely important when photographing scenes that are not middle tone, such as a snow scene or a black Labrador retriever in a coal bin. The meter is fooled by subjects that are not middle tone and some compensation is necessary.
- *Automatic Bracketing.* The shutter button is depressed three times, making one image according to what the meter calls for, one that is slightly overexposed, and one that is slightly underexposed. This feature is desirable when there is a range of tones which can fool the meter. No manipulation of the exposure compensation control is required.
- *Exposure meter.* This measures the amount of light which strikes the film. There are three different types, all sometimes found in the same camera. The center-weighted meter measures the light in the center of the picture. The spot meter does the same, except the area covered is much smaller. The matrix meter divides the frame into sections, measures the light in each section, and makes an exposure calculation. Whichever meter type is chosen, remember it is designed to read middle tone. The spot meter is most accurate if you know how to use it, but most people don't. The matrix meter is designed to average its several readings, which may or may not result in a well exposed picture.
- *Viewfinder.* Though we see through the lens, most viewfinders show only about 95% of what the film records. This often results in unwanted things at the edge of the picture. In our opinion, a viewfinder should show 100% of what the film sees.
- *Viewing Screens.* Cameras usually come with a viewing screen that has a small center circle divided into two sections. When these two sections are lined up, the image is in focus. You can also focus until the image is sharp on the ground glass outside the center circle. In our opinion, you don't need the center circle. Some cameras allow interchanging viewing screens. We recommend an architectural grid which has vertical and horizontal lines that help to get the horizon straight and vertical edges that are truly vertical. In an architectural grid, there is no center circle.
- Focus *Verification Light* Some cameras have a light in the viewfinder which, when it goes on, indicates that the image is in focus. You have the freedom to focus differently if you wish. The flexibility is useful.
- *Autofocus.* Autofocus is useful if your eyes are bad, but it allows little flexibility in terms of what you focus on. If you can see well enough to use manual focus, we recommend it.
- *Film Advance.* This may be done by means of a lever or by a built-in motor drive.

The built-in motor drive is especially useful in sports photography and with other fast-moving subjects. The built-in motor drive is easier, but not essential.

- *Multiple Exposure Setting.* Some cameras have a control which allows taking more than one image on a single frame. In this setting, the film does not advance when the shutter button is depressed. This is useful for some special effects.
- *Delayed Exposure.* Many cameras permit a delay in taking a picture starting from the time the shutter button is pressed. This allows the photographer time to move into the picture space.
- *Mirror Lock-Up.* At some shutter speeds the movement of the mirror may cause the picture to be blurred. If one can lock up the mirror in advance of taking the picture, then blur can be avoided. With modern camera shutters this is not as serious a problem as it used to be.
- *Built-in flash*. This is a sometimes useful but rarely essential feature. Built-in flash is usually weak. It rarely is found on camera bodies which contain the features we believe are more desirable. Off the camera flash is more useful than a built-in flash. However, in order to use off-camera flash the camera body needs to have a shoe which will permit the use of a connecting cord.

We recommend, at a minimum, that a camera body have at least the following features: aperture priority, depth-of-field preview button, exposure compensation control, automatic bracketing, interchangeable focusing screens, spot and center-weighted metering, multi-exposure setting, and delayed exposure.

## Lenses

The lens controls the quality of a picture more than does the camera body. We recommend lenses made by the camera manufacturer although some off-brand lenses may be satisfactory. All too often photographers will buy a fine camera body but will settle for inferior off-brand lenses. Off-brand lenses may be less costly, but they frequently have poor optics and often do not fully match the electronics of the camera body. If you do buy an off brand lens be very careful. Whatever you do, get good lenses even if you have to get a less sophisticated camera body. One good lens is infinitely better than several poor lenses.

For years fixed focal length lenses have had a reputation for better image quality than zoom lenses. The difference is much less now than it used to be. While fixed focal length lenses may be a little better when demonstrated on an optical bench, it is often difficult to see the difference between pictures taken with the two kinds of lenses. There is one exception. Zoom lenses are more subject to flair.

Fixed focal length lenses are usually faster and smaller than their zoom counterparts. However, several fixed focal length lenses are needed to equal one zoom. Zoom lenses

allow you to compose more precisely an image in the camera. The choice is up to you. The choice usually depends on how much you can spend and how much you can carry.

Some people have more use for wide angle lenses, while others prefer telephotos. This again is a matter of individual choice. Personally, we prefer short telephoto zooms which allow us to isolate elements within the picture space. In general, the optical quality of zooms is best if the range of focal lengths covered is not too great. It would be better to have two lenses, one with a range of, let's say, 35mm to 70mm, and another from 80mm to 200mm, rather than one lens with a range from 35mm to 200mm.

Long lenses, whether they are zoom or fixed focal length, should have a collar which attaches to the tripod, not only because they are more stable, but they also can be used more easily for vertical pictures. It would be nice if all lenses had collars, but shorter lenses are not made with collars. You certainly should have a collar on a lens 200mm or longer.

Macro lenses focus more closely than other lenses. They usually have better edge-to-edge sharpness, have less problems with straight lines at the edges, and usually have smaller aperture openings for increased depth of field. Because of their superior optical quality, a good macro lens is almost always expensive. Not everyone has a need for a macro lens, but if you like taking extreme close-ups, they are most desirable. Some zoom lenses have a setting which allows for somewhat closer focusing. However, they are not true macro lenses.

Some of the benefits of a macro lens are possible without purchasing one. Double element diopter lenses look like clear filters. They screw onto the front of a lens and magnify the image by allowing you to focus closer. Diopter lenses come with either one element or two, and it is difficult to tell which is which just by looking at them. The one-element lenses usually come as a set of three and the different strengths are frequently designated as +1, +2, and +4. We do not recommend their use because the edge-to-edge sharpness is poor.

The two-element diopter lenses, although more expensive, give excellent edge-to-edge sharpness which is critical in most macro work. Diopter lenses do not result in a loss of light. Some can be stacked for greater magnification. Diopter lenses are the easiest to carry of all the macro accessories, can be used with either macro or non-macro lenses, and are cheaper than any other macro accessory. Need we say more? Just be sure you get the type with two lens elements. Otherwise, they are likely to end up in the trash.

Double-element diopter lenses, like filters, come in different sizes. Nikon makes them in 52mm and 62mm sizes, each size in two strengths. Cannon makes them in 52 and 58 mm sizes, each with two strengths, and in 72mm and 77mm in one strength each. We are told that the 72mm is of poorer optical quality than the 77mm. If your lens takes a different size filter, buy an appropriate step-up ring and get the diopter lens in the next larger filter size.

Teleconverters are, themselves, lenses. Sometimes called multipliers, they go between the camera body and the lens. They are used to increase magnification. They can be used with either macro or non-macro lenses. What they do is multiply the focal length of the lens. A 1.4X teleconverter multiplies the focal length by a factor or 1.4, converting a 100mm lens into a 140mm lens. A 2X teleconverter multiplies the focal length by a factor of two, converting a 100mm lens into a 200mm lens. Although they are sometimes available, 3X teleconverters are not very useful because the optical quality is rarely good.

Teleconverters result in a loss of light. A 1.4X tele-converter loses one stop of light while a 2X teleconverter loses two stops of light. At the same time a 1.4X tele-converter increases depth of field by one stop, and a 2X teleconverter increases depth of field by two stops.

Since teleconverters are themselves lenses, it is critical that they have good optics. Avoid buying cheap teleconverters. They are not worth the money.

We recommend that the beginning photographer start with a couple of zoom lenses. One should be in the general range of 28mm-85mm. The other should be a telephoto with a range of approximately 80mm-200mm. As stated earlier, we suggest zoom lenses made by the camera manufacturer. Buy other lenses as you develop a need for them.

## Filters

While there are a number of reasons to use a filter, a major one is to protect the front element of an expensive lens.

For this reason, haze filters are often used. They reduce haze when shooting over long distances such as a mountain scene. Haze filters can be left on for all shots. If flair seems to be a problem, remove the haze filter before taking the picture. In general, avoid using more than one filter at the same time which can cause flair and vignetting at the corners.

Another useful filter is a polarizer — linear for regular lenses and circular for autofocus lenses. Used at the proper angle to the sun, a polarizer can darken the sky and bring out the clouds. It also can reduce unwanted reflections which will limit the otherwise extreme tonal range of the scene. The polarizer, when not turned to the maximum amount, produces a lesser degree of polarization which often is more desirable.

Whether one prefers a cool image or a warm image is a matter of personal choice. We use color film that is largely neutral. Frequently, we prefer a warming filter of intermediate strength which warms the colors. We remove the warming filter if cooler colors are desired. If one wants even cooler colors, use a pale blue filter.

There is a wide choice of filters for a multitude of purposes. Some photographers use many kinds, while others do not. We fall in the latter category. However, some

specialized filters are worth mentioning. Split neutral density filters can be used when the tonal range is too great for the film to record, for example, a bright sky in landscape photography. Special filters allow daylight film to be used with tungsten light and tungsten film to be used in daylight. Other filters can be used for a wide array of special effects, but they are too numerous to discuss here.

We would like to stress the importance of buying quality filters. There is no justification in putting a filter made of inferior glass in front of an expensive lens.

## Tripods

A good tripod is the most important accessory you can own! It not only holds the camera stable making your picture sharp, it also allows you to examine the edges of your frame for unwanted intrusions. Further, it allows precise control over your composition. God intended for photographers to have five legs.

There are many brands of tripods, but two stand out, Gitzo and Bogen. Gitzo tripods are very stable, but they are also very costly. Bogen tripods are also stable, but much less costly.

There is a relationship between weight and stability. The heavier tripods are generally more stable. We recommend you buy the most stable tripod you are willing to carry.

We also recommend that you buy a tripod that allows you to get close to the ground. Not everyone takes macro shots of flowers and other small subjects close to the ground, but your tripod should allow you to if that is what you want. Gitzo and Bogen tripod legs can be spread wide which places the camera closer to the ground.

## Tripod Heads

Tripod heads are interchangeable even among different brands of tripods. For example, you can use a Bogen head on a Gitzo tripod.

There are three types of tripod heads. One is called the pan-tilt head which consists of three levers. The second is the ball head, including the pistol grip head. The third type is the geared head. All have advantages and disadvantages.

The pan-tilt tripod head is the least expensive of the three types. Thus, it is often the head provided with the tripod. The ball head is faster to adjust. The use of a pistol grip control for a ball head is the fastest. The most precise adjustments can be made with a geared head. However, adjustments are slower.

Some tripod heads come equipped with a quick release system which is very desirable. In a quick release system, there is a metal plate that is attached to the camera body. The metal plate snaps into a receptacle on the tripod head.

We strongly recommend a sturdy quick release system. It makes placing the camera on and removing the camera from the tripod much faster.

We both use the Bogen geared head (No. 3275). Separate knobs allow precise tilts and adjustments up and down and left and right. Such precise controls are an invaluable aid to careful composition. No other head allows such exact adjustments. While the geared head is slower than other heads, that can be an advantage. The fastest way to become a better photographer is to slow down.

## Other Accessories

Countless accessories are available for the modern camera. Some of the most important and useful accessories are listed below.

- *Cable Release.* A cable release allows you to trip the shutter with minimum vibrations to the camera. It is essential when the shutter speed is slow. There are two types, mechanical, which is cheaper, and electronic, which is more expensive. If your camera will accept the electronic version, use it. Whichever type you use, be sure your cable release allows you to lock it for the duration of a time exposure. This feature is useful in night photography when the exposures may
- *Camera Bags.* Camera bags come in many different types. Alt should be well made to both carry and protect your expensive equipment. Over-the-shoulder bags are the most common, but they put all the weight on one shoulder. They are often deep and equipment gets covered up, making it difficult to find what you need quickly. Back packs disburse the weight more evenly and are shallower so it is easier to retrieve the things you want. They are harder to get on and off for carrying than the over-the-shoulder bag. Cases made of hard plastic or metal provide the best protection for your equipment, but they are hard to carry. Make sure your camera bag is large enough to carry necessary equipment as you expand your system. Unfortunately, there is no such thing as the perfect camera bag.
- *Flash.* Some photographers use flash a lot while others rarely use it. If you are going to buy a flash, we recommend that it be dedicated to your camera body. If you don't need to use flash often, choose a simple model. However, it should have through-the-lens metering and its own compensation capabilities. Some modern flashes are extremely sophisticated and complex. These are very difficult to learn to use. A flash unit that is too complex is not likely to be used at all.
- *Extension Tubes.* These are hollow tubes which go between the camera body and the lens. They allow closer focusing and, therefore, some magnification. When used, however, you cannot focus at infinity. We recommend extension

tubes made by the manufacturer of the camera body to insure proper fit and electronic compatibility.

- *Bellows.* These are, in effect, variable extension tubes. They are fragile, heavy, costly, and seldom used. Their use primarily is in the studio.
- *Focusing Rail.* This device goes between the tripod head and the camera body and allows the camera and lens to move forward and backward without moving the tripod. Its primary use is in macro photography.
- Lens Brush. Made with soft bristles, a good lens brush allows you to gently remove dust and dirt from the lens.
- Lens *Cleaner.* This is a fluid which removes dust and dirt from the lens when used with a soft cloth. Be careful not to use too much fluid which can penetrate into the lens.
- *Reflectors.* These can be useful when the photographer wishes to reflect light into a dark area. Typical applications are in portrait photography and in close-up photography. They come in white, silver, and gold surfaces. Crinkled aluminum foil also works well.
- *Gray Card.* Gray cards reflect 18% of the light falling on them and serve as an example of middle tone. Use a gray card to take light readings when there is a wide range of tones in the scene or there is no middle tone.
- *Notebook or Tape Recorder.* These are useful if you want to record information about each frame of the film, such as shutter speed, aperture, lens, film, date, etc.

## Film

There are many kinds of film available, and the variety changes every day. In general, modern films are excellent. We use primarily slide (transparency) films. Here are slide films that we recommend:

- *Kodachrome 25.* This is still the slide film against which all other slide films are measured. It is extremely sharp and neutral in color. However, the film is very slow.
- *Kodachrome 200.* This film is excellent for night photography because lights such as fluorescent record properly without a green tint.
- *Ektachrome 64 and Ektachrome 64T.* These are older generation films. They have wonderful colors and are useful when one wants soft, subdued images. They are not very contrasty. Ektachrome 64 is particularly good with flowers. Ektachrome 64T is designed to be used with tungsten lights and is an excellent

film for use on a copy stand.

- *Ektachrome 100S and 100SW.* These are excellent slide films and are our choice for most situations. The 10OS has slightly enhanced color saturation. The 1OOSW also has enhanced color saturation with a slight warming cast. These films are very fine grain and are not extremely contrasty which means one can record some shadow details. Colors are not garish.
- *Velvia.* This Fuji film is very sharp and gives saturated colors. However, it is very contrasty which means shadow detail may be lost. It is particularly useful on cloudy days.
- *Seals.* Manufactured by Agfa, this is the best black and white slide film. It is very sharp and has an excellent range of tones from white to black. It does not seem to respond to filters the way other black and white films do.

We rarely use print film. When we do, it is our experience that the choice of the lab selected to process the film and make the prints is as important as the film itself.