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Fundamentals of Photography

Course Guidebook

NATIONAL GEOGRAPHIC™

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PUBLISHED BY:

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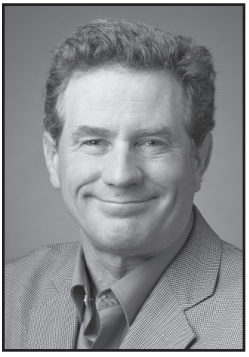

Joel Sartore

Professional Photographer
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Joel Sartore is a photographer, a speaker, an author, a teacher, and a regular contributor to *National Geographic* magazine. He holds a bachelor's degree in Journalism, and his work has been recognized by the National Press Photographers Association and the Pictures of the Year International competition. Mr. Sartore was recently made a Fellow in the National Geographic Society for his work as a conservationist. The hallmarks of his professional style are a sense of humor and a midwestern work ethic.

Mr. Sartore's assignments have taken him to some of the world's most beautiful and challenging environments, from the Arctic to the Antarctic. He has traveled to all 50 states and all seven continents, photographing everything from Alaskan salmon-fishing bears to Amazonian tree frogs.

His most recent focus is on documenting wildlife, endangered species, and landscapes, bringing public attention to what he calls "a world worth saving." His interest in nature started in childhood, when he learned about the very last passenger pigeon from one of his mother's TIME LIFE picture books.

Mr. Sartore has since published several books himself, including *RARE: Portraits of America's Endangered Species*, *Nebraska: Under a Big Red Sky*, and *Photographing Your Family: And All the Kids and Friends and Animals Who Wander through Too*. His most recent book is titled *Let's Be Reasonable.*

In addition to the work he has done for *National Geographic*, Mr. Sartore has contributed to *Audubon* magazine, *TIME*, *LIFE*, *Newsweek*, *Sports Illustrated*, and numerous book projects. He and his work have been the

subjects of several national broadcasts, including National Geographic's *Explorer*, NBC's *Nightly News*, NPR's *Weekend Edition*, and an hour-long PBS documentary titled *At Close Range with National Geographic*. He is also a regular contributor on the *CBS Sunday Morning* show.

Mr. Sartore is always happy to return to home base from his travels around the world. He lives in Lincoln, Nebraska, with his wife, Kathy, and their three children. ■

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Fundamentals of Photography

Scope:

Taught by a contributing photographer for *National Geographic* magazine, this course will show you how pictures work and how to make them work for you. You'll learn the basics of operating a camera and get dozens of practical tips to take your photography to the next level, illustrated with real-life examples. You'll also learn about all the elements that come together to make a good picture and how they relate. After each lecture, you can complete the suggested homework assignments to help you put the principles of this course into practice, making them second nature.

Anyone interested in photography with any level of experience can benefit from this course. For those just starting out or thinking about upgrading their equipment, there's an entire lecture devoted to researching and purchasing equipment. Instead of focusing on the bells and whistles of camera technology, you'll see how to find just the right tool for the job at hand. You'll learn the basic dials and buttons found on most cameras and how to use them to get the effects you want in your images. You'll also learn how to choose the right equipment for different photographic situations.

The course covers the nuts and bolts of exposure: aperture, shutter speed, and ISO. You'll see how these three elements affect the final image and when to vary what. Aperture and depth of field are critical concepts that are discussed in-depth. You'll also learn to read an exposure histogram and find out what kind of exposure gives you the most flexibility.

The course's twin centerpieces are in-depth, three-lecture discussions of composition and lighting. Both take you inside the thought processes of a professional photographer as he makes images. You will explore composition techniques, such as framing and the rule of thirds, that are easy to remember and apply and can be used with any kind of camera, from an advanced SLR to a simple point-and-shoot. You'll discover how to make backgrounds work for you—rather than against you—and how to harness the power of

perspective in your images. The ultimate compositional goal—a layered image—can be achieved by combining and applying these principles.

Entire books have been written on photographic lighting, and there is a great deal of nuance to the subject; the basics, though, are simple. The lectures on lighting cover finding and getting the most out of natural light, recognizing how color and intensity affect your pictures, and using and controlling artificial light sources. You'll also see how to use unconventional light sources to get great results.

This course features a number of on-location shoots to show you how a professional photographer thinks through a variety of real-life photographic situations. You'll see field demonstrations that showcase photography of rural and urban landscapes, wildlife, people, special occasions, and travel. In the process, you'll discover what makes an image look forced and posed and how to avoid those pitfalls to get a candid image that communicates something meaningful about your subject. You'll learn to recognize, think through, and solve a variety of visual problems, from cluttered backgrounds to bad light.

The later lectures cover advanced topics and share professional methods for research and preparation, low-light photography, and macro photography. Proven journalistic techniques for research and preparation are presented—critical aspects of any photo project. You'll also conquer macro photography and find out how to capture the tiny world that's so often overlooked in pictures. Although low light poses a challenge, it's also ripe with photographic opportunity, and you'll discover how to spot and capture great images in low-light conditions.

To round out the fundamentals of photography, you'll learn how to curate your own images. You'll see a demonstration of digital workflow, with each of the steps in the process explained. You'll also get practice in choosing the best image out of dozens or even hundreds of frames from one shoot. As a capstone, you'll learn how to put together photographic stories and essays, moving beyond the individual still image to photographic narrative. ■

Making Great Pictures

Lecture 1

Do you already take good pictures but wish you could take better ones? Do you ever ask yourself why your photos aren't as good as others you've seen? Do you wonder why your photos don't always work and what you can do about it? In this course, you'll learn not only how to fix those problems but why the fix works. We'll go beyond the hardware—the cameras and lenses—to develop the skills you need to see well and think critically about your pictures. In this first lecture, we'll look at some iconic photographs to see if we can discover the elements that create lasting, meaningful art from even the most everyday situations.

Organization of the Course

- The first half of the course will be about the basics: cameras and lenses and how to use them. We'll learn essential terms, such as aperture, depth of field, and focal length, and we'll look at how a good photograph is constructed using the three building blocks of light, perspective, and composition.

- The second part of the course will focus on the subjects people are most interested in capturing: landscapes, wildlife, people, special occasions, and not-so-special occasions. Here, we'll focus on how to clean up and clarify the chaos of life.

- At the end of each lecture will be an assignment that's relevant to what you've just seen and heard. In some cases, I'll do the assignment along with you so that you can see the best ways to approach it.

- This course takes three approaches to learning about photography: through studio lectures; through analysis of photos, including both good and not-so-good examples; and through field shoots.

Special Photographs

- Pictures that are "iconic" are those in which everything comes together—light, composition, and subject—in a way that's new and interesting and memorable.

- Such photos may capture unique or dramatic moments, such as young cows watching a fire or a wolf snarling over a dead deer, or they may capture everyday moments, such as two girls singing under an umbrella. What makes a photo iconic is that it surpasses the original situation in which it was taken.

You don't have to travel to exotic locations to take great pictures; an iconic photo can be something as simple as a picture taken in your own driveway.

- Great pictures can be found anywhere. They don't have to come from an exotic location. You can take great pictures around your house or yard, at the local zoo, or in places you visit around your community. Iconic pictures are all around us; all we have to do is see them.

Seeing Well

- Photography is fairly simple; there are only a few basic controls on a camera. But seeing well is the tough part. It's the biggest challenge for anyone with a camera.

- "Seeing well" means pulling together the various elements that combine cleanly to make an image. It starts with the subject and includes the light on the subject, the background, and the space around the subject. Each element works both separately and in concert with the others to create good pictures.

- The primary tools for seeing well are your eyes and your brain. You'll need to master a few camera settings, but unless you can see well, the fanciest camera in the world won't give you the pictures you want.

- You train the eyes and the brain to look for three elements: great light, good composition, and an interesting subject. Two out of the three can create a good lyrical picture, and even just one of the three works sometimes, but a good photographer is always aware of all three.

- Keep your camera with you and look for soft light, compositional elements that give a sense of place, and a subject that goes beyond the obvious, such as a fierce dog or a toddler throwing a fit.

- Note that iconic photographs don't just happen. Before you shoot a picture, take a moment to evaluate the situation, see what's present, and think about the scene critically. Look for problems to solve.
    - Once you begin to think like a photographer, visual problems will become more apparent and so will the solutions.

    - This is the key to the whole course: Photographers are visual problem solvers.

    - If something is in your frame, it should be there because you want it to be in there, not because you couldn't figure out how to get rid of it.

Assignment

- First, pick out your favorite room in your home. Believe it or not, the rooms in your home can yield tremendous potential visually, but you have to be able to see it and identify it.
    - Look at the room at different times of the day and night. Try to see it in terms of what might cause problems with your picture and what might yield interesting results.

    - Get low and high to try to see the room from different angles.

- Next, you may need to declutter the room and adjust the lighting—the curtains, blinds, or table lamps.

- Now, take a picture of something happening in that room—maybe a person or a pet comes in, maybe you turn on the TV, or you open a window and the wind blows through. Take a picture of something happening.

- Don't just snap one or two pictures, and don't be afraid to change things around to make your photos better. Being a photographer is all about seeing, thinking, and making changes if necessary.

Behind the Lens

I got started at *Nat Geo* because I took pictures of the things that interested me—mainly the goofy, or the weird, or the surprising. The kinds of pictures I liked to take, *National Geographic* liked also. Seeing the surprising things drives what I do—the kinds of images that make people stop and stare, the kinds where they say, "Gee, that's really cool. How did they do that?" I love when people can't figure out how you got a picture. That's the best.

- Pictures of your family, friends, and home should be some of the best photos you ever take because you have 24-hour access to your subjects. You can learn the best places and the best light to shoot in. At home, you have access to the most dramatic opportunities, from laughter to tears.

Pet the Whale

- The phrase "Sometimes, you've just got to pet the whale" is one way of saying that it's just not picture-taking time. Be selective. Some things are not meant to be shot.

- Before you shoot, ask yourself, "Is this worth it?" And if it's not, what can you do to make it worthwhile quickly? Sometimes, you may just take a shot or two and then put the camera down to appreciate the moment.

- Don't be so busy fiddling with your camera that you miss the experience of petting a whale or watching the birth of your child.

- Be discerning and discriminating about when you pick up your camera. Your pictures will be much better if you say no to most things. Through this course, you'll figure out when to say yes.

Suggested Reading

Abell and Gilka, *Stay This Moment*.

Morris, *Believing Is Seeing*.

Sartore (with Healey), *Photographing Your Family*, pp. 6–20.

Homework

Take a picture of your favorite room in your home.

Camera Equipment—What You Need

Lecture 2

In this lecture, we'll talk about photography equipment. A professional photographer may have a lot of "stuff"—everything from camping equipment to ice-diving gear—but you can generally fit everything you need in a small backpack that you can carry on to an airplane. Into the backpack should go the following: a good camera, a lens or two, film or memory cards, extra batteries, a battery charger, and a lens cloth. If you have a more advanced camera, you'll need the external flash and batteries for it, as well. In this lecture, we'll learn some considerations for purchasing this equipment and some basic camera controls.

Equipment

- When you're purchasing a camera, think about what you'd like to do with it, how much time you want to devote to photography, and what your budget is.
    - If you're a point-and-shoot type of person, don't buy a camera that is overly complicated or too heavy. You can make great pictures with a small camera that fits into your purse or pocket.
    - At the same time, don't under-buy if your goal is to shoot art photographs.
- If you want interchangeable lenses, buy a single-lens reflex (SLR) camera instead of a point-and-shoot.
    - SLRs have the advantage of letting you build your lens collection gradually. You can start off with a normal focal-length lens (the kind most cameras come with), and later, you can build a repertoire of lenses, based on what you like to shoot.
    - You can buy a low-end camera, but buy the best lenses you can afford. Better lenses are both sharp and have the ability to open up for more light, allowing you to shoot in a broader range of situations.

- Any camera you buy should feel comfortable in your hands. Make sure you can reach all the controls and that it's not too heavy for you.

- For right-handed people, the left hand is both the camera platform and the lens control; the back of the camera rests on the back of the palm. Use the thumb and forefinger of the left hand to focus and zoom. Use the right hand for manipulating dials on the camera and pressing the shutter.

- Make sure the review screen on the back of the camera is big enough to allow you to really see the pictures you've taken. Looking at the review screen is called "chimping"; you'll learn to chimp constantly to check the exposure of your photo, the focus, the composition, and so on.

- You will also want to purchase a tripod. Using a tripod is one of the easiest and cheapest ways to improve your photography. A tripod eliminates camera shake because it basically bolts the camera to the ground. Be sure your tripod can easily hold the weight of your camera and your largest lens.

Get in the habit of "chimping" constantly, that is, looking at the back of the camera to check the exposure, focus, composition, and so on.

- You'll also want to have a cable release because pushing a shutter release will jiggle the camera, and that jiggle can ruin a picture with some camera settings.

- It's best to buy your equipment from a local dealer rather than online. Ask for the dealer's help and advice and try a variety of different cameras.

- Instead of a camera bag, you may want to buy a photo vest. These vests have deep pockets that zip to keep your equipment secure and allow you to keep your hands free to shoot photos.

Basic Camera Controls

- The hole in the lens of a camera is called the aperture. How big or how small that hole is determines how much light comes through the lens.
    - Lenses can be set to different apertures, which are also called f-stops or stops. An aperture setting of f/16 or f/11 is a tiny hole. An aperture of f/2.8 is a big hole.

    - The aperture setting determines how much of the image is in focus. With a setting of f/16, everything in the image will be in focus, but most of the time, you want the subject to be in focus and everything else to be a little soft.

- The shutter speed determines how long the shutter stays open to expose light to the sensor. The shutter is a curtain of blades that regulates the time that light is allowed in.
    - It's best to shoot in soft, graceful light, but this kind of light is weak and, therefore, requires a big hole in the lens to gather up the light while the shutter stays open.

    - Of course, you can't just leave your shutter open a long time because if you're holding a camera with a slow shutter speed, the image will be blurry. It's also true that the livelier the subject, the faster the shutter you'll need.

- The aperture and the shutter speed have the same two functions as your kitchen faucet. The faucet controls how much water you turn on and for how long. The aperture setting is how much you open up the hole, and the shutter speed is the amount of time it's open. The more open and the longer the duration, the more light comes through your lens.

- Most good cameras have shutter speeds that go from many seconds all the way to a thousandth of a second or even faster. You should use 1/60 of a second or 1/125 of a second, fairly fast shutter speeds.

- Aperture and shutter speed go hand in hand to create a proper exposure. If one is shifted, the other must be, too. They always change together.
    - A faster shutter speed means you need a bigger hole in the lens to let in more light.
    - A smaller hole in the lens means you want a slower shutter speed to allow the same amount of light in.

- The ISO is the sensor's or film's sensitivity to light. In low light situations, you want the sensitivity to be quite high, and you want it to be low in very bright situations. The setting of the ISO depends on the time of day you're shooting and the lighting conditions.

Choosing Your Settings

- Most modern cameras have automatic controls for aperture and shutter speed to give you a perfect exposure every time. But for this course,

Behind the Lens

[My] gear room … is packed—jammed solid—full of the stuff that I take with me on assignment for *National Geographic*. …

Everything you can think of [is here]…. I had this [mamba box] made for containing arboreal venomous snakes, climbing venomous snakes, like mambas. Black mambas, for example, have been in here. You do not really want them to get loose while you are shooting them because that would be bad.

What else? … The boots I wore at Volcanoes National Park in Hawaii. I thought I was walking in chewing gum, but I was walking on hot lava, and that sticky sensation was the bottoms of the boots melting off. It hurt a lot, but here I am.

This vest also. You see how it has got these oil stains all over it. This is from covering the Gulf oil spill, so I keep it as a keepsake. The thing about all of it, it's fun to look around and it's fun to think about where all of this stuff has been—to every continent on earth, literally, but you do not need any of it.

you will want a camera that gives you the option to shoot in aperture priority, shutter priority, and manual.

- Aperture priority means you choose the aperture setting, and the camera will set the appropriate shutter speed to make the correct exposure.

- Shutter priority means you choose the shutter speed, and the camera will set the appropriate aperture to make the correct exposure.

- Full manual mode is when you pick both, but that's a lot to think about in addition to light, composition, and subject. It's probably best to use aperture priority and shutter priority.

- In particular, aperture priority allows you to control the depth of field—essentially, the amount of the image that's in sharp focus as opposed to softer focus.

- The ISO must be set by the photographer unless you're shooting in full automatic mode. The ISO is your camera's level of sensitivity to light. With high, strong light, the ISO should be low. For low light, the ISO should be high.

Assignment

- Take a picture of one subject using many different settings on your camera, then look at how each setting changes the photograph.

- If you're ambitious, you can label each photograph to help you remember. You can even put a card in the picture to show you what the settings were. For example, the card might read: 1/1000 of a second at f/2.8.

Suggested Reading

Latimer, ed., *Ultimate Field Guide to Photography*, pp. 8–11.

Sartore (with Healey), *Photographing Your Family*, pp. 176–187.

Your camera's manual. Lost it? Most manufacturers offer a way to download manuals on their websites. Haven't bought a camera yet but have one in mind? Go online and read the in-depth review for it at www.dpreview.com.

Homework

Take a picture of one subject using every setting on your camera. Look at how each setting changes the way the image looks. If you need help remembering what you shot with which settings, put a card in the picture that notes the setting, for example: 1/1000 of a second at f/2.8. This is also a great first step to take with a new camera.

Lenses and Focal Length

Lecture 3

Most good pictures are good for one of two reasons: They are of something that nobody has ever seen before—Big Foot, Moby Dick—or they show the subject in a way that no one has seen before. That's what we're most likely to photograph—everyday scenes that are shot so well and unusually, they become interesting. Camera lenses are the tools we need to get this job done. In this lecture, we'll look at several lenses and learn what they can do.

Field Shoot: Raptor Recovery Nebraska

- Let's begin with a field shoot of a great horned owl. We'll start with a telephoto lens and work our way to a wide angle.

- A telephoto lens reduces the world to a pinpoint. It's what most wildlife and sports photographers use because they often can't walk right up to their subjects.
    - The disadvantage of a telephoto lens is that it doesn't allow you to see much of your surroundings.
    - The advantage is that the subject fills the frame and makes the background a nice blur of soft color.
    - Most people think they have to stay back from the subject with a telephoto lens, but you can actually move in close. You can even do portraits using a telephoto.

- A normal lens sees much as the eye sees. It's often difficult to get a good picture using a normal lens because everyone sees in basically the same way; with this lens, the subject must be extraordinary. You can also work the angles to see if you can get a good shot.
    - A point-and-shoot camera will work fine in a visually loaded situation, such as having a cooperative owl on a perch.

- The type of camera isn't always important; photography is about being close to something and seeing it well.

- With a wide-angle lens, you can also get close. With these lenses, the subject becomes very important, while the rest of the world fades away.

Camera Lenses

- Lenses are distinguished by focal length—the greater the number, the longer the lens. When your subject is far away and you want to bring it in closer in the frame, use a longer lens with a long focal length.

- With a long-focal-length lens, you're reaching out and grabbing a single point in the landscape; with a shorter focal length, you're showing much more of the world, a wider view.

- Camera lenses come in fixed and zoom focal lengths. The more expensive lenses—zoom lenses—are labeled by the range of focal lengths they can effectively photograph. Fixed-length lenses don't zoom; they're built to capture only one width.

- A 70-200mm lens can be used to "reach out and touch" something that's far away, or it can be used close up to something—to blur out a distracting background, fill the frame with the subject, or zoom in on an interesting detail.

- An 80-200mm lens is a manageable weight and a good compromise between big, expensive lenses and a normal lens.

- At the other end of the spectrum is a 14-24mm lens—a wide-angle lens. It's also a zoom lens, as opposed to a fixed one. What's called a rectilinear lens doesn't bend or stretch things terribly. This focal length is great for landscapes or tight scenes where you want to show everything and can't back up.
    - Wide lenses are good for use in interiors and exteriors of wide or big things. They are also good for giving context in pictures because they show a good bit of background.

- It's hard to show an entire mountain range with a telephoto lens, but you can show it with a wide lens if you are standing in the right spot.

- Wide-angle lenses generally have a focal length up to about 28mm. You can use these lenses to accentuate the distance between objects. They are also useful in tight quarters.

Behind the Lens

A normal lens is how we see, and I really prefer that. I use a normal lens most of the time any more when on assignment for *National Geographic*; can you imagine that? I'm traveling around the world and I'm shooting with a 50-mm lens. Good grief. If you can pull off a good picture with a normal lens, it means you've really done something. You're really seeing something well. If you can take a really interesting picture with a normal lens, it means you've either witnessed something amazing or you're taking something ordinary and making it amazing. It means you're not relying on those super-wide or telephoto lenses as a crutch to get you there to an interesting picture.

- Try to avoid putting people on one side or the other of a wide-angle picture, that is, along the edges. With a really wide-angle lens (say, 24mm or wider), it's generally best to center the subject, so the lens doesn't distort all or part of it. If you can't do that, you can back up.

- You can get by with a wide-angle lens and no normal lens, but that situation is not optimal. It's important, too, that you don't use a wide-angle lens as a substitute for good seeing.

- So-called normal lenses are 35-50mm. These lenses produce images that look natural to human observers because we see at about that focal length. They are often used for portraits because they don't cause the distortions that very wide lenses do.
  - Normal lenses allow you to shoot in a straightforward way, without gimmicks. With a wide-angle lens, the success of a shot may be attributed more to the lens than the photographer. But if you can pull off a good picture with a normal lens, you've seen something well.

  - Most of us see the world around us with a built-in 50mm lens in the brain. It's an accomplishment to be able to see differently when you have the same focal-length eyes as everyone else on the planet.

- A 24-70mm lens is a good workhorse lens. This lens sees as much as the human eye, plus a little more. It's the lens you'll likely use 99 percent of the time.

- Zoom lenses can take pictures in a certain range of focal length, which means, essentially, that there are many lenses packed inside one zoom. In contrast, prime lenses have fixed focal lengths.
  - The advantage of prime lenses is that they cost less and allow you to use a larger aperture. If you're using prime lenses, however, you'll need to buy more lenses to cover as much ground as a single zoom lens.

- The other advantage of prime lenses is that they force you to think through things more thoroughly and to be more creative. They make you get on your feet and back up.

- In fact, your feet are the best zoom you have. Walking up to a subject and backing away can help you find the best view.

Special-Purpose Lenses

- A macro lens acts as a telephoto lens for close-ups of tiny subjects. Most macros have a very limited depth of field, which means that very little in the image will be in focus.

- It's important to use a tripod or a monopod when shooting with a macro or telephoto lens; otherwise, just exhaling can move the frame.

- "Big glass" is photo slang for long lenses: 300mm, 400mm, or 600mm. The front element of these lenses is very large because they are designed to gather light at low levels. These lenses are very sharp, but they are also expensive; however, if you often photograph subjects that are hard to get close to, such as wildlife, these tools are a must.

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The right lens choices will give you a lifetime of interesting shots.

Before You Buy…

- The minimum focus distance is the smallest distance between an object and a lens where the focus is still sharp. Pay attention to the minimum focus distance when purchasing a lens or a camera with a built-in lens. Think about the subjects you like to shoot—such as wildlife close-ups or portraits—and consider the distance you want to be from these subjects.

- With lenses, you get what you pay for. Don't buy a telephoto lens if the best aperture is an f/8 or an f/11. You would have to shoot in very bright light if the opening is that small. A larger opening in the lens is needed to make pictures in soft light, such as an f/4 or an f/2.8.

- With the right lens choices, you will find a lifetime of shots right in your own town—everything from the local marching band to the state fair. If you are truly curious about the world around you, you'll never run out of subjects to shoot.

Assignment

- The best way to get a sense of how different lenses function in photographs is by trying them all out with the same subject. The assignment for this lecture is to photograph the same person or pet from the same distance, using three different lenses (wide, normal, and telephoto).

- For extra credit, try a macro lens, or if you don't have one, figure out what the minimum focus distances are on your other lenses. Compare your pictures once you're done, and pay attention to how the choice of lens changes the end result. Ask yourself: How are backgrounds affected? What does lens choice do for facial features?

Suggested Reading

Iooss, *Athlete*.

Latimer, ed., *Ultimate Field Guide to Photography*, pp. 50–59.

Homework

Photograph the same person or pet from the same distance using three different focal lengths (wide, normal, and telephoto). For extra credit, try a macro lens. Look at how the choice of lens affects the end result.

Shutter Speeds

Lecture 4

In an earlier lecture, we talked about the faucet as a metaphor for the aperture and the shutter speed: You can choose to open the tap wide and let a lot of water flow, or you can open the tap just a bit and let the water trickle into the sink. When we think about light being like the water going into the sink, shutter speed is how long you leave the faucet running. As we'll see in this lecture, proper use of a slow shutter takes a picture from being a mere rendering of an event to being something iconic, something that goes far beyond the original moment.

Experimenting with Shutter Speeds

- A shutter speed of 1/500 of a second is literally 10 times faster than a speed of 1/50 of a second, but you can't hear the difference. Both are tiny amounts of time, nearly impossible to perceive, yet in still photography, the shutter speed makes a world of difference.

- A field shoot of sparks created by grinding metal shows the difference between fast and slow shutter speeds.
    - At a full second, the sparks are arcing everywhere—the image looks as if it was taken on the Fourth of July. With a speed of 1/500 of a second, the sparks are still present, but they aren't as exciting.

    - Note that the camera was on a tripod and a cable release was used for this shoot. You want to slow the shutter speed down, but you don't want the whole scene to be moving.

- It's interesting to experiment with different shutter speeds while shooting flowing water. An image shot at 1/500 of a second shows individual water droplets suspended in air. In an image shot at 1/10 of a second, the water blurs together in a continuous stream.

Using Shutter Speed Purposefully

- Most mid- to advanced-level cameras (film or digital) offer some way to control the shutter speed.

- If you are using an SLR or advanced point-and-shoot, the easiest way to start experimenting is by using shutter-priority exposure mode.
    - This is often indicated by an "S" (for shutter) or a "T" (for time), depending on what kind of camera you have.

    - In shutter-priority mode, you choose and control the shutter speed while the camera changes the aperture. This is a simple way of experimenting because you're letting the camera do the thinking when it comes to the exposure. You can then concentrate on the effect you want.

- A good rule of thumb for choosing shutter speed is this: the longer the lens, the faster the shutter should be. Use 1/20 of a second, minimum, for a 20mm lens, 1/500 of a second or more for a 500mm lens, and so on.

Fast Shutter Speeds

- A "fast" shutter speed means that the shutter isn't left open for very long. This is useful for capturing action, such as sports or other fast-moving subjects. The faster the subject and the closer it is to your camera, the faster the shutter speed must be to freeze it.

- Fast shutter speeds are more difficult to use, simply because you have to fire the shutter at exactly the right moment—just as the action you want to capture occurs.

- Photos of sandhill cranes illustrate the results that can be achieved with various shutter speeds.
    - Images in which the birds are completely in focus are taken in plenty of light with a fast shutter speed, up to 1/6400 of a second.

    - In other images, the heads and bodies of the birds are fairly sharp, but their feet and wingtips are a bit blurred because those parts are moving more than the rest of the body. These

images were taken with a shutter speed of 1/320 of a second, which allows both some sharpness and some movement.

- A shutter speed slowed down to 1/30 of a second makes for dramatic images. Here, the birds on the ground are fairly sharp, but the ones in the air are smudged and barely recognizable—mere impressions of cranes.

- The choices of shutter speed you make depend on what you're trying to achieve, how much of an artist you want to be, and how fast or slow the subject is moving.

- When you're shooting with fast shutter speeds, anticipating the moment is crucial to getting the shot. Generally speaking, with an SLR camera, if you see a fast-breaking moment, you've probably missed getting a picture of it. Watch an event for a bit before you try to shoot it to get a sense of what will happen next and where.

Slow Shutter Speeds

- Of course, a slow shutter speed means that the shutter is left open for a relatively longer period of time. Another world of creative possibilities opens up using slower shutter speeds.

- Used properly, a slow shutter can convey motion in a still image. Just a slight bit of blurring is all it takes for our brains to translate a still image into a moving one.

- After you've practiced for a while, you'll discover that slow shutter speeds, used well, are surefire ways to add artistry to an otherwise unremarkable setting.

- An added bonus is that slower shutter speeds let in more light, making the exposure brighter. This means that you can shoot much later in the day and take in all the nuance of the last light.

Panned-Action Images

- A fun experiment to try with slow shutter speeds is to shoot a panned-action image, where you move the camera to follow the subject. In the final image, the subject is mostly in focus, and the background is blurred.

- There are two ways to shoot a panned-action picture. The first is with the photographer stationary and a moving subject. The second is with the photographer moving parallel to the subject at the same speed. It's often hard to find an opportunity to use the second technique.

- When you are the stationary photographer and your subject is moving, position yourself perpendicular (at a 90-degree angle) to the subject's path.
    - Pre-focus on where your subject will be when it passes in front of you. Then, follow the subject with the camera. Get a good start, shoot, and follow through. Don't stop moving when you press the shutter, or you're liable to ruin the smoothness of the long exposure.

In this image shot with a fast shutter speed, the birds are tack sharp—in focus from wingtips to beaks to toes.

- Panned action is something that only still photography can do well. It creates a beautiful blur in the background with the subject sharp, although it can be hit and miss.

- Make things easy on yourself by choosing the right subject. The faster your subject is moving, the better the pan will be.

Behind the Lens

I hang out once in a while with a friend of mine, a daredevil named Dr. Danger. He is one of the last old-time daredevils or stuntmen out there. Dr. Danger decided he was going to drive a junk car through a wall of flame into a pile of junk cars. That's great. We have this huge explosion. … That needs a fast shutter speed—1/4000th of a second or so. I had the advantage of it being very, very strong light—bright daylight—and, of course, the explosion gave me another little burst of light, and it all resulted in a very fast shutter speed.

- Finally, embrace the blur! We're trained to think that images have to be sharp, but that doesn't always result in the best image.

- In the second technique for shooting panned action, the camera is moving parallel to the subject at about the same speed. The camera does not move from side to side but stays with the subject.

Ghosting and Long Exposures

- Combining a slow shutter speed with flash and ambient light can create an effect known as "ghosting." No matter how many times you try this technique, you will get something different and unexpected.
    - This technique involves "dragging the shutter," which simply means choosing a very slow shutter speed in order to gather as much light as possible. The flash is then introduced as a way to freeze something in the frame.

    - Ghosting takes a lot of practice to do well, but again, the results can be amazing. Much depends on the speed at which the subject is moving, the amount of ambient light available, and the right amount of flash.

- Long exposures can work well for shooting images that build up the light from things like traffic, weather, and fireworks. Such exposures are the opposite of capturing a moment; they use very slow shutter speeds to show the passing of time.
    - To take a long-exposure image, you will need a tripod and a way to trigger your camera without touching it.

    - In situations where the light is very dim, longer, slower shutter speeds are a necessity. With practice, you can make them work to your advantage, shooting images of fireworks, for example, or a thunderstorm.

- In using all of these techniques, remember that patience is your greatest ally. Great pictures don't just happen; they're the result of many attempts—and many failures.

Assignment

- Shoot something that's moving—traffic, a kid on a merry-go-round, water; choose a subject that is moving repeatedly so that you can get several chances to shoot it.

- Slow your shutter speed down to less than 1/30 of a second and speed it up to 1/500 of a second or more. Try this at different times of the day and notice how the change in light affects your pictures.

Suggested Reading

Latimer, ed., *Ultimate Field Guide to Photography*, pp. 120–125.

Peterson, *Understanding Exposure*, pp. 74–95. (This book is now in its third edition; the page numbers may be different, but the content is more or less the same.)

Sartore (with Healey), *Photographing Your Family*, pp. 60–61 and 70–71.

Homework

Find something you can photograph in two different ways using fast and slow shutter speeds for different results. Moving people or vehicles work great, or you can do something as simple as water running from a tap. Use a tripod and cable release with slow shutter speeds for the best results.

Aperture and Depth of Field

Lecture 5

In the last lecture, we talked about shutter speeds and, before that, about lenses and larger and smaller apertures. In this lecture, we'll take some time to focus more closely on aperture. As we've said, the aperture is the variable hole in the lens that the light passes through on its way to the camera's sensor or film. Different shutter speeds let in different amounts of light through apertures in the lenses, and different lenses permit different f-stops, or aperture settings. In this lecture, we'll see how the size of the aperture affects depth of field and the effects you can achieve by controlling depth of field in your photos.

What Do Aperture Numbers Mean?

- Lower aperture numbers (f/2 or f/2.8) mean large openings in the lens; higher aperture numbers mean smaller openings. These f-stops represent a ratio—the ratio of the focal length of the lens to the diameter of the aperture.

- Standard f-stops, from largest opening to smallest, are: f/1.4, f/2, f/2.8, f/4, f/5.6, f/8, f/11, and f/16.

- Aperture can control exposure, create visual effects, and solve compositional problems.
    - A wide-open aperture can solve certain problems by having only one layer of the photo in focus. In a complicated, chaotic world, you often want a wide aperture for shallow depth of field.

    - The smaller the hole in the lens, the more things are in focus—a small hole equals more depth of field. The bigger the hole, the less depth of field, or area of the photo that will be in focus from front to back.

Why Not Focus Everything?

- Having everything in focus often creates a chaotic image; your image includes power poles, vans passing by, and so on. But having a shallow depth of field allows you to simplify and really get what you want in focus. In photography, a good image is often not about what you leave in but what you leave out.

- In a photo of a grizzly bear bobbing for salmon on a river in Alaska, notice that the light is very weak; this situation required a wide-open aperture. Notice, too, that there is nothing in focus except the bear and the fish.
    - When you are shooting in very low light on a subject that is moving, even if you are using a flash, you want the fastest shutter speed you can get; otherwise, everything will be blurry.

    - You want a big hole in the lens to make your subject pop out and to increase your shutter speed. Remember, aperture and shutter speed walk hand in hand.

- The shallow depth of field produced by a wide-open aperture is especially visible when using a long lens, such as a telephoto or a macro lens. If you are using a macro lens up close, you get very little in focus. To focus a bit more, try changing to a higher f-stop.

- A field shoot demonstrates how f-stop is used to control depth of field. With a tiny hole in the lens (f/22), the background is too sharp; the tree limbs seem to stick into the model's head. At f/8, the limbs become a little softer, and at f/2.8, they almost vanish, giving us just a hint of forest.

- Try shooting a scene with a cluttered background using all the different apertures on your camera. See if you can tame that background with a shallow depth of field.

Greater Depth of Field

- It's not only the larger apertures that are useful. Sometimes, you want different subjects at multiple distances in focus. For those situations, you use smaller apertures, that is, those with high f-stop numbers.

- In a series of photos on America's state fairs, greater depth of field allows the viewer to see all the visual noise and color that characterize these events.

Getting close with a macro lens means that you get very little in focus; here, only a bit of the insect's head and its eye are sharp.

- Apertures are a fairly straightforward subject, but figuring out how much depth of field you need can be complicated. Often, this decision is purely subjective and depends simply on what you feel like doing. Experiment with spinning the aperture dial around and see what you get.

Amount of Light and Aperture Setting

- It's important to understand the amount of light available and the aperture setting. For a narrow aperture, say, f/22 or higher, you need to have either a strong light source or a slow shutter speed. With a slow shutter speed, you generally want to put the camera on a tripod and use a cable release.

- "Fast lenses"—ones with wide maximum apertures and low f-stop numbers—allow you to shoot in low light, which is often the best light. They cost more, but they are worth the money.
    - Cheap lenses are generally cheap because the optics aren't as good; they sometimes won't be tack sharp, which forces you to decrease the aperture to get your subject in focus.

    - Then, of course, you've got to worry about whether you've got enough light for that small hole; in addition, you may increase the distractions in the background with the increased depth of field.

Behind the Lens

This [photo was shot with] an f/16 aperture. Now, this is kind of a gray day, but I am hitting this northern spotted owl in a clear-cut with a lot of light from a big flash with a softbox on it. He's an educational bird that at one time had been injured; you can see the little leather straps coming off of his feet indicate that he isn't flying anywhere. It is a captive, controlled situation, which means I have time to work it, which is nice. This was for a story on the Endangered Species Act for *National Geographic*. I wanted to show that northern spotted owls can't live if you cut all the trees down. It's a pretty obvious thing, but something most people don't think about.

The aperture is set for f/16, and I get tremendous depth of field. Everything is sharp, from the straps off of his feet all the way to the mountains in the background, even the clouds. I wanted to show the mess and the chaos. I didn't want just the owl to be sharp, I wanted everything sharp, hence the need for a tiny hole in the lens. You'll find there are some really good reasons to have everything in focus in your pictures—sometimes.

- Long lenses come in handy for quickly cleaning up the background when shooting portraits; they're also essential for shooting wildlife and sports. It's well worth your time to try a long lens before you buy one. You can even rent one and see if you like the feel and weight of it.

- When we're talking about depth of field—what's in focus and what's not—we're also talking about aperture and focal length. You can change depth of field using a short- or wide-angle lens. With a wide-angle lens, things will be more in focus, including much of the background.

- As you learn more and shoot more pictures, you will find yourself making more interesting choices—when to blur the background and when to leave the complexity and chaos in your pictures. There's a time and a photograph for everything.

Assignment

- For this assignment, shoot the same scene, one that has a subject in the foreground, and then bring things into focus in the background by making the hole in your lens smaller. This will show you the relationship of aperture to depth of field.

- Again, in the first frame, there should be no depth of field (f/28). Then, make the aperture a bit smaller in each frame to increase the depth of field.

Suggested Reading

Latimer, ed., *Ultimate Field Guide to Photography*, pp. 79–83.

Morrell, *Camera Obscura*. (This book offers extreme examples of the use of small aperture and a brilliant illustration of doing something different with an old technique.)

Sartore (with Healey), *Photographing Your Family*, pp. 66–69.

Homework

Shoot the same scene—one that has potential depth to it, such as a person in a landscape—at every aperture available. Go from wide to restricted and then compare them. Look at how depth of field works, how just one thing is sharp when you're wide open and nearly everything is sharp when you're "stopped down." For bonus points, get up close to your subject and shoot the scene at every aperture again. Even with a small hole in the lens, you may not get the background sharp if you're focused close, but you can easily see how changes in aperture affect depth of field.

Light I—Found or Ambient Light

Lecture 6

Quite literally, light makes a photograph. Light, along with composition, are the two basic building blocks of photography. We'll have three lectures about light in this course. This first one is about found or ambient light, light that you don't create. You'll learn how to see and identify great light. In the next lecture, we'll talk about color and light intensity, and the third lecture will be about flash. Along the way, we'll be rolling in more information about lenses, apertures, depth of field, and shutter speed because all these elements work together and because adjustments in one always affect the others.

Shooting in Ambient Light

- A photo of a rare baby bird—an Attwater's prairie chick—is lit by just a single reading lamp. This weak light gives a sense of tenderness, warmth, and caring that matches the delicacy of the tiny bird.

- The fact that the background of this photo is completely black eliminates distraction. The depth of field is very shallow—just on the bird's eye. That was out of necessity because the low light required a wide-open aperture.

- This simple but effective photograph tells the viewer that the future of this species is, literally, in our hands.

Exposure Compensation Setting

- There are two ways to adjust light: making adjustments in the environment and in the camera. Getting a picture well lit is about doing both.

- Three things are involved in adjusting the camera for light: the exposure compensation setting, the ISO setting, and the histogram. We'll look at the exposure compensation first.

- The exposure compensation dial on the camera is like a dimmer switch on the wall of your home. When your camera is in an automatic exposure setting—in program, aperture priority, or shutter priority—dialing up or down on the exposure compensation dial increases or decreases the exposure.
    - It's often good to dial down the exposure compensation to a little bit under the optimal exposure as chosen by the camera.
    - Subjects often contain a good deal of contrast between light and dark areas, and you should expose for the highlights. Consider the brightest part of a scene when making exposures so that you don't overexpose anything.
    - Making the entire exposure just a bit dark (underexposed) allows you to retain some detail in the highlights and makes the colors richer.
    - This technique also prevents you from clipping out the highlights. You can bring back details in the shadows, especially in digital photography, but you cannot bring back detail in the highlights if they are blown out.
- In some scenes, such as a snow scene, you may want to overexpose. Very light or very dark scenes can fool your camera, and you need to compensate for that.
    - Try putting your camera in manual mode and going up close to the subject. Check the exposure level, lock it, move back, and shoot.
    - You can also try this technique if you're shooting against a black background, such as the mouth of a cave or a dark wall.

ISO Setting

- The ISO is simply the sensitivity of the sensor in a camera to light. It is set in increments of 100. An ISO setting of 400 is more sensitive to light than 100. In a dark scene, you need a higher ISO to make the most of

whatever light is available; in a brighter scene, you want a lower ISO so that you don't overexpose the picture.

- Don't be tempted to shoot at a high ISO setting all the time. You may think this will allow you to keep your shutter speed high and your aperture small to get your subject sharply in focus, but if you shoot at a high ISO during daylight hours, you'll overexpose the picture.

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Before you take a photograph, analyze where the light is coming from and its relationship to the subject.

- Often, it's better to choose the lowest ISO you can in order to blur the background somewhat and make the subject pop.

- The quality of photographs is generally better with a low ISO. Higher ISOs result in images that are grainy or "noisy."

- Higher-end cameras tend to have a tremendous ISO range, allowing you to shoot in almost no light. This range of settings also allows for faster shutter speeds in low light, which may eliminate the need for a tripod.

The Histogram

- The histogram is a graph you can call up on the back of most cameras that allows you to see whether your images are underexposed, overexposed, or perfectly exposed. Keep the peaks of the histogram in the middle if you can.

- On a histogram, the left is dark and the right is bright. If you have few peaks in the histogram and they're off to the left side, you know you've underexposed the image. If the peaks are off to the right, then you know that you've overexposed the image and lost some information and detail.

Behind the Lens

This one is a very simple photograph of a very rare bird. This is a minutes-old chick, an Attwater's prairie chicken—a very rare bird in this country—just hatched out of its egg. You know how I lit this? It's a reading lamp. Just a single tungsten bulb, like a reading lamp, bedside table lamp…. They had this little lamp turned on in the incubator room at a place called Fossil Rim Wildlife Center, which was doing breeding with these animals in Glen Rose, Texas. I'd spent the night on the floor of the incubator room hoping to photograph the hatchings of these birds. This one is just out of the egg. There's a weak light on in the corner of the room, throwing off just the faintest, warmest, graceful, colored light, this golden glow, and I thought, "Yes, that's good enough to shoot in." I didn't want to introduce flash. It's a delicate little chick. I didn't want to blast away. I just wanted something very subtle, tender, warm, caring. This light matched the delicate feel of the subject. I could see it at the moment.

- The histogram gives you more information than you can get by just looking at the image on the back of the camera.

Quality of Light

- The first step in engaging light in a photograph is analyzing where the light is coming from and its relation to the subject.

- Front lighting is seen when the light is coming from behind the photographer and onto the subject. This is the most common way that photographers light things, but it also can be the most boring. If the sun is low on the horizon, then front lighting can work, but if the light is at all harsh, front lighting can flatten out a photo, offering fewer shadows and less depth.

- Backlighting is seen when the lighting is coming from behind the subject. It is also called silhouette lighting because the subject often goes black, becoming a silhouette.

- Hatchet lighting is when the light is very harsh and hitting one side of the subject. One side of a person's face, for example, might be brightly lit and the other in complete shadow. This lighting can be dramatic.

- With ghost lighting, the light is coming from below. This is the creepiest, most unattractive kind of lighting.

- Overhead lighting is, of course, lighting from above; it's sometimes called interrogation lighting.

- Classic Rembrandt lighting is wonderful for photography. Here, the light is subtle, and it comes in from both the side and a little to the front, kind of three-quarters on the subject. That creates a triangle of light on the side of the subject opposite the light source. The shadows created by this type of light give a picture depth and richness.

- Try to find ways to vary ambient light. Walk around the subject and pick out the best spot; then shoot in that direction, keeping in mind that subtle

light is better than harsh. Finally, be patient. Sometimes the ambient light will vary itself and solve your problems for you.

Light to Look For

- Gray light on an overcast day is perhaps the most lovely kind of light, but when you shoot on this kind of day, be aware that not all gray skies are created equal.
    - The sky is the light source, and on some days, it becomes a big light dome that can blow out white completely.
    - One solution to this problem is to get higher than your subject and shoot down so that you eliminate the sky. You can also use a building or trees to block the sky.
- "Found" lighting that happens indoors can also be beautiful. If the sun is low and you're shooting near a window, you may be able to capture direct beams of light.
- The warm glow after sunset is another lighting condition that is hard to beat.
    - A field shoot at a small pond illustrates the benefits of waiting throughout the day to get the best light. Remember, there's no excuse for bad light in a landscape; the landscape is not going anywhere.
    - Again, walk around the scene and shoot from different angles to get the best image. At the pond on this shoot, the boat gives us a leading line into the scene.
    - Add elements, such as people, to the scene to go beyond the obvious. Have fun with it!

Assignment

- Pick a sunny day, start early, and shoot five shots of the same subject: one early, one at high noon, one in late afternoon, and one before and after sunset. Then compare the results; watch what happens to one subject at different times of day.

- Remember, too, to walk around your subject in different light; once the light is good, do something to go beyond the obvious. Bring in people, a pet, or a surprising object.

Suggested Reading

Brandenburg, *Chased by the Light*.

Peterson, *Understanding Exposure*, pp. 8–45.

Homework

Pick a day that's forecast to be nice and sunny, and photograph the same subject outdoors in the same spot from the same angle (always facing east, for example). Start as early as possible and do five shots: one each in the early morning, at high noon, in the late afternoon, before sunset, and after sunset. Compare the results.

Light II—Color and Intensity

Lecture 7

In the last lecture, we talked about ambient light, but in this lecture, we go a little further, looking at how light embraces the world around us, how it caresses subjects, and how it can "make or break" an image. As we'll see, the first step in taking a photograph is figuring out the relationship between the subject and the lighting. We've also talked about harsh light and soft light, and we've learned to avoid the former and embrace the latter. Here, we'll go into more detail about light quality, and we'll talk about color—both the colors of objects in pictures and the colors of different types of light.

The Color of Light

- The sun is the ultimate white light source, and our brains have evolved to perceive all light as white, just like the sun. This makes it harder for us to see color in light, but our cameras aren't fooled; they will capture true colors.

- For example, a camera can "see" blue light from a cool light source. A photo of an iceberg in Antarctica on an overcast day illustrates the refraction of blue light. Such blue light sources can convey a feeling of relaxation and serenity or eeriness. In contrast, warm light can imply danger or romance.

- You can often take advantage of the color of light to get a better photograph than you would if you used a flash and cleaned up all the light to white. If your light is warm or cool—if it has color in it—your picture will have one more point of interest. In some cases, the color of light alone can make your picture interesting.

- Note, too, that light can bounce off colored objects and reflect their colors.

The White Balance Setting

- The white balance setting on a camera does just what its name says: It balances out the different hues of light and makes them all white.

- A photo of a bride before her wedding shows three different color treatments, with and without the balance setting.
    - The camera originally sees the scene very yellow (daylight setting), which lends a sense of warmth and romance to the picture.

    - The tungsten setting corrects the yellow back to white, and the white balance setting shifts the yellow end of the spectrum toward the blue for a much more neutral result.

- If you like getting true colors—not a cleaned-up version of the world—leave your camera set on daylight. Often, this setting results in images that look like paintings.

- As we said, the automatic white balance setting on a camera cleans everything up to white. You might use this setting if you were in a green room with fluorescent light, but in that situation, you could, of course, also use the fluorescent setting.

- The sunny or daylight setting is a neutral setting for sunlight. Images shot on a daylight setting look warm and relatively saturated.

- The tungsten setting gives a much cooler white balance. It lends everything a blue cast to combat the yellow light put out by tungsten bulbs. You can use it indoors to combat the yellow effect—or not, if you like the yellow.

- The fluorescent setting adds a layer of magenta tint to eliminate the green given off by fluorescent bulbs. In terms of color temperature, it's between daylight and tungsten. You might use that in a workshop or wherever you find fluorescent lighting on your subject.

- The cloudy day setting, used in overcast conditions, tends to warm up the scene. It uses a white balance that's a bit more than the daylight setting.

- You should play with these settings from time to time, but again, you'll probably generally want to use the sunny or daylight setting.

- When you're out shooting, try to fix problems in the viewfinder so that you get the picture you want while you're on site. If the subject is too far away, walk closer to it. If the scene is too yellow, fix it with white balance or with flash or move the subject to a window.

- As we said, the color of light is one area where the way your camera "sees" is different from the way your brain and your eyes see. Light intensity is another area where your eyes and your camera see things differently. Intensity is the term that covers hard light versus soft light. When the light is harsh, it is intense; when it is indirect, soft, and diffused, it is less intense.

Dynamic Range—In Your Eyes and in Your Camera

- Your eye has a tremendous exposure latitude or range, which translates to an ability to forgive high-contrast situations. The difference between the brightest bright and the darkest dark is called a dynamic range. When the light is very harsh, your eye can see into both the shadows and the highlights. Human eyes can handle a wide dynamic range and retain details in both bright and dark images.

- The digital sensors and film in your camera, on the other hand, have a much smaller dynamic range. In a bright situation, when you can still see detail in both the light and dark areas, your camera will lose details; it can't handle both really bright and really dark things in one picture. For this reason, it's important to check your camera's screen and histogram.

- In softer light, the range between the shadows and the highlights is narrower. The differences come together, resulting in a dynamic range that the camera can handle. If everything is soft and evenly lit, every detail becomes visible.

Behind the Lens

Here's a picture of [my wife,] Kathy, coming home from Antarctica. It's one of my favorite pictures. It's a total grab shot. Is it a great picture compositionally or light-wise? No, but this is when the kids met up with their mother again. She'd just gotten off the plane. Is the color good? Not necessarily. Is the background perfect? No, it's kind of sloppy, pretty junky actually. Are the people perfect? No. But the reason this photograph has worked for me is because it's a real moment. I wasn't really analyzing a lot when I did it. This is the exact moment when the kids ran up to her after she was away from them for the first time; she was gone a month to Antarctica with me. This is the moment they ran up and hugged her, and it shows how much they love her and rely on her. She's their life raft. …

It's about the moment sometimes. It's not always about getting it perfect—the intensity of light, the color, or the background—it's just about the moment you want to get.

I always have my camera with me. It's ready to go. It's on aperture priority. I knew in this case I wanted to be close. I wanted to be right there with a wide-angle lens. I knew I'd need a fast shutter speed, so I cranked the ISO to about 2,500 or so; had a big hole in my lens, f/2.8; no flash here. This is about getting close, being intimate, and shooting. I shot 10 frames or so, but this first one, when they first come in contact, that's when the emotion is the best. It works. [It's] one of the few pictures of my own I have up in my house out of all the hundreds of thousands that I've shot.

- It's important to be aware of how the camera sees, especially in terms of light intensity, dynamic range, and color. Realize the limitations of the camera. In other words, when the light is harsh, you need to expose for either the bright or the dark. It's often best to go for the highlights so that you don't blow them out and lose information in the image.

Making the Best Use of Light

- As a rule of thumb, if you or your subjects have to squint because of the light, the light is probably too harsh to shoot in. The sun high in the sky is a primary source of harsh light. Wait until the sun has moved closer to the horizon—first thing in the morning, late in the afternoon, or in the evening. Colors come alive in softer light, as well. You don't need harsh light to get vivid color.

- When you can control the background and the light, take advantage of the situation and shoot. When you can't, it may be just a good time to watch; get a great shot later. Don't make the mistake of shooting something when the light is too harsh.

Dark objects are easier to photograph in shaded light.

- On the other hand, sometimes you may want a picture at a bad time of day, or you may not have a choice.
    - In a field shoot with a member of The Great Courses team, it's impossible to get a good picture in the harsh midday sunlight, but it can be done by pulling the subject into the shade and using fill flash.

    - With a flash, 1/250 of a second is the fastest shutter speed that can be used; any faster and the shutter blades will be visible in the picture. For this shoot, the aperture was set to f/20 or f/22, and the ISO was dialed down to 200 to slightly underexpose the background. Fill flash was then used with a softbox to diffuse the light, resulting in a studio-quality portrait.

    - Fill flash is so-called because it fills in the shadows. It brightens up the subject to set it off from the background, which is slightly underexposed.

    - You're likely to use the fill flash technique often. Dial down the exposure on the background and then use a softbox on your off-camera flash to illuminate the subject.

- Dark objects are much easier to photograph when they are shaded or in overcast light. These kinds of conditions make it easy to bring out detail.

- Bright light used to capture strong colors creates instant richness and vibrancy. It's also interesting to focus on color when the surrounding scene is monochromatic.

- Keep this in mind, too: When you are shooting in less-than-ideal conditions, focus on the emotion and action and wait for the moment to happen. Powerful photos are not always about the intensity of the light or the color.

Assignment

- Find and shoot some great color—anything at all, from the glow of a reading light to the red of your car's taillights. Be sure to photograph

a subject *in* that color, not the source of the color itself. Try for some cool blue scenes and warmer red scenes. Also try to get some reflected color—off of a coat or off water, for example.

- Experiment with the white balance settings on your camera. Try out every one of the options and see what happens when the camera adjusts for various kinds of light.

- Experiment with light intensity. Find a spot you like and photograph it when the light is at its most intense. Then return when the light is softer. Experiment with shutter speed, aperture, and ISO. Remember to increase the ISO to let in more light when you need it.

Suggested Reading

Crewdson, *Twilight*.

Maisel, *Jay Maisel's New York* (or anything else of Maisel's you can lay your eyes on).

Meyerowitz, *Cape Light*.

Homework

Find and shoot great color right at home. The source can be anything at all, from the glow of a reading light to the red of your car's taillights. Be sure that you photograph a subject *in* that color, not the source of the color itself.

Light III—Introduced Light

Lecture 8

As you should realize by now, you can't be afraid to craft light when you need to. You don't have to accept what's present in a scene; move around and see where the best light is, move lamps, shift your subject, and slow down the shutter. But in some situations, when found or ambient light isn't sufficient, you'll have to introduce light. In this lecture, you'll learn about reflectors, and we'll go into detail about using flash in a variety of situations—even outdoors and in the daylight.

Crafting Light

- Modern cameras can shoot in very low light levels. You can create a beautiful mood in your pictures using just the light from a table lamp, as long as it has a shade on it, which softens the light.

- Place the light off to the side at about eye level. Overhead lighting creates harsh shadows, just as the sun does when it's directly overhead.

- Firelight, too, can work wonderfully—usually, it is off to one side or slightly lower in the frame—as can sunset light, coming in from the side, not overhead. Look for opportunities to experiment with unusual light sources, such as car taillights.

- A photo of a lion in a tree in Uganda's Albertine Rift shows a dramatic use of introduced light, in this case, a bright floodlight purchased for less than $20. Without the introduced light, the lion would not have been visible in the tree.

Introducing Light with Reflectors

- Reflectors, which can be purchased at a camera store, represent another form of introduced light. They're used to bounce ambient light to where it is needed, often, to fill in shadows.

- Try using the gold side of a reflector, rather than the white or silver side, to get warm light. It's difficult to hold a reflector and shoot at the same time, so try to get someone else to help.

This photo was actually taken outdoors on a rainy day, but overexposing the ambient light source turned the gray sky to white.

- If you don't have a reflector, you can use something as simple as a white poster board or even a T-shirt—anything that is bright—to bounce light. Remember, though, that the light will pick up the color of whatever you are bouncing it off of.

Flash

- The other main kind of introduced light is flash, which is not continuous because it lasts only an instant.
    - Continuous light sources—those that stay on—are generally better because they allow you to craft the light and take note of the shadows and highlights.
    - You can craft with non-continuous light, too, but you have to chimp it. You have to look at the back of the camera to see what the light is doing.
- Modern flashes use strobe lighting—a super-intense burst of light that lasts just a microsecond.
- If used incorrectly, light from a flash can bleach out subjects. Light from flash is also cool in color, meaning it's not true. Many cameras have an automatic pop-up flash, but you may be better off not using it in most situations.

- The secret to using flash correctly is to use fill flash, which lights the subject subtly but not too much. This technique requires taking time and making multiple adjustments to craft the light. Get in the habit of shooting, chimping, adjusting, and shooting again until you've gotten a shot you like.

Field Demonstration

- A field demonstration at Raptor Recovery Nebraska shows numerous options for using flash.
    - The worst flash technique is called direct flash, which shoots light straight on at the subject. Unfortunately, this is the only option with many point-and-shoot cameras that have a built-in flash. The result is very harsh light. Remember, the farther back you are from your subject, the harsher the light.

    - One technique to get better results with flash is to get the flash off the camera—hold it off to the side and use a sync cord. This technique reduces the red-eye effect and results in more natural-looking light. You can also try diffusing the flash by wrapping a tissue or a napkin around it, and you can darken the scene by adjusting your shutter speed and aperture.

    - A low-cost device called a softbox, which is mounted to the flash, spreads and diffuses the light from the flash to create much softer light. The key here is to hold the softbox close to the subject. The closer the light is to the subject, the softer it is.

    - Remember, to check the menu settings in your camera for instructions to adjust your flash and dial it down. If you have a standalone flash, there should be a way to adjust it on the flash itself. You can generally dial a flash down a minimum of two-thirds of a stop; you may sometimes want to dial it down a full stop or even more.

    - As always, you should take multiple shots. Get in the habit of shooting, chimping, and adjusting until you get a shot you like.

- If for some reason, you can't diffuse your flash, the next best thing is to bounce it off of something, such as the walls, the ceiling, or even yourself.
    - You can't bounce your flash if it is built in to a point-and-shoot camera, but you can if you have an external flash unit that can tilt or rotate.

    - Of course, you'll probably have a hard time bouncing flash outside. But if you're shooting inside and you have a unit with an adjustable flash head, bounce that flash off another surface—even an index card taped to the flash head.

- Flash doesn't travel too far. You should be within about 10 feet of your subject when you are using a flash.

Using Flash Outdoors and in the Daytime

- Flash isn't just for nighttime or indoor shots. You can use flash to eliminate shadows during daylight hours.

- A field shoot demonstrates how you can reverse the situation of bright background light outdoors and subjects in the shade.
    - In these conditions, increase the shutter speed to darken the background, then use the flash with a softbox to brighten up the subjects.

    - Move around your subjects to get different lighting effects; try ghost lighting, overhead lighting, and Rembrandt lighting.

Behind the Lens

Flash comes on and off in such a short amount of time that it can really hurt you, actually. As wonderful as flash is, it can really hurt your subjects, even bleach them out if done wrong. It is brutal! In fact, I would argue that people are better off never using their flash rather than ruining every situation they come across when they take it out because they can't control it.

- As you shoot, look for ways to add depth to your image. Include objects that recede into the background and objects in the foreground that highlight your main point of interest.

- Note, however, that the light from a small flash carries only about three feet. You need to get very close to your subjects.

Flash for Freezing Action

- Beyond simply lighting your subjects, you can take advantage of the lightning-fast nature of the flash to freeze action.

- When you are shooting flash in a dark situation, the results can look as if your subject is in a cave. To eliminate this effect, you can either use a long shutter speed to collect what little ambient light is present, or you can put other flashes in the background to light up the scene.
    - In many cases, the best choice is to keep the shutter open long enough to soak up the colors, the ambient light, and perhaps some of the background.

    - As long as the subject in the foreground is sharp, it's all right if the rest goes a bit blurry.

- In dark situations, experiment to determine how slow the shutter should be. Check the display on the camera and look at the histogram to make sure you have enough light but not too much.
    - If anything is touching the right side of the histogram, that means you are clipping information that you can't get back.

    - If the histogram seems to be hugging the left side, that means your exposure is getting too dark, which may be acceptable, depending on how you want your image to look.

Assignment

- Take a series of four photos using four different introduced light sources.

- Remember, lighting well takes time, so don't be in a rush. By experimenting and training your eye, you can take an ordinary scene and make it extraordinary.

Suggested Reading

Balog, *Survivors*.

McNally, *The Hot Shoe Diaries*.

Musi, photographer, "Taming the Wild."

Homework

Take a series of four photos using four different introduced light sources. Be creative and try these both in the middle of the day and at dusk to see what works and when. Lighting things well takes time, so don't be in a rush.

Composition I—Seeing Well

Lecture 9

Composition and seeing well are really the heart of what this course is about. All successful images are composed so that different elements in a photograph come together to tell a story. Composition involves looking and thinking and then deciding what it is you want to say with your pictures. It's one way of making order out of the chaos of life, but it's also perhaps the hardest thing about photography to master. Just about anybody can master nice light, focus, and exposure, but it takes patience, thought, and honest self-criticism to learn how to make well-composed photos.

Introduction to Composition

- There are times when your subject matter is so interesting—a stuntman on fire, for example—that no matter how you frame it, it won't be boring. Most of the time, however, you are trying to capture the every day in a way that's worthwhile to look at. That's a tall order.

- A photo of a bear catching a fish offers some hints about good composition. The bear was shot in soft light with a long lens to clean up the background. Its head and the fish are outlined perfectly against the white water.

- Good pictures, generally speaking, are well framed. Whether you're using an advanced SLR or a point-and-shoot camera, shooting with film or digitally, framing with the viewfinder is the first and most critical step in getting a good photo.

Photo Analysis: Bubble Series

- Let's analyze a series of pictures of a boy blowing bubbles on a summer day. How can we tone down the visually cluttered background of this scene and focus attention on the boy?

- First, think about the light; in this case, the day was overcast, so the light was fine, but moving around the subject didn't eliminate background

distractions. This situation calls for less depth of field and, thus, a bigger lens—a 70-200mm or even 200-400mm. Stepping physically closer also unfocuses the background even more from the subject.

- With the background nothing more than a wash of soft color, the next step is simply to work the scene. Take your time and shoot multiple images to get a shot that looks professional.

- Keep this maxim in mind: If it's in your picture, it's working either for you or against you. If you have distracting elements in your photograph, figure out how to get rid of them. Move the subject if possible, change your angle, change your perspective, change your lens, and get closer to the subject.

With a shallow depth of field, the background gives us the little information we need; we know that we're in a wooded setting, but our attention is on the subject.

- Every portion of your image counts, and every element must be there for a reason. Don't keep things in your picture just because you didn't take the time to figure out how to eliminate them. If something is in your picture, it should be there because it's what you want, not because you couldn't solve the visual problem.

- Another series, this one of kids on a trip to the grocery store, again shows how a photographer works a scene to get a good photo: First, find the direction where the light looks best. Look for what you want in the background, and change lenses if necessary to blur the background. Always think about what's inside the viewfinder. And take the time to experiment.

The Rule of Thirds

- The rule of thirds has been applied by artists since the time of the Renaissance to dramatically improve composition.

- Imagine a tick-tack-toe board dividing an image into thirds vertically and horizontally. The four points where those lines intersect are the power points—at the top right, top left, bottom right, and bottom left.

- In an image of a mother and daughter, positioning their faces on the top right power point and their hands on the lower power point makes for an aesthetically strong composition.

- As you gain experience, you'll learn to apply the rule of thirds intuitively to create dynamic tension in your photos. Centering your subjects is acceptable, but often, putting them to the side is even better. The more pictures you run through your camera, the better feel you'll get for this rule of composition.

- In a series of photos of pigs, note that there isn't something going on in every corner, but the rule of thirds holds the photos together compositionally. Keep in mind, too, that you still need to think about other elements—soft light, a clean background—as you shoot.

- With this rule, you can make interesting pictures even without an exotic subject.

Vertical Framing

- Vertical framing is another way to switch up the composition of your pictures and create dynamic images.

- A horizontal image of a giraffe doesn't really emphasize the height of these creatures, but vertical framing highlights the elevator quality of the giraffe's neck.

- In a photo of a baby at a window, notice all the elements in the image that suggest vertical framing: vertical lines under the baby's feet, his

upright stance, vertical lines behind him, even the vertical stripes on the cushion.

- In an image of a mountain goat licking salt off the rocks in Glacier Park, vertical framing shows how high up the goat is on the cliff walls, adding interest and tension to the frame. In fact, the whole point of this picture is the vertical nature of the situation, the fact that the animal will die if it slips and falls.

- Look for opportunities where shooting vertically will make your composition or storytelling stronger.

"Photography Is Hard"

- In order to improve your photographs, you need to evaluate them honestly and critically. You need to judge every aspect and element of

Behind the Lens

Here's another secret from behind the scenes at *National Geographic*, and this might help you if you think you aren't getting any good pictures. Less than 1/10 of 1 percent of what I shoot makes it into a published story. I mention this because it's easy to get bummed out when you're reviewing your photos. None of them [is] going to look better or good enough, to you at least. You wouldn't believe the garbage that I've shot over the years or that I *still* shoot. On assignment for the *Geographic*, I shoot junk daily! My editors could tell you; they could verify that. Do I let it beat me down? Sometimes I get a little discouraged, but I pop right back up. I have to. My job's on the line. I'm only as good as my last story. If I didn't do my job well, somebody else would. There's a line around the block to work for *National Geographic*.

So what do I do? I pull myself back up again and I start shooting again. Besides, I know, and you should, too, that every bad image you look at and evaluate will improve your work, if you're honest about your evaluation. If you shoot 100 pictures and come out with 1 that's outstanding, you should celebrate that as a success. I, as a *National Geographic* photographer, may only get 1 out of 1,000 that I'm pleased with—1 out of 1,000—or even less.

your images to determine what works and what doesn't. Be your own toughest critic and never be satisfied. No one will care more about your photographs than you do.

- Those who can't see what their work is lacking will never get any better. Nothing changes human beings faster than being a little uncomfortable. If you want your photography to improve, then get uncomfortable with the level you're at now. If you make yourself uncomfortable enough mentally, you'll force yourself to do a better job.

Assignment

- Pick a subject—a person, a pet, or something else—and try to make three very different photos of it during the same session. Frame your photo with just a small portion of the subject or show it very small in a grand scene. Make three visually separate images of the same thing.
    - Consider carefully what you want in the frame and what might be better outside the frame—for any reason—the more interesting, the more surprising, the better.
    - Try the assignment with three different pictures of something fairly common, such as dollar bills.
- As you work, think about the rule of thirds. What power points will you put in your pictures? Move around and build your pictures from the background forward. Examine your entire photograph to make sure the context is right for the subject.

Suggested Reading

Bendavid-Val, ed., *National Geographic: The Photographs*.

Stout and McMillen, eds., *The Pictures of Texas Monthly*.

Homework

Pick a favorite subject (a person, a pet, a doll, or whatever) and try to make three very different photos of the same subject during the same photo session. You can fill the frame with a small portion of the subject or show the subject very small in a giant scene, for example, but think outside the box.

Composition II—Background and Perspective

Lecture 10

In this lecture, we continue our discussion of composition. You'll learn how bad backgrounds can spoil a photo and the importance of building a good background before you even start to shoot. We'll also see how moving your subject or yourself around—taking a different visual perspective—can help improve your pictures. Finally, we'll discuss the horizon line in photos and see how this element can contribute to the sense of importance of your subjects.

Bad Backgrounds

- A bad background can ruin the impact of a photo, even if it was taken in nice light. As an illustration, consider several pictures of a display taken in an outdoor outfitter store in which the background is crucial.
    - The final shot makes people do a double-take. Why is a man dusting sheep in the mountains?
    - If the camera were positioned a bit to the left or the right or a little higher or lower, other store fixtures, such as stairs and signs around the display, would have given the secret away.
- Clean backgrounds eliminate distraction from your subject and help to focus the viewer's attention. It's important to look at everything when you look through the viewfinder.
- It's true that a cluttered picture can work well, and in fact, a layered look is something that professionals crave. But as you're learning, it's best to stick to the basics and get to the point where your pictures are fairly clean and read well.
- One good technique for fixing bad backgrounds is to use natural screens, such as fog, smoke, dust, and clouds. These screens block the intensity and harshness of the sun, clean up the background, and add drama to a picture.

Behind the Lens

When you put somebody down low—as this drill sergeant literally did—when you are the photographer, it makes them look small and diminished.

I like this picture for a variety of reasons. The horizon line is way up, so it's not really distracting. I like the way that the kid's head stands out of that bush here. I like the fact that that drill sergeant is right in his face. I like the way the light is subtle. I like the way that the cleaned-off street makes the sergeant pop out. I love that you can see the rest of the platoon standing there, all in a row, all nervous, listening to what's going on in that exchange. This … young man … actually turned out to be a fine soldier. This is one of the first days of hell week, so the sergeant is really getting on him. That sergeant is actually a very good and decent guy, but man, he's tough.

We know where we are. We are on a military base.

Look at the rule of thirds going on here. The platoon is in the upper right. This is all going down in the lower left. And it's something interesting: a guy's head stuck in a bush and another man is screaming at him. That's excellent visually. It tells a story. I get jazzed just looking at this picture. I really like it. This picture is about 20 years old, but to me, it still holds up.

It's one of the few pictures I've ever shot, actually, that has everything in it: nice light, solid composition, and something interesting. I love the fact that this kid's hands are clenched so tightly. You know he is in pain [and not just] mentally. Lying down in a bush like that? That cannot feel good. Overall, this picture's got all the elements. Again, one of the very few I've ever done that's got everything going on.

Building from the Background Forward

- Unless something truly amazing is going on, don't start shooting until you have the background figured out.

- In a photo of a girl outside on a snowy day, the exposure, focus, and light are good, but the cluttered background—with houses, trees, and posts—spoils the photo. The problem here is to direct attention to the girl and offer just a hint of her location. Using a longer focal-length lens makes the background a little less distracting, as does shooting from a lower angle.

- In many cases, fixing an image isn't about the equipment; it's about seeing what's going on in the frame and adjusting your perspective and position to find the best scene.

Perspective

- The term "perspective" has two connotations: (1) the ordinary, meaning how we look at things, and (2) the technical, meaning how we present three-dimensional objects and spaces in the two dimensions of a photograph.

- You can use perspective to keep unwanted elements out of the frame by choosing to take a photo from a different angle. Sometimes, a unique perspective allows you to tell a different story in a photograph.

- As an exercise in perspective, pick a room in your home that you think would be a great stage for pictures.
    - Take a 360-degree look around the room through your viewfinder. Ask yourself: Which direction is the light best? Which direction is the background best?

    - Once you find a good position for yourself, bring something interesting, such as people, into the scene.

    - Take some shots at normal eye level, then get a bird's eye view and a worm's eye view. Consider the floor as a possible background for your photos.

- Most people don't think about moving around and changing perspective when they take photos; if you do, your viewers will think you're a genius!

- An aerial shot of a rural landscape is all about perspective. The two pickup trucks in the lower right of the photo serve as a placeholder and catch your eye, while the grass-covered hills undulate off into the distance. Using a fairly long lens makes the scene look tight and ensures that the trucks remain small.

The Horizon Line

- The horizon line plays an important role in the perspective you choose to take when shooting.

- Try experimenting with three different placements of the horizon line: again, at eye level, low, and high.

- As a general rule, in photos of people, keep the horizon line running through the middle of their heads. But if events are happening quickly, you may not be able to accomplish that!

A low horizon line makes the subjects appear large and imposing.

- Often, a low horizon with people in the clear above it makes the subjects look rugged and powerful—larger than life. Running a horizon line above someone's head can make the subject look small and diminished.

- In a picture of a girl on a bus in rural Alaska, the horizon line is in the window of the bus, allowing the viewer to see the village and get a sense of loneliness from the image. If the horizon line were lower, we would see nothing buy sky and the ceiling of the bus.

- A photo of men holding rattlesnakes would have been fine taken at eye level, but the low horizon line makes the men and their snakes loom large. The fact that some of the men are right on the horizon line and others are above it gives a feeling of depth to the photo.

Assignment

- For your next assignment, set up a scene and walk around it. Shoot it from the best spot with the best background and try both the bird's and the worm's eye view. If you're outside, pay attention to the horizon line if it's visible.

- Give yourself time to work out something that's visually interesting by thinking and planning before you shoot.

Suggested Reading

Latimer, ed., *Ultimate Field Guide to Photography*, pp. 93–95.

Sartore, *Nebraska*.

Homework

Walk around and shoot something from the best spot with the best background. Shoot it bird's eye view, worm's eye view, and 360 degrees.

Composition III—Framing and Layering

Lecture 11

In this lecture, we discuss framing, leading lines, and layering and look at how you can bring all these compositional elements together. Photographs are two-dimensional, of course, but you can create depth by framing and layering images to move them toward three-dimensionality, just like the world we live in. At the end of the lecture, we'll analyze three scenes of layering in detail, looking for objects that show the difference between near and far in the photos, as well as some of the other elements we've discussed, including lighting, depth of field, and perspective.

Framing and Leading Lines

- Doorways, windows, and fences can serve as natural framing devices, as we see in a shot of an elk framed by the grid pattern of a fence. If you spend a good bit of time in the car, you'll also find that windshields and rearview mirrors make interesting framing devices.

- Leading lines are naturally occurring lines that draw viewers into a photo; roads and train tracks are classic examples. Visually, viewers want to travel down the road they see. The road leads the viewer into the composition—into the frame—and helps maintain the focus on what's important in the photograph.

- A photo of cattle in an arena shows that leading lines don't have to be straight, and they can be wide or narrow. They are really just a way to get viewers more involved in the photograph. They have the same function as an arrow in a graphic, pointing to the emotional center of the picture. They help you show the viewer what to look at and even, in some cases, how to feel.

- Doorways and arches can serve as framing devices and provide leading lines. Arches in particular offer unique framing opportunities.

Bringing Composition Together

- A photo of a man building a dairy barn illustrates a number of the elements of composition we've been talking about: the framing provided by the doorway, multiple leading lines, the rule of thirds, and a broad depth of field.

- As you take more and more photographs, you'll come to realize that every picture you shoot has to take into account these elements of composition. If it doesn't—if the light isn't right or the depth of field is too deep or too shallow—the picture isn't going to re-create the feeling you had when you took it.

- When you analyze your photographs, ask yourself about depth of field, positioning of the subjects, framing, and leading lines. All these concepts come into play every time you put your camera up to your eye.

Unusual Compositional Devices

- Of course, a framing device doesn't have to be completely obvious. In a photo of a kayaker, a tree in the foreground provides intricate framing.

The doorway serves as a frame in this photo, while the trusses provide multiple leading lines.

The kayaker is basically at one end of the leading lines. This is a complicated picture, with an unusual framing device, the rule of thirds, and leading lines all coming into play.

- Windows also make interesting framing devices. Try shooting the outdoors from inside during the few minutes at the end of the day when the ambient light outside matches the ambient light indoors.

- In photography, you are in charge. Anything you can surround or envelop your subject with works as a framing device, and you can use almost anything for leading lines. In fact, one of the most interesting things you can use to draw the eyes of a viewer into a photograph is the eyes of others.
    - When a person or an animal is in the frame, its eyes need to be in sharp focus for the photo to be effective.

    - The eyes serve as connection points with the viewer. We naturally look where other people are looking, so the subject's gaze also directs viewers where to look in the frame.

    - In a photo of Boy Scouts looking at a live grizzly bear, everything is said with the eyes of one boy standing across from the bear: He looks ready to run.

- A photo taken in a home in the Atacama Desert takes advantage of bright sun reflected off reddish clay, lighting the subjects from below. The subjects aren't looking at the camera, but their eyes clearly show that they're having fun. The eyes personalize the picture and give us an instant connection.

- Focusing on the eyes in a portrait of a drill monkey conveys a sense of consciousness to the viewer.

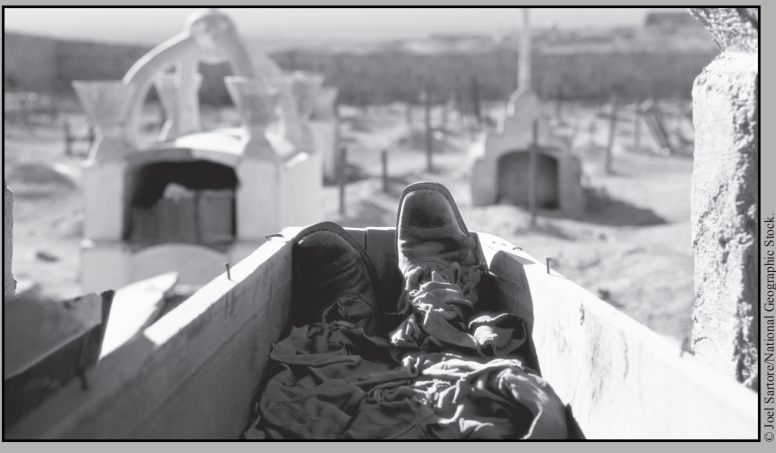
- Intentionally omitting the eyes makes the subject look mysterious or even sinister, as does having the subject keep a straight face, rather than smiling. Portraits in which people aren't smiling are often more interesting and compelling.

Behind the Lens

This is the kind of framing I hope none of you ever has to do. It's looking through a tomb—a tomb of someone who's been gone more than 150 years—at a woman's feet. See, in the desert, it never rains. So you see people—miners and miners' families—that were buried a long, long time ago—well over a century ago—and the graves have been looted, and the coffins are just lying around on the ground. The bodies are lying around. The clothing is there, the hair is there; they're mummies. It's just like they were buried yesterday….

In this case, we have a tomb that was opened on both ends already; looters had been there 100 years ago. I could literally just put my camera in one end and shoot out the other side. I could see the cemetery in the background and the old turn-of-the-century shoes, those leather shoes. It isn't lit great, but it sure is interesting. … Above all, it's interesting because it's creepy, isn't it? It's something we don't see every day.… This is well before digital, by the way, so I was using bounce flash, but I couldn't really see what that flash was doing. Now with digital, I could really craft that light. I could take my time on it for sure. Nobody's going anywhere. I could turn that flash up or down and really craft the light.

By the way, at that cemetery, that was the nicest thing I saw.



- Having a subject look directly into a camera is one way to engage the eyes, but your subjects can also be visually connected to someone else in the frame. A picture of a happy couple at a party is probably more effective because the two people are looking at each other, not the camera.

Layering

- A shot of a boy with a butterfly on his nose illustrates the idea of layering. Here, we have direct contact with the camera in the boy's eyes, soft light and a soft color palette, a blurry background of leaves, and an interesting subject—a beautiful butterfly perched on the boy's nose.

- Experiment with layering by including elements in your photo that show the difference between near and far. Try looking for multiple framing devices, such as two doorways or a window next to a doorway.

- Photography is two-dimensional, but layering and framing will help you add that third dimension.

- All of these compositional techniques help us clean up the chaos of the world and capture the feeling of three dimensions in a two-dimensional medium. Layering makes for complex, artful pictures, but it's difficult to achieve. No photographer ever believes that he or she has made a perfect picture.

Photo Analysis: Layered Scenes

- A photo taken on Main Street in Salmon, Idaho, shows the only stoplight for 100 miles in any direction; the photo was meant to illustrate the isolation of this small town.
    - The picture was shot around dawn, so the light was soft and even. An afternoon shot might have been better because the sun would have highlighted the red building.

    - Layering in the picture is provided by the stoplight, the coffee shop sign, the street, the mountains in the background, and the one person crossing the street. Again, taking the shot later in

the day might have resulted in fewer shadows and more people and traffic coming and going.

- A photo of a small town in the Atacama Desert also has multiple layers: a man on a horse, small lights coming on against a pink sky, dogs, people, and signs.
    - It's important to watch the scene build over a period of time; here, the street filled up and emptied out over the course of an hour or so.

    - Notice that the blue door makes the head of the horse pop. These are the kinds of layering elements you should think about as you observe a scene. Try looking for them at a fish or fruit market.

- A final photo shows a scene at the end of a long day of pheasant hunting. The huge bales of hay make a great background because they are subtly lit and serve as leading lines all the way to the horizon.
    - Here, we see a man leaning on the hay, with his pheasants on the ground around him, and other hay bales receding into the distance. Closer to us is a man holding a pheasant.

    - The dog's interest in the pheasant creates a moment in the photo, making the scene about more than just layering.

    - A wide-angle lens allows the viewer to see the big background and gives a nice sense of place.

- Whenever you shoot, take time to think about all the elements we've discussed thus far in the course: aperture, depth of field, and shutter speed; ambient and introduced light; colors of light and reflections; and the rule of thirds, perspective, leading lines, placement of the horizon, and layering. Be discriminating in what you shoot and be your own fiercest critic.

Assignment

- Layer and frame a subject in three photographs, but don't use a door or a window as a frame.

- Watch the eyes if you're photographing a person or animal and see if they give you any hints about framing.

Suggested Reading

Allard, *Portraits of America*.

Bendavid-Val, ed., *Through the Lens*.

Homework

Frame a subject in an unusual way using something from your house or driveway. No doorways though—that's too easy! Consider the unusual: You could frame someone sitting at a table through a napkin holder or someone grabbing a bite to eat as seen looking out from the back of the fridge (with some help from your camera's self-timer).

Let's Go to Work—Landscapes

Lecture 12

Now that we've covered the basics of camera operation, light, and composition, let's go to work and try to apply what we've learned. We'll start with landscapes, which are generally easy to shoot because they tend to stand still. Basic landscapes, whether in a rural setting, the wilderness, or a city, are extremely popular subjects for photographers. With no people in the scene you're photographing, you're limited only by the light and your imagination—you can be as artistic as you like. Of course, our goal is to go beyond the obvious, so in this lecture, we'll also look at some unusual landscapes and learn how to introduce animate elements to a scene.

Tips for Photographing Landscapes

- Get to the site early—far ahead of the prime light you hope to be shooting in—and explore. Find the best place to set up and the best possible angles *before* the light is where you need it to be. If it's a sunny day and you're planning an evening shoot, try to visualize where the shadows will be and what the scene will look like just after sunset.

- Use a tripod for photographing landscapes. In addition to allowing you to shoot with a slow shutter and a high aperture—getting everything tack sharp with a nice depth of field—a tripod also forces you to slow down and really think about how you will frame things. It allows you to concentrate on whether the scene in your viewfinder matters enough to be worth a photograph.

- If you're shooting landscapes, there are really only two times each day when the light will sing: before sunrise and around or just after sunset.

Unusual Landscapes

- An image of a road sign shows how you can use something that would otherwise be clutter in a photograph to tell an interesting story. The sky behind the sign looks threatening.

- A photo of a dog wearing a surgery collar offers a good example of the use of horizon and open space to isolate an animate subject in a landscape.

- In an open, uncluttered landscape shot in Montana, the dust kicked up by a truck tells us that we're moving. Interestingly, the dust gives us a leading line from the back of the scene forward. It also makes the antlers of the deer pop out and read easily.

- The time to work out a shot of something that happens quickly is not right when it's taking place. In the case of a fireworks photo, shooting from the audience would have prevented the use of a long lens and turned the trees into visual clutter. In this frame, though, the trees are minimized and serve to give the fireworks a context.

Composition and Landscapes

- The compositional ideas we discussed—applying the rule of thirds, experimenting with the horizon, and looking for natural framing devices—are all important with landscapes.

- You may want to use a wide-angle lens and a bit of height to show the land on a grand scale. If you're too low to the ground, the viewer sometimes loses the sense of where he or she is when looking at the photograph. An inexpensive way to get an aerial shot is simply to go up a ladder or climb onto a roof.

- Long lenses can narrow your field of view on the world, but they also compress distances, making the background look as if it goes on forever.

Layering and Light in Landscapes

- Add layering to landscapes by thinking about the foreground, the middle ground, the background, and repeating patterns.

- A photo taken framed by a muddy windshield shows a man and his horse, hay bales, snow, a building, mountains, and clouds. Even this is a landscape because it tells us where we are.

- Using a wide-angle lens and getting down low sometimes helps with layering, because it allows plants, geologic features, and other elements of your image to stand out. Again, getting down low accentuates the foreground subject, but lowering the camera also means seeing less landscape most of the time.

- Think about adding life, complexity, and movement to your landscapes to go beyond the obvious.

- Another trick to add drama to landscape pictures on a clear day is to point your camera in the opposite direction of the sunset. Everything in that direction will be awash in beautiful red reflected light. Remember, too, that bad weather makes for great light and unusual photos.

- There's no excuse for bad light in a landscape shot; remember, the landscape isn't going anywhere. Return to it in the early morning or in the evening, when you know the light will be good.

Adding even a small subject to a landscape allows the viewer to make a connection with the photo.

Behind the Lens

… I'm guilty of bad light in landscapes, too. In fact, one of my first landscape shoots nearly cost me my big break at *National Geographic*. This was really quite a traumatic event. It was my first big break; I was doing a story called "Pathways to Discovery." It was for a book on the Potomac River Trail and the highlight of it—the crown jewel—was Mount Vernon, George Washington's home. I was assigned to document George Washington's home, [so] I went there. I was wearing new clothes, and I had shined my shoes, and I had my gear. I had permission to be there, and they opened the gates at 9:00 in the summer, [so] I ran in, and I got pictures of people outside, [just] shooting away—look at that. …[T]he kids are running around outside, and I'm just really working it.

I've got it; there it is: Mount Vernon. I'm very proud of that. Then I move inside. The light of the day is getting a little harsher; it's 10:00 or 11:00, and I shoot inside, and I show the beautiful woodwork and all. [Then] I remember going into my editor's office, and he was looking at the pictures, … going through them as fast as he could. I was like, "What's going on?" and he said, "Well, these pictures, I can't use any of them." I said, "Why?" He said, "9:00 light. It's summertime; what are you thinking? 9:00 light. You go back at 5 a.m.—not 9 a.m.—5 a.m. and get it when the light is beautiful." I said, "Well, they open the gates at 9:00." He said, "You go back and get a squirrel eating a nut, or a leaf, or a guard walking a German shepherd around the place, but do something that's beautiful." I went back, and at 5:30 a.m., indeed, they had German shepherd guard dogs patrolling the place at that time and that ran two pages.

The moral of the story folks is, the editor is always right, and the pictures turned out much, much better. I needed to be working when the light was good.

- The real bonus of shooting before sunrise or after sunset is that few others do it. When the sun is just below the horizon, there are no harsh shadows; you can shoot in almost any direction you want.

Introducing Animate Elements

- It's difficult to shoot a good landscape that has nothing else going on in the scene. Even a small subject gives the viewer something to look at. Think of a great landscape as a starting point, a stage on which you hope players will appear.

- A big, epic landscape can be beautiful, of course, but actors—in the form of a rainbow, people, animals, or even patterns in the land—can enliven what might otherwise be a very quiet scene.

- You don't need to go to an exotic location to shoot great landscapes, and you shouldn't limit your definition of "landscape" to empty scenes. Challenge your idea of a landscape by adding animate elements.

- Keep in mind, too, that you don't have to shoot landscapes in the countryside; it's certainly possible to shoot urban landscapes. To build any landscape—country or city—think about the point you want to get across.

- Start with an anchor of some kind, such as a building or even a fruit stand. Scout the scene, making note of leading lines and interesting light sources. When you're ready to shoot, get close and look for opportunities to tell a story.

- Always keep your camera with you and never put off a good shot. Take your time picking your scene and focus on something that you can shoot repeatedly.

Assignment

- Shoot the same landscape, rural or urban, from ground level, knee high, waist high, head high, and overhead.

- Compare the differences in the various views. They may be worlds apart, even in your own backyard.

Suggested Reading

Burtynsky, *Manufactured Landscapes*.

Rowell, *Galen Rowell's Inner Game of Outdoor Photography*.

Homework

Shoot the same landscape from ground level, knee high, waist high, head high, and overhead. Notice the difference? They should be worlds apart.

Let's Go to Work—Wildlife

Lecture 13

In this lecture, we'll talk about techniques for photographing wildlife. Believe it or not, there are opportunities everywhere for you to practice taking photos of wildlife, from squirrels and insects in your own backyard to plants and animals in zoos, parks, and even exotic locations. In this lecture, we'll talk about setting up a blind, and we'll learn about some special techniques and equipment that will help you get close to your subjects without scaring them away.

Field Shoot: Backyard Wildlife

- One way to take pictures of wildlife in your yard is to cover an open doorway with a length of camouflage cloth. Cut a small slit in the cloth for your lens and sit quietly, waiting for birds to arrive at your feeder or squirrels to scamper around your trees. Make sure your equipment is set up ahead of time and, again, plan to shoot early, just before sunrise.

- Before you set up your equipment, decide what elements will appear in the frame. In this field shoot, the bird feeder and some fencing will be in the photographs, and the background will be lush and green.

- For this shoot, the camera was set on aperture priority and 1600 ISO (to allow a fast shutter speed); a 200-400mm lens was used to blur the background. A Wimberley head was used, which is a tripod head that pivots smoothly. These settings and equipment allow you to concentrate on shooting the animals, which may be moving quickly.

- As you shoot, don't forget to chimp—check the picture on the back of your camera to make sure it's sharp—and look at the histogram. Make sure the information isn't touching the right (right = bright), so you don't blow out any of the highlights and lose detail.

- A secret weapon you can use in photographing wildlife is a radio remote trigger, which costs about $100. With this, you can set up a camera closer to the action, place the radio receiver on top, then walk away from the scene and take pictures from a distance.

Locations for Shooting Wildlife

- Our set-up with a camouflage curtain is called a "blind" or a "hide." Many wildlife sanctuaries have public blinds for viewing and photographing wildlife.

© Joel Sartore/National Geographic Stock.

Think about photographing animals in the same way you photograph people—up close.

- Check with local nature groups to find out what kind of wildlife events take place in your area. You may be on a migratory path for monarch butterflies, or your county may be a nesting spot for rare birds. If you're near the water, you can find out where shorebirds nest or where they gather to feed.

- Zoos that feature educational animals also offer opportunities to get great photographs. Often, you can get very close to these animals, especially if they are being handled by staff members. You might also visit a local aquarium.

- If your animal subjects are in enclosures, you may have to wait patiently for them to be active. To eliminate the wire of an enclosure, use a long lens, and press it right up against the wire. In most cases, the wire in the foreground will vanish because the long lens has such shallow depth of field.

- Never misrepresent photos of captive animals as wild. Use photo captions to identify whether the situation was controlled or truly wild.

Flower Photos

- Many people shoot flowers when they start out with nature photography, and almost everyone uses a macro lens. With a wide-open aperture and a macro lens, the result is a very shallow depth of field, with only the subject or even part of the subject sharp. Often, these photographs look like watercolor paintings.

- Try experimenting with different apertures and shutter speeds when you're shooting flowers. If it isn't a windy day, the flowers aren't moving, so set up a tripod and a cable release and try using a tiny aperture and a slow shutter speed.

- Visit a botanical garden in your area to shoot photos of a variety of flowers that you probably won't find in your backyard. Be on the lookout, too, for insects feeding on plants or flowers, and remember, the closer your flash is to the subject, the softer the light will be.

Traveling to Shoot Wildlife

- When you travel to shoot wildlife, expect to do about one day of research at home, before you go, for each day you plan to spend in the field. You should find out the peak times for seeing the animals or plants you want to shoot. You also want to know what the weather will be like and how close you can get to the animals without disturbing them.

- If you've done your research, you may be able to find locations where animals in the wild are habituated to people. For example, the bears in Denali National Park are accustomed to seeing people take photographs. In many places, you can drive through wildlife parks and photograph animals that won't run away from your car.

- If possible, scout the location where you'll be shooting ahead of time, talk to other photographers who have been there, or hire a local guide.

- In field shoots, a long lens is often a must. If you can't get close to something, even a 300mm lens will be an important tool.

- You can also use a teleconverter, a device that magnifies your lens, to get closer to your subjects. Remember, if you're using a long lens, you may want to support it with a tripod. If it's dark outside, you may need a tripod and a cable release to keep the camera from vibrating when you press the shutter button.

Standard Kit for Photographing Wildlife

- It's nice to have a variety of lenses for photographing wildlife. A 14-24mm is a good landscape lens, but it can also be used with a radio remote to take pictures of animals. A 24-70 is a workhorse lens that can also be used for wildlife. A 70-200 works well for aerial shots, and a 200-400 is a good-size long lens. Longer lenses are available, but they are heavy to carry. Your kit should also include a flash and a portable softbox.

Behind the Lens

This is at Fossil Rim in Texas. [A] zebra—wow, okay! He didn't really want to do anything much. He was just kind of standing there. Most of the time, he just showed me his rear end, and so I thought, instead of fighting it, let me get out the long lens and make something out of this. By long lens, I mean this one right here, 200 to 400, easy to shoot right out the car window. I did not know that certain species of zebras had stripes on their tails, but I took an opportunity that was presented to me. He just wanted to stand with his butt to me. That's fine; I'll take a picture of a zebra butt. It's kind of cute. It works out fine. That long lens really compresses things, doesn't it? It's a good way of seeing this—compressing those stripes—just a nice, different way of doing it.

- Think about photographing wildlife the same way you do photographing people. You want to get close and have repeated access to your subject. Keep a macro lens with you because you never know when you're going to need it. Even if you're photographing large animals, you may see a great flower or insect at your feet.

Photo Analysis: Bird Series

- A series of photographs of birds taken in their habitats recalls the work of the famous wildlife artist John James Audubon. The series was taken in consultation with bird biologists to avoid disturbing the birds or their chicks.

- A picture of an eastern bluebird was shot using a radio remote trigger and a softbox. When the equipment is in place and unmanned, the birds don't react to it as something foreign in the environment.

- Cliff swallows can be found under bridges or in other places near flowing water. For this series, part of the goal was to show the type of habitat preferred by the birds.

- The photo of the red-headed woodpecker was taken in the deep forest, using a wide-angle lens on a nest cavity. The subtle light is the result of using the softbox.

- These photos are all close, well lit, and intimate; because they also show some of the context, they're true environmental portraits. All the shots were achieved by learning about the nest sites and feeding habits of the birds.

- For a picture of a Baltimore oriole, dummy equipment was left out in the open for a period of time so that the birds would become accustomed to it. Food was put out for the birds but cropped out of the picture. In wildlife photography, again, research and patience pay off; set up the equipment, go sit in a lawn chair a great distance away, and watch the scene through binoculars to see when your subjects are in good position.

- Cameras that make very little noise are helpful for photographing wildlife. You can also use a remote camera, which sends out an infrared pulse to detect animals, then shoots the picture. Such cameras are expensive, but they allow you to get exceptional photos.

Takeaway Points for Photographing Wildlife

- Show respect and care in photographing animals. Your goal should be to show them behaving normally—sleeping, feeding, playing, and so on—not running away from your camera. Both federal and state laws prohibit people from harassing animals in the wild or forcing them to abandon their nests or their young.

- Use a long lens, a wide-open aperture, and a remote to make sure your background goes soft. You don't need too much depth of field in a busy scene.

- Get close to your subjects, especially small subjects, such as frogs, turtles, insects, and flowers.

Assignment

- Shoot an intimate photo of any species of animal but not a pet. Try to get the animal close enough so that it reads easily and fills a good portion of the frame. The animal can be captive or wild, exotic or native.

- Keep in mind that wildlife photography is a lot harder than it looks. Remember to be patient and wait for a good opportunity to shoot.

Suggested Reading

Audubon, *The Birds of America*.

Mitchell, ed., *National Geographic: The Wildlife Photographs*.

Homework

Shoot a full-frame image of a wild animal. Squirrels count!

Let's Go to Work—People and Relationships

Lecture 14

Still photographs literally stop time in its tracks and help us create lasting memories of the people and events in our lives. This is really the reason that photographs become icons, too. They stay with us all of our lives. In this lecture, we'll view lots of photos of ordinary people that capture interesting moments in the "dance of life." We'll also learn tips for putting subjects at ease, finding a good stage in your home, and getting wonderful candid shots of family members and friends.

Meaningful Photos

- The power to evoke memories is often what we treasure about photographs. A picture of a woman catching snowflakes on her tongue on a day shortly before she was diagnosed with breast cancer is beautiful because it recalls a time when she was carefree.

- Another photo of a mother tending to a child's skinned knee captures a simple moment in the life of a family.

- A photo of a grandparent can be an honest representation of a life that has passed, evoking both the subject's personality and life experiences. Such photos also ensure that we won't forget the people who have been important in our lives.

Where Would We Be without Cameras?

- Photographs help us preserve our memories throughout our lives. Interestingly, the mind tends to remember things in terms of still photographs.

- This ability to capture memories is one of the reasons it's important to take pictures in your own home and of the people and pets who live there. Most of the time, those people will allow you to shoot anything you want, enabling you to get great candids.

- Of course, you shoot special events, such as Thanksgiving or other celebrations, but don't forget the everyday moments, such as kids gathering in the kitchen to help make cookies. Keep a camera close by where the action occurs in your home; set it to aperture priority with a high ISO, so you'll always be ready.

- It's much better to photograph what people are really doing than to force an activity on them. And just try to get two or three shots when a fun or surprising moment occurs; don't prolong the shoot and risk annoying your subjects.

Photo Analysis: Genuine Moments

- A photo of two sisters laughing captures a moment just after they had been caught gossiping.

- Another photo shows a young boy throwing toilet paper around a room. Shooting the picture was a better response than getting angry at the boy and ensures a lifelong memory.

Shoot anything that goes on in your house that's interesting, or different, or colorful.

- Still another photo shows a girl and her friend wearing mud masks made out of green food coloring and oatmeal at a sleepover.

- A real photographer can make pictures out of anything, even the daily grind of a household—people eating dinner, a mother helping a daughter with her homework, a boy getting a home haircut, a girl getting a quick kiss from her mother. These are the types of pictures that we sometimes just don't think to shoot.

- It's fun to capture happiness, smiles, laughter, and love, but you can photograph tears and dramatic scenes, too. Crying babies often make better pictures than smiling babies.

Putting Your Subjects at Ease

- Of course, if you live with your subjects, they're probably generally at ease around you, but if you're photographing people outside your home, it's good to smile yourself to help your subjects relax.

- It's also important not to put your camera immediately in your subject's face and keep it there. Be discriminating in choosing appropriate times to shoot.

- Learn to read body language to determine if your subject is shy or if he or she is ready for a break. Don't push a subject to take more pictures if it seems as though you aren't making a connection. You can also often tell how animals are feeling by observing their behavior.

- Try to be a fly on the wall; that is, don't interfere with your subject's behavior. The goal is to be unobtrusive; let subjects get used to your presence so that they'll behave naturally. If you interrupt the action to fix something in the frame, you risk derailing the mood of the shot. Minimize the amount of noisy equipment you use, and if possible, don't use flash.

Candid Shots and Slice-of-Life Moments

- It's a truism of photography that if you can be patient enough and keep your camera up to your face long enough, people will do something interesting. If you wait even longer, they'll do something amazing.

- Look for opportunities to shoot everyday scenes of family life—a child sitting on a parent's lap or sitting on the potty.

- As you shoot, keep in mind all the things we've learned thus far in the course: color palettes, softness of light, depth of field, composition, and backgrounds.

- It can also be rewarding to document people at work. A photo of an accountant in his office shows papers and books encircling the subject, drawing the attention to him.

- When you take portraits, try centering the subject but have something going on in every portion of the frame. Keep the background behind the subject's head simple so that the viewer's focus is on the eyes.

Behind the Lens

Crying babies, to me, make better pictures sometimes than smiling babies. Not many people think to photograph crying babies; they just don't. I tell you, when these kids grow up and you've got them throwing a fit as a baby, those are the ones that are going to [cause people to] stop. Everybody's going to pore over and marvel over [those shots] when you actually pull open the photo album, so I think about doing this a lot. Actually, as the kids get older, they really hate getting their picture taken when they're crying or misbehaving. Now, when I get that camera out on the youngest one, he hates it so much he actually behaves himself. It is a wonderful disciplinary tool, getting that camera out. They may have some sort of psychological problem from it when they're adults, but at least I've gotten them to behave a little bit once in awhile.

© Joel Sartore.

- Try to get some shots of people when they're asleep. In a photo of three sleeping children, note the soft, golden light and the classic use of the rule of thirds. Remember to work the scene—try shooting from different angles and heights.

- Look for the best stage in your home—places where the light is good, the background is relatively clean, and people come together. Shoot fast, but be aware of objects in the scene that might distract from the subjects—shelves, doorways, and so on.

- Again, always be ready to shoot, but don't overwork the scene. Take your camera wherever you go, even if you don't think you'll use it. Don't direct your subjects; just sit back and let the action take place.

- When you think about documenting special events, go beyond the standard holidays. Photograph a girl getting her ears pierced or a boy baking a batch of cookies by himself for the first time.

- The more you practice photography, the choosier you'll get about such elements as background and light. This means that both your creative eye and your photos are improving.

Assignment

- Try to capture a real emotion in a candid photo. The subject should not be performing for the camera in any way. The photo should read as if you, the photographer, do not exist.

- The emotion doesn't have to be a happy one, and it doesn't have to be from a person; your subject could be an animal. The goal here is simply to convey emotion in a real situation.

Suggested Reading

Bown, *Faces*.

Lanker, *I Dream a World*.

Latimer, ed., *Ultimate Field Guide to Photography*, pp. 130–142.

Seliger, *Physiognomy*.

Wilson, *Avedon at Work*.

Homework

Show a real emotion in a candid photo. This means the person is not performing in any way—it's as if you don't exist. The emotion can be laughter, of course, but forced grins don't count.

Let's Go to Work—From Mundane to Extraordinary

Lecture 15

Getting extraordinary photographs out of mundane situations is about thinking, seeing well, having fun, and trying to surprise yourself and others. Not many people think about taking photographs in visually quiet situations, but it's actually not difficult, and if you can get a great frame out of a bad situation, you've really accomplished something. In this lecture, we'll look at photos from some of the most boring places you can imagine—a hotel room, a hog farm, your office, and yes, even Nebraska—but we'll see that there really are no mundane situations; you can find something interesting to shoot almost anywhere.

Boring Scenes? No Way!

- Nebraska may be one of the quietest places on earth, but a photo of a wheat field there showcases some of the elements we've been talking about: an interesting framing device and horizon line and soft light.

- Another shot taken in Nebraska—a man standing before a mountain of corn—has lots of color and drama, even though the subject seems mundane.

- A photo taken at a mud volleyball game—popular in Nebraska—shows the rule of thirds at work; notice the smiles of the subjects, the pointing finger, and the puffy clouds.

- The background for a photo of a horse on its back is nearly perfect; the horse's legs just miss interfering with the people.

- Two children waving to each other at the end of the day, a statue on top of the Nebraska state capitol building, a marching band, a display of mastodon skeletons, and the Stealth Bomber—all are interesting shots taken in what some people would consider the most mundane of locations: Nebraska. The key to making a boring location or situation interesting is layering.

Practicing in Boring Locations

- A hotel room may be the most boring location you can think of, but it can also be considered a clean, uncluttered stage. The next time you're at a hotel, challenge yourself to make good pictures in your room.

- Of course, a family can trash a hotel room quickly, which may give you something interesting to photograph. Look, too, for soft light, interesting framing opportunities, and leading lines, but don't overwork the scene; go for grab shots.

- Another way to get good photographs in almost any location is to consider relationships between people. Kids get excited in hotel rooms and are likely to interact more with their siblings. Look for interesting ways to show relationships, such as the feet of an adult and a child as they watch TV.

- You can even show relationships between inanimate objects, such as a laptop set against palm trees.

If you learn to think differently, you can get great pictures of the most mundane scenes and subjects (even pigs!).

- If you get really bored in a hotel room, you can also photograph yourself.

The Marvel of Quiet Situations

- People will marvel at your work from quiet or mundane situations because nobody bothers to shoot them. You often get better results from a shoot where nothing is expected of you than a high-pressure situation where great photos are demanded.

- If you cover a small-town football game, you can have complete access to your subjects—unlike what you would ever get with athletes at the Olympics or in professional sports. You can sit with the players before the game and ride the bus with them—in this situation, there's not a bad seat in the house.
    - In the photo of the players downtown, notice the subtle light; a long lens was used here to compress distance.

    - In the photo of the players praying before the game, note the movement of the car, captured using a camera on a tripod with a slow shutter speed and a cable release.

    - On the field as the game is about to get started, the sky with its lovely pink light acts as another character in the scene.

- It's usually true that people in little-photographed places are delighted to find that someone is interested in documenting their lives.

Photo Analysis: Mundane Shoots

- Some people might consider pigs the epitome of mundane subjects, but to others, they're naturally interesting, even personable. In shots taken on a hog farm, a bit of flash helped to balance out the daylight. Again, in these situations, be on the lookout for leading lines and framing devices, and experiment with different angles and shutter speeds.
    - Adding the people who raise the pigs makes for more layered photographs, as in the shots of the girl holding the piglets. The final shot shows a tender moment between the girl and the piglet, although another figure in the photo—a dog or another pig—might make the shot even better.

Behind the Lens

Years ago, I worked on one of those *Day in the Life* photo books. Do you remember them? Big coffee-table books, where they sent teams of photographers all over the world in the same week to document a place.

They had several exotic locations on a list for me to choose from, and I could have chosen Israel, the Middle East, Russia, but then I noticed that on the bottom of the list was one location that all the other photographers had passed up. It said, simply, Flatville, Illinois. I said, "…I want that one." And my bosses there on that project were shocked. … They didn't think they'd be able to give that assignment away.

…I could've traveled anywhere in the world, had assistants and all this stuff, why would I want to go to Flatville, Illinois? I knew that if this place was flat as a pancake, the light was going to be great there at sunset. There wouldn't be any mountains to block the light. I knew it would have really clean backgrounds, because in Illinois, everything's been cleaned up for farming…. I knew the people would probably be nice, and I thought I would probably get to eat homemade pie and sweet corn…. That's a great bonus.

I went there, and it turned out it was all true. I made frame after frame that my editors liked, and the best part was there was nothing expected of me because it was supposed to be very boring. …[T]here were tons of pictures to shoot there, and I would say they were probably better pictures than if I'd gone overseas. The farm family I concentrated on was so happy. They never had any attention paid to them. They loved having me there. I had complete freedom and complete access, 24-hour-a-day access to these folks. They were very happy I was there. It was like I was a part of their family, and that was exactly what I was looking for.

… We went here from what other people thought would be mundane to extraordinary because of the access I had there. I was able to be there when the light was good, and these folks were happy to have me. It was a great experience. Now, I mentioned pie right? I love pie. Oh yes, they had pie. Do you think any of those photographers going over to the Middle East got homemade pie? I think not. I was quite happy to be there, thank you—quite happy.

- Note the angle in a shot of young women working on a pig farm; if it were any lower, the sky might be too bright. If you're working without a flash, keep the horizon line high so that you're not fighting a bright sky.

- Stick around after the shoot to catch unexpected moments; here, the young women stick their tongues out at each other as they head back to the barn.

- Photographs taken at a cattle ranch convey a bit of a feeling of the Old West.
  - Again, notice that the shot of the horses, cows, and men was taken from a high angle to try to minimize the sky.

  - In another shot, the lariat perfectly frames the rider's head. In yet another shot, the head of a black dog stands out starkly against the white snow.

- A shot of cowboys against a rainbow proves the point that there is opportunity everywhere you travel. Don't think of any situation or location as mundane.

- An office setting might seem even more ordinary than a farm, but you can find opportunities for good shots in the clutter of most offices.
  - A photo of a hand on top of a desk buried in paperwork shows that the woman is going under quickly.
  - A series of black-and-white portraits and office scenes tries to show a little something about the personalities of the people who work there. A stuffed duck tells us that one man is a hunter; an autographed football belongs to a sports fan.
  - Objects in the office, such as a tangled phone cord, a can of soda, or an adding-machine tape, also tell a story.
  - As an experiment, try to capture some personalities in your office in just 15 minutes or so. In a shoot with The Great Courses team, we see the producer, a fitness enthusiast, tossing an apple in the air; the content editor, smiling behind her mighty pen; and the steely-eyed senior director of content development, looking straight at the camera.
  - In the everyday working world, you may not initially expect to get great shots, but you can make something out of an office situation by bringing out each employee's personality.

Additional Tips for Tackling the Mundane

- If you can't find anything to take pictures of, you need to start thinking differently. Look at your everyday surroundings with an eye toward opportunities for taking photographs. Great pictures can be made everywhere and every day.

- It's also true, though, that some situations and conditions are better than others. Don't take pictures just to take them, but do try to look at the mundane in a new way and elevate it.

Assignment

- Go to the most visually uninteresting place you can think of and make an interesting picture. You can take a friend or a pet with you, so you have a subject, or you can take a picture of yourself in a mirror. Think of that boring place as a stage, and wait for something to happen!

- If you can pull off this assignment, you'll be a great photographer. It's easy to make great frames in an exciting situation, but the mark of a real professional is to shoot a good photograph from a dull scene.

Suggested Reading

Leibovitz, *Photographs, 1970–1990*.

Salgado, *Workers*.

Homework

Find the most uninteresting place you can think of and make a truly interesting picture. Remember, think of that "boring" place as a stage and wait for something to happen; wait for a character to appear.

Let's Go to Work—Special Occasions

Lecture 16

When we think about the importance of photography, of course, we think about special occasions—weddings, birthday parties, holidays, and so on. Special occasions are loaded with the moments we want to capture in photographs. In these situations, you can use the intimate knowledge you have and actually anticipate what's going to happen so that you can get even better pictures. In this lecture, we'll review tips for shooting celebrations and see some wonderful ways to share your photos.

How to Work a Special Occasion

- On special occasions, such as a wedding, almost all of your photos should be candid shots. Try to capture the small moments that seldom get photographed, as well as people enjoying themselves. Stay in the background and let your subjects behave naturally.

- Carrying minimal gear is usually optimal; bring a workhorse lens, such as a 24-70 zoom, and a flash.

- Let any "official" photographers direct the subjects, while you hang back and shoot what you can get by being a fly on the wall. If you're a friend of the participants, such as the bride or groom, try to photograph them as they get ready for the event.

- As always, look for the not-so-great moments, too—a crying child or a frustrated or nervous bride.

- It's fun to take some shots of other people taking pictures at an event—a paparazzi scene.

- Especially if you're photographing a wedding ceremony, do your homework about when and where you can take your shots. If possible, meet with the rabbi or minister ahead of time to find out whether

you can shoot during the ceremony.

- Detail shots are often nice, too. Again, at a wedding, think about shooting the flowers, name cards, rings, the "Just Married" sign, or even the bridesmaids' shoes.

Family celebrations are great opportunities to practice taking candid photos; be a fly on the wall and try to capture real emotions.

- If you're shooting a reception or other large gathering in the evening, you'll need to pull out all your low-light photography tricks. But if you use flash, keep it subdued. Bounce the flash off a wall or the ceiling, or use a bounce card. You'll often have to use a long shutter speed without a tripod, but that can be perfect for capturing a swirl of activity.

Photo Analysis: Weddings

- Often, a wedding ceremony isn't all that surprising, but the reception that takes place afterward presents multiple opportunities for great shots.
    - Here, a giant white tent offered a wonderful backdrop for portraits taken inside and out. The light inside the tent was soft and filtered. You could almost point your camera in any direction and get a good shot.
    - A beam of light on the checkered dance floor highlighted the dancers' feet.

- At any event you shoot, think about the direction of light and the background, as well as the emotions and the moments you plan to capture. Keep in mind, too, that your goal is to build a picture story, with a beginning, a middle, and an end.

Behind the Lens

As we go back to [the groom's] place, the sun comes out again, the storm passes, and we're in his garage. That works—just get a few pictures of the day showing all the people that came to the reception. These will all be valuable to them later on as they get older. [I get] another chance to do a portrait in the garage—just nice, soft light—get them together; do a quick picture. Nice shot showing the cake. Usually the cakes are very extravagant, very expensive; we want to get a good picture of that. And then I notice these logs lying around. I'm thinking, "Logs? Why are there logs?" Well, there are logs because it turns out [the groom] is an arborist and he has a bucket truck, so of course, over the great objections of my wife—why would I make him work on a day like this? He's not working; he's sending me up—still wearing his beautiful wedding suit—he's sending me up in the bucket truck so I can do this. This is unusual for a wedding photographer to get up and over the crowd, but that's his house—he built it with his own hands—and there's the happy couple and all their friends.

They can see who was there. Everybody's out there. They're all waving, and it's kind of fun. It shows where they're living; everybody's happy and young, and they're forever that age in that picture.

- If you can't clean up the background, get down low and use the sky as your background. To get different effects, keep moving as you shoot. Get closer and farther away; get down on the ground and up high. An unusual shot of a home wedding reception was taken from a bucket truck owned by the groom.

Tips for Shooting Birthdays and Holidays

- Birthday parties are probably the best opportunities to practice taking candid pictures of children.

- Before you begin shooting a birthday party—or a similar event—plan where you want the guest of honor to sit. Look for an uncluttered background. Also before the party, make sure you have a fresh card in your camera.

- Use flash when you're shooting an event that is happening indoors, especially one where a flurry of activity is taking place, such as kids opening presents. Most people think of flash just as a means of illumination, but it also freezes the action in an indoor situation.
    - You can use direct flash, such as on a point-and-shoot camera, or you can use bounce flash.

    - Angle the head of the flash up so that it bounces off the ceiling. This technique softens the light, creates a nice cascading effect, and makes the subject look natural.

- After you've gotten the traditional shots—the candles being blown out, the presents being opened, and so on—get some shots of the aftermath—the carnage on the table after the kids have eaten. The best shots often happen before or after a big event.

- Especially at a child's birthday party, you won't be able to stop the action, so be prepared to shoot whatever you can get. Think about what you'll be photographing ahead of time so that you don't hold up the celebration.

- Try to focus on the emotional center of any event, while staying aware of the background and the light. As always, vary your perspective.

- Arrive at any event or celebration early. Shoot people putting up bunting for the Fourth of July, kids putting on costumes on Halloween night, family members arriving for Thanksgiving dinner.

- And keep shooting after the main event. On Thanksgiving, for example, you may have time to work the scene as people linger at the dinner table, or you can shoot the resulting mess in the kitchen. Again, you're building a story in pictures.

- Finally, after you've gotten some shots, put the camera down and enjoy the celebration. Sometimes the camera can act as a barrier. If you want to engage with your family and friends and have fun, don't try to shoot everything. Turn the camera off and have some cake.

Common Mistakes

- Don't miss the small moments by spending all your time looking at the pictures on the back of the camera. Just check the camera once to make sure you're not blowing out the highlights, then concentrate on what's in the viewfinder.

- As we've said, shoot the tense or dramatic scenes if you get a chance, but don't intrude on delicate situations. And pay your subjects back by giving them prints they might like.

Assignment

- Shoot only candids at the next big event you go to—no subjects smiling and stiff for the camera, no people lined up like bowling pins with fixed grimaces on their faces. This also means that you can't tell your subjects what to do.

- Notice the light and determine the best direction and perspective to shoot from; choose the right lens. Aim to shoot a good-quality picture, but don't try to control the subjects.

Suggested Reading

Marshall, *Not Fade Away*.

Sartore (with Healey), *Photographing Your Family*, pp. 72–127.

Homework

Shoot only candid photographs at the next big event you go to. Act as an observer—notice the light, the direction, and the perspective, and choose the right lens, but don't direct your subjects.

Let's Go to Work—Family Vacations

Lecture 17

Piling into the car and heading out on the road is a time-honored tradition in American families and full of opportunities for picture taking. But most pictures of Mount Rushmore, or the Statue of Liberty, or the Grand Canyon, or other well-known landmarks look the same: people standing stiffly against different backgrounds that happen to be famous. In this lecture, we'll try to turn our thinking around a little bit about traditional vacation pictures; instead of posed shots or familiar views, we'll learn to shoot candids and look for different perspectives on monuments we've all seen many times.

Case Study: Shooting on Vacation

- A trip to the Nebraska state capitol building serves as a case study for some typical issues you might encounter on vacation.

- The day is cloudy and dark. A couple of sample shots taken outside don't work: When the exposure is set for the sky, the capitol building goes dark; when the exposure is set for the building, the sky blows out white.
    - But if you're on vacation, what do you do in this situation? You may not be able to return to shoot at another time.

    - In this case, you might try some architectural shots—close-ups of the building that eliminate the sky.

- The interior of the building is fabulously opulent; perhaps its most exquisite feature is its mosaic tile floors, which almost demand some overhead shots. Having family members lie down on the floor makes the shots even more interesting and fun.

What to Pack

- When you're planning to take pictures on vacation, take extra film or digital storage cards, extra batteries and a charger, your favorite lenses

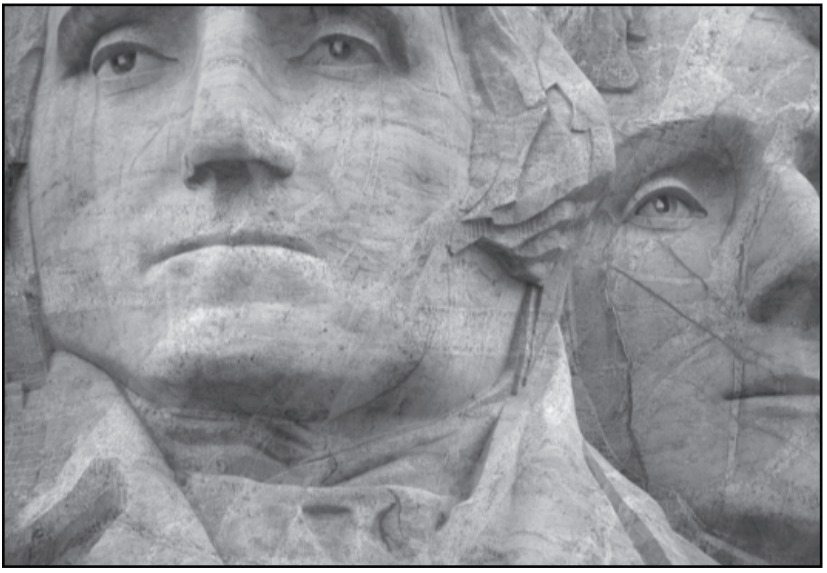
(wide to telephoto), an external flash and sync cord, and a tripod and cable release.

- Keep a list of all the gear you are taking, along with serial numbers, in case something is lost, broken, or stolen. Bring one copy of the list with you and leave one at home.

Avoiding Traditional Vacation Shots

- Whenever you're visiting famous landmarks, try to find ways to shoot them differently. For example, with such landmarks as the St. Louis Arch or the Delicate Arch, include people in the picture to give the viewers a sense of size. With Mount Rushmore, don't show the whole mountain; use a long lens to get up close and let viewers see the stone.

- As we've said before, you can sleep and eat any time, but the light for photographing is sweet only twice a day. Even on vacation, if you're serious about getting good shots, you have to get up early and stay up late.



The world is full of famous visual landmarks that we've all seen a million times; your job is to shoot them differently.

Behind the Lens

Even when I'm going on a personal trip, I'll hire a local if I'm going abroad. I'll spend my own money to do it, and that says something. For example, let's take a look at a little trip I made to Italy not long ago with my father and uncle. We went over there because we're Italian, and we got a local guy to help show us around the Sartore home country….

We went to this little, bitty town in Italy, one that doesn't have anybody, really, that speaks English. These photography friends that I'd met through the web basically agreed to take us around to the mountains up north. It was a rainy day, but we had a great time. The thing about it is not only is the language different, [but] the cemeteries look different, the food, the displays in the shops—everything looks totally different to us. Nobody speaks a word of English.

It was really important for us to get out and see the "real" villages with somebody that we knew was going to show us around very well and tell us what things meant. We could concentrate then on learning about our family's heritage—and the best places to go eat, of course. That doesn't mean that my father necessarily liked it. In fact, prosciutto? He won't touch it. We weren't going to any tourist areas, so having that guide, who could speak English as well as Italian, that was critical to enjoying our brief time there. Best of all, my guide was actually a friend, one I'd traded photo tips with over the years, so that made it a bonus. I got to spend time with him, too.

- Another good strategy for getting unusual shots is to photograph the back or underside of a monument or shoot tight shots of just one part of it. You can also take pictures of the surrounding area that people don't often see.

- There are often numerous opportunities to surprise viewers, even with pictures of famous landmarks, because such scenes are usually not worked very thoroughly. Show people a different angle; let them get a fresh look at something they've seen all their lives.

- A shot taken of the Colosseum in Rome serves as an example of an unusual picture of one of the most recognizable buildings on earth. As opposed to showing a static ruin, the photo gives a sense of the fast pace of life in the city of Rome.

- Of course, including your family in pictures of famous places also gives energy and life to your photos. Look for opportunities to show family members, especially children, discovering new things. Try shooting the back of a subject to give a photo a sense of mystery.

Vacation Photos as Stories

- Vacations offer the perfect opportunity to tell a story in pictures. You can include some traditional photos to provide context, such as the traveler shown here, smiling in front of a small group of penguins, and then follow up with pictures that are a bit more intriguing or require more craftsmanship, such as the shot in the kayak.

- Think of mini-vacations—trips close to home—as another opportunity for storytelling. You may be familiar with quirky locations near where you live, even a restaurant or lounge, where you can get unusual shots.

- A storytelling image of a place that also contains a family member represents a departure from traditional family pictures.

The Rules Still Apply!

- Even if you're on vacation, try to scope out locations before you shoot. Look for the best angles to shoot from. Don't stop thinking about seeing well or doing good work just because you're on vacation!
    - For example, several landscapes shot in Italy and France benefited from the addition of a boy into the scene. As mentioned in an earlier lecture, think of a landscape as a stage waiting for players.
    - Another shot of a girl looking out a train window is interesting because of the movement of her hair and the scenery outside the train.
    - Again, get up early to capture the good light and revisit locations at sunset, when other tourists are at dinner.
    - In other words, don't waive all the rules just because your family is standing in front of a famous landmark. And don't forget to shoot the moments that no one else does, such as your kids asleep in the back of the car on the way home.
- If you're traveling abroad, try to enlist a local guide to help you navigate the culture and take you to unusual locations or events, such as festivals. If your guide is photo-savvy, he or she may even be able to get you up on a rooftop for aerial shots.
    - To find a guide, ask friends who have recently traveled to the country you plan to visit, call a travel agency, or get in touch with a university in the area and ask for the names of students who might be willing to assist you.
    - You should also visit the websites of *National Geographic* and the Lonely Planet travel guides to get background information on the places you plan to visit.

Protecting Your Gear

- Wherever you travel, keep an eye on your camera gear. Don't leave your equipment unattended, and if you have to leave it in a car, put it

in the trunk, where it can't be seen. You might even ask your guide or translator to stand watch while you're looking through your viewfinder.

- Think about protecting your equipment from water and high humidity. You can use specialized covers or heavy-duty plastic bags. Keep a towel or a chamois handy to dry your gear off quickly if it gets wet. You can also buy desiccants to pack with your gear to dry out any moisture.

- If you're going to be doing anything over water, such as boating, you may want to buy or rent an underwater housing for your camera, or you might buy an inexpensive point-and-shoot underwater camera just for experimenting. You can then take pictures of your kids while they swim or the wildlife you see while scuba diving. The harsh, middle-of-the-day light that you generally try to avoid on land is exactly what you want for shooting underwater.

Assignment

- Shoot a very famous place but in a way that's all your own. Try walking around behind it and looking up or down; try tight shots or pictures of the surrounding area.

- Almost every city has some famous landmark or area that is often photographed. Visit that scene and work it to try to find the surprises.

Suggested Reading

Caputo, *National Geographic Photography Field Guide: Travel*.

Krist, *Spirit of Place*.

Homework

Shoot a very famous place, but in a way that is all your own.

Advanced Topics—Research and Preparation

Lecture 18

In the last lecture, we noted that doing some research about family vacation destinations would give you a better idea of where to get great photographs. In this lecture, we'll go into a little more depth on the subject of research and learn how a professional photographer prepares for photo assignments. As we'll see, good pictures take work; in many cases, the difference between a good picture and a great picture is the amount of time you put into it.

Case Study: Researching an Animal Shoot

- For a photo shoot about animals, questions to ask beforehand include the following: Where do the animals live? What are their habits? Are they nocturnal? What's their conservation status? Are there specialized care facilities for the animals?

- A photo shoot about koalas attempted to show that they are in trouble because their habitat is shrinking. On-location experts, in this case, staff members at a wildlife hospital and a koala specialist, provided invaluable information about picture possibilities that would help tell the story and generate public support for saving koalas.

- The result of not doing proper research is getting skunked, that is, showing up for a shoot and hearing the words "You should have been here yesterday."

Research Tools

- Of course, these days, one of the greatest research tools is the Internet. web research allows you to gather information that used to require weeks or months of going to the library, mailing off for brochures, and working the phone to ask follow-up questions.

- The Internet also allows you to e-mail on-location experts or video-chat with them through online services, such as Skype. Be sure to ask about

the possibility of gaining special access if you need it. Can you shoot from the top of a building or near a freeway? Can you accompany an expert to restricted locations?

- Don't be surprised if your research involves hundreds of e-mails and phone calls. You should expect to spend approximately one day conducting research for each day you'll be shooting on location.

- After you've done your shoot, make sure to share your pictures with people who helped you in the research phase or on location.

Photo Analysis: Whale Hunting

- Research for an assignment to cover whale hunting in Alaska included finding out which villages had permission to hunt whales, which village would be most receptive to having a visit by a photographer, and which village gets its allotment of whales the fastest and in the most predictable manner.

Research before a shoot in Africa led to an expert in tracking lions, who also provided information on other conservation and wildlife issues.

- The village of Kaktovik, Alaska, on the edge of the Arctic National Wildlife Refuge, is allowed by law to hunt three bowhead whales for food each year. The villagers usually get their whales in a week around Labor Day.

- Permission to shoot the butchering of a whale was obtained from the whaling captains and the mayor of the city. The shoot involved flying a small camera blimp on a tether over one of the whales to get an overhead shot of the butchering.

- Research conducted for the whale shoot also revealed that it would be possible to get pictures of polar bears feeding on the whale carcass after the butchering.

Case Study: Researching a Shoot at the Albertine Rift

- Research before an assignment in Africa included about a month's worth of e-mail exchanges with other photographers, the Ugandan Wildlife Authority, veterinarians, and others.

- Eventually, a German veterinarian, Dr. Ludwig Siefert, was located who had fitted radio collars on more than a dozen lions. He was interested in publicizing the fact that predators in Queen Elizabeth National Park were being poisoned by cattle ranchers, who were fighting to take over precious grazing land inside the park.

- Dr. Siefert identified locations where lions climb trees to stay cool and sleep all day. The outstanding results of the shoot again highlight the importance of establishing a good relationship with an on-location expert.

Permissions and Paperwork

- Before you travel, find out if you need special permits or permissions to photograph at particular sites. The ghostly lighting in a photo of a military PR officer underscores the secretive nature of a military base that, of course, required special permission to shoot.

Behind the Lens

This [photo] came from a story I was researching on Nebraska for *National Geographic*. … I wanted to photograph small-town festivals, and I hit this one in the research phase and I thought, "Holy cow, the Wayne Chicken Show! I'm going to hit all three days of this thing. This is epic."

…This festival—three days—it's all things chicken and eggs. The folks there have a great time. I knew the [Chickendale] dancers would be there, and you know what? They make for good pictures. … [The parade has] a chicken theme, of course—a guy in a chicken suit is the grand marshal—and when you get there, there's a lot of room for serendipity or things to just happen. There are plenty of chances for happy accidents.

They have a chicken flying contest even. Can you believe that? This is where a guy literally pushes a chicken out a mailbox with a plunger to see how far it will go. [They have a] favorite chicken contest [and a] chicken-mobile. There's a guy who's driving an old yellow Cadillac with a big plastic chicken on the trunk. There's a best-looking chicken contest. There's an egg-dropping contest where you try to catch an egg without breaking it. …

> The whole thing about the chicken festival is that it's visually loaded. I love things that are visually loaded. It happens at nice times of the day … when the sun is low on the horizon. How can you beat that? Are you getting this? If it happens at a nice time of the day and it's visually loaded, your odds go way up of making great pictures.

- Be persistent in requesting permission, and remember: Homework equals access. If you want to do a great job on a difficult or complicated shoot, do your homework and don't give up.

- A photo of a B-2 Stealth bomber flying over Nebraska required a year of correspondence with the National Guard and Langley Air Force Base before permission was obtained to do the shoot.

- Once you've done your research and gotten permission to shoot, arrive early and stay late. The best frames often happen at the end of a shoot, once you've seen how the light works and learned how your subject behaves. Once you have your pictures and you're sure about them, put in another card and shoot that one, too. When you think you're done, push yourself to shoot some more—that's where the great frames come from.

Preparing for Local Conditions

- The Boy Scout motto certainly applies to photography: Be prepared. Make sure you have the correct gear for the expected weather conditions where you plan to shoot, as well as a good pair of hiking boots.

- In cold conditions, wearing a hat will actually help keep your hands warm because otherwise, you lose heat from your head. If the weather is sunny and hot, pack a broad-brimmed hat, sunscreen, and water.

- Be smart about how you dress and how much equipment you carry when you're traveling to shoot; the potential for crime is everywhere. Carry less gear and don't always wear the big photo vest that says, "I'm a walking ATM."

Photo Analysis: National Three Peaks Challenge

- The National Three Peaks Challenge is a mountain-climbing event that occurs every year in the United Kingdom. Research in advance of this shoot included finding out the required physical conditioning to photograph the race—fortunately, not extensive.

- Photos taken before the event show the fire station team's pre-race rituals, including working out at the station, enjoying the kiddie rides at an amusement park, and stopping at a local pub.

- A slow shutter speed, maybe 1/15 or 1/20 of a second, and a low angle captured the movement of the team during the race.

- Photos of the team running back down the mountain at the end of the day were shot using a radio trigger and remote.

- Research before the shoot revealed the reasoning behind the race: the need to track down sheep that may have gotten lost in the mountains. Research also disclosed the availability of a train to ride to the top of the last mountain. Finally, the pre-shoot research helped in forming a friendship with the subjects.

- Staying after the shoot enabled post-race photos of the team members asleep in the van.

A Hard Lesson

- In conducting your research, don't forget to ask one crucial question: Will the subject consent to be photographed?

- You may have permission to be on location and the conditions for photographing may be perfect, but your research efforts will be wasted if you haven't clearly stated the reason for your visit.

Assignment

- Plan a shoot of an event or a site that requires special timing or access, such as a performance or a rooftop view of Main Street.

- Conduct research before the shoot. Find out the expected weather conditions if necessary and talk to the person in charge of granting access.

Suggested Reading

Ludwig, photographer, "The Long Shadow of Chernobyl."

Sartore, photographer, "Top Ten State Fair Joys."

Homework

Take pictures of an event or a site that requires special timing or access, such as behind-the-scenes access at a concert or ballet performance or access to a building's rooftop to shoot overviews.

Advanced Topics—Macro Photography

Lecture 19

There is a whole world that exists under your feet—insects, tiny plants, invertebrates, and more. In this lecture, we'll get very close to this tiny world and look at what often seem to be the alien life forms that live there. Macro photography is what lets us see into this normally unseen place. To get good macro shots, we'll discuss depth of field and supplemental light sources in detail.

Gear for Macro Work

- There are hundreds of macro photography rigs available, often customized, but keep in mind that technology changes constantly, and some of the things you'll use aren't necessarily part of the newest, most advanced systems.

- A ring light that fits over the end of the lens illuminates small subjects well. Small extension tubes help get the lens away from the body of the camera, enabling you to zoom in a bit more, even if you're using a macro lens.

- Probably the best set-up is a tripod with a macro lens and a cable release and light introduced with a flash and a softbox. You can also try a small light dome that mounts on the flash.

- If your subject is likely to move, it helps to have an autofocus macro lens, but you won't need one for photographing flowers.

Shallow Depth of Field

- Of course, close-up photos have shallow depth of field. The closer you get, the less that will be in focus in your shots.

- You can think of a macro lens as a telephoto lens in miniature for two reasons: (1) You have a shallow depth of field when you're in very close, and (2) the image is prone to camera shake and movement because

you're magnifying the subject so much. These are both factors to be careful of.

- The shallow depth of field makes it harder to choose a spot to focus on, but it also blurs out the backgrounds, allowing you to bring your subject forward and soften it. In a close shot of a bouquet of flowers, there's just a hint of color and the suggestion of other flowers in the background.

- To correct for the shallow depth of field that's inherent in macro photography, use a lot of light and set the aperture very small (f/22, f/36, or even f/45). Gather the available light with long exposures using a tripod and a cable release.
    - Steadying the camera with a tripod when you're using a macro lens is just as important as it is when you're using a larger, heavier lens, such as a 600mm telephoto.
    - You also need to use a cable release because, with a macro lens, even the slightest movement will throw your subject wildly out of focus.
    - You may even need to steady the subject itself by surrounding it with a box or a portable shooting tent.

Light Sources for Macro Photography

- The biggest challenge in macro photography is to get all the depth of field you can. If you're not working with a tripod, you need to add some light to the situation and increase the aperture.

- Among the light sources you can use are flashlights, reflected sunlight, and store-bought reflectors, especially a gold reflector. On a sunny day, find a flower, shade it, and then use the gold reflector to add soft, warm light—it almost looks like firelight in the middle of the day.

- Of course, a flash is the fastest and most reliable way to add lots of light to macro shots, and it freezes action. Flash can be a must when photographing small creatures that are moving.

- A handheld softbox with a flash will enable you to use a smaller hole in the lens and greatly increase the depth of field. It also gives off a fabulous quality of light. You can even try putting a tissue over the end of your lens to diffuse the light.

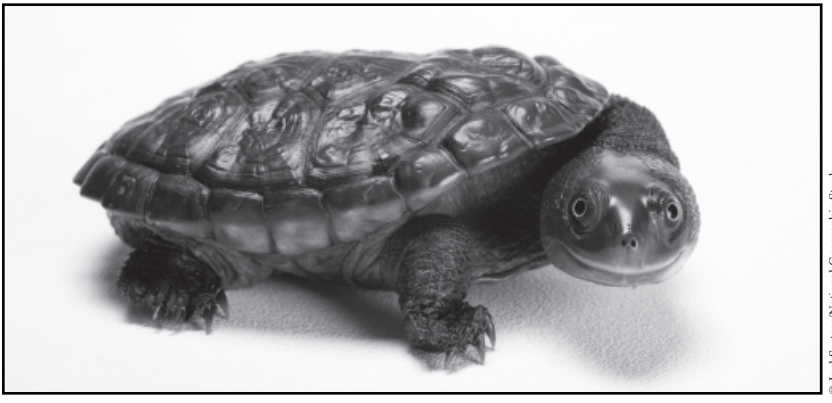
- As we've said, the closer the light is to your subject, the softer it will be. Macro photography offers an excellent opportunity to see how elegant electronic flash can be when used well.

- An alternative to a softbox is an index card or even your shirt—anything that you can bounce light off of and onto your subject.

- A ring light that fits around the lens is useful in situations where the lens itself is shading the subject.

- Consider having light come at your subject from an angle, just as you would if you were shooting a big scene. This allows you to get more shadows and gives depth and dimension to your pictures.

- Relatively inexpensive studio lighting kits are available that include a power pack, several flash heads with softboxes, and light stands. Such a kit packs easily into a suitcase and can be used for both large-scale and macro photography.



Use clean black or white backgrounds to bring out the essence of tiny subjects.

- The specific delivery vehicle for light isn't important; what matters is having enough light to give you plenty of depth of field. Put small creatures or plants against a black or white background, put the light off to the side, and shoot them with a macro lens; your viewers will see the beauty in these tiny living things.

Additional Tips for Macro Shooting

- Everyone thinks about flowers and insects when they think about macro, but you can go beyond that by shooting close-ups of parts of larger subjects, such as eyes, teeth, jewelry, or money. This technique allows you to show common things in a new and intimate way.

- In macro work, holding relatively still, both on your end and your subject's, is fairly important because there's so little focus depth if you're using only ambient light.

- A series of photos of a box of chocolates shows the effects you can get by experimenting with flash, a softbox, and a gold reflector—really

Behind the Lens

Even if it's an abstraction, think about composition always—I do. It's more than okay to experiment with abstract composition in macro work; just try different things. To me, I love getting in really close on flowers—to where you can't even tell what they are—because that's different and new and surprising. I do that all the time.… I am constantly looking for what I can do to make the world look very, very interesting right in my own backyard….

quite a simple lighting system. Especially when you need depth of field, use flash and a softbox.

- Never try macro photography in harsh light or really bright direct sun because the shadows will be too prominent. It's easy enough to shade the small subjects you're working with.

- A pair of photographs of a toad again shows the difference in depth of field and detail you can achieve by using flash and a softbox.

- Always remember that even in the world of macro, the regular rules of composition still apply. Even with little depth of field, keep your backgrounds clean. And don't be afraid to experiment with abstract composition in macro work.

- Common mistakes in macro photography include not lighting the subject well, not getting enough depth of field, and not getting low enough to be where the action is in the macro world. Whether you're shooting a turtle, a gecko, or a grasshopper, you want to be eye to eye with your subject.

Assignment

- Shoot one great macro photo at home—in your driveway, on your sidewalk, or in your yard. Try to show something ordinary or common in a remarkable way.

- For extra credit, shoot the same subject both with and without supplemental light.

Suggested Reading

Latimer, ed., *Ultimate Field Guide to Photography*, pp. 166–169.

Naskrecki, *The Smaller Majority*.

Homework

Shoot one great macro shot in your yard or on your street. The subject can be anything, but it has to be out of the ordinary for you. Push yourself: Photograph a common, everyday thing in a remarkable way.

Advanced Topics—Low Light

Lecture 20

Many photographers think of low light as the bane of their existence, but as we've seen throughout these lectures, it's often the best light in which to shoot. These days, photographers can shoot at 4000, 5000, or even 6400 ISO—gaining more than 10 times the sensitivity to light over the old 100 or 400 ISO film. That means that you can shoot in just about any light; if you can see it, you can photograph it. In this lecture, we'll learn about the technical aspects of shooting in low light and take another look at using the histogram to get proper exposures in low-light conditions.

Photo Analysis: Low-Light Conditions

- Firelight would have been almost impossible to shoot in the days of film, but here, with an ISO setting of about 2000, the people around a campfire are still and sharp.

- The aerial photos of bison were actually shot in very weak sunlight, with a wide-open aperture and a fast shutter speed.

- The photo of sandhill cranes was taken when it was nearly dark outside, and the exposure took several minutes. In the old days of 50 ISO film, none of the birds would have been sharp, and the photo would have been worthless.

- High ISOs have opened up a whole new world for photographers, enabling you to get great shots in low, lyrical light.

Technical Considerations and Equipment

- In low light, the dynamic range between the darkest and lightest items in the frame is evened out; the contrast has dropped so much that the camera can expose the whole scene properly. The camera sees things closer to the way your eyes do, allowing you to capture details even in shadows.

- Generally, your camera will warn you if you've got low light levels in your viewfinder, but you should learn how to disable any automatic flash that pops up and use only the light that's available to you.

- To shoot in low light, you need a lens that opens up wide, f/2.8 or even a smaller, f/2 or f/1.4. Prime lenses that have apertures that open up wider than f/2.8 are great. When you use that type of lens, you want the camera set on 5000 or 6400 ISO. If you know you're going to be shooting in low-light conditions, you may also want to bring a flash.

- During most of the day, the sun will overpower whatever manmade light source you happen to find in a scene. However, there is a small window of time at the beginning and end of each day when the ambient light from the rising or setting sun balances with subtle manmade light sources, such as table lamps, firelight, or light from the windows of buildings and houses.
    - Photos taken around a campfire illustrate this point. Here, the light in the sky and the manmade light of the fire balance out.

    - These shots were taken looking toward the east first, where the light would play out earlier. Then, the shoot was extended by turning around and looking toward the west.

    - In the small window of time available to you, think about the direction from which the light looks best and how long the light will last.

- In low light, remember that you're going to have a wide-open aperture and a very shallow depth of field if you want to keep that shutter speed high enough so that your subjects don't become blurry. If you have lots of depth, then you're going to need either a stock-still subject, such as a building, and a very long exposure, or you're going to need to introduce a bit of flash.

- On some cameras, the ISO will go all the way to 24,000, but the results are generally too "noisy," that is, grainy. However, camera technology is constantly improving, allowing for sharper images shot at high ISOs.

- When you dial up the ISO to 20,000+ on a high-end camera, you're telling your sensor to be very, very sensitive to the light that's reaching it, and that means it's going to be very, very sensitive to the electrical activity within the camera itself. That's what creates the background noise.

- Some post-processing programs can clean up this noise, but it's probably better to find the highest ISO you can work with that yields non-grainy results.

- Using a wide-open aperture, high ISO, and a good lens, you should be able to shoot without a tripod, even with hardly any light from the sky.

- What do you do if you're shooting in a low-light situation with a single bright spot? In some cases, the camera will read the entire field of view and average it out to give a correct light-meter reading, but in other cases, it may expose for the brightest part of the frame, no matter the overall light level. This can make the rest of the frame go dark.
    - You may like the effect of a single bright spot in an otherwise dark frame. If you don't, put your camera on a manual setting and think about what you can do to craft the shot.

    - You might shoot so that the bright spot isn't in the picture, or you might try for a tighter shot, where you have, for example, just the subject's face and some candles filling the frame. You might also try to block the bright spot with a person or an object.

    - Experiment with the situation. Open the aperture and try different shutter speeds.

- Remember, when the light is low, the shutter speed is slow. Even the action of your finger pressing the shutter button can generate enough camera shake to blur an image. To solve this problem, use a tripod and a cable release, or increase the ISO to get a faster shutter speed. If your subject is slow enough, you may be able to set up your camera on

something stable and use the self-timer to get a shot. That way, you can get in the picture, too!

Using the Histogram

- If you're shooting digitally in low light, check the screen on the back of the camera to make sure the image is sharp.

Behind the Lens

Now, this [photo] actually ran in *National Geographic*…. Some branches—some treetops actually—are blocking [the sun] a bit, plus you can tell that my aperture is greatly restricted in the lens by the way the sun is throwing around this kind of star pattern, or these rays. That's an indication that a lens is stopped down fully, meaning the lens has the smallest aperture hole possible—tiny, tiny—resulting in this nice constricted spot of sun. I did shoot a lot of frames with the sun not in it because I found the hotspot to be distracting, [but] I realized that I could also use it as another compositional element. I left it in, and this is the one that ended up in the *Geographic*… but it was a matter of taming the sun there. It was a matter of really controlling it and getting the sun so it didn't overpower everything.

- If your camera is on an automatic setting and you don't have the exposure compensation dialed down enough, the camera will try to open up everything and make the scene look like broad daylight. The camera meter wants to make the picture super-bright and vibrant.

- To avoid this, switch the camera to manual and check the histogram to make sure some information remains on the left of the graph (the dark side).

- The histograms for a series of portrait shots taken in low light show how the screen looks for under-, over-, and properly exposed images.
    - With an underexposed image, the histogram is skewed to the left, and there are very few details to the right of the centerline.

    - With an overexposed image, the right side has no highlight detail—it's blown out.

    - With the properly exposed image, we see plenty of detail to the right of the centerline, but nothing touching the right. The graph touches the left side a little, but that's acceptable for this frame.

Painting with Light

- Nighttime shooting offers numerous opportunities to be creative. Use long exposures to paint with the light, or experiment with shorter shutters.

- Try different light sources, such as a flashlight or headlights from a car.

- Don't give up too early if you're shooting at night; great light happens well after sunset.

Assignment

- Go outside, face east, and shoot a picture so long after sunset that the light is almost completely gone.

- Feel free to add light sources to get different effects.

Suggested Reading

Cook and Jenshel, photographers, "New York's High Line."

Richardson, photographer, "Our Vanishing Night."

Homework

Go outside at sunset, point your camera anywhere but west, and shoot a picture so long after sunset that the light is almost completely gone. Feel free to add additional light sources—firelight, taillights, spotlights, and so on.

Advanced Topics—Problem Solving

Lecture 21

As photographers, our task is to go out into the real world and make order from chaos, shooting beautiful pictures in the process. This can seem like a difficult assignment at times, especially when you're forced to shoot in harsh light or against a cluttered background. But in fact, all the elements we've been discussing in these lectures—composition, light, and interesting subjects—are tools you can use to solve visual problems. In this lecture, we'll look at some typical problem situations and see how we can apply what we've learned to cleaning up these situations and getting great shots.

Case Studies: Harsh Midday Light

- The goal of a series of photographs taken in Mozambique was to highlight the dignity of the local people and show the mountains where they live. The shoot took place at midday, when the light was harsh.
    - The first step in getting a good shot was to move the group of people into the trees. Then, a softbox and flash were used, and the background was purposely underexposed.
    - Underexposing the shots made the light more subtle and brought out the colors in the scene.

- On another shoot, this one of a "bio-blitz" (a rapid assessment of an area's plant and animal species), the sun was again shining brightly. To compensate, one photo was shot through a plastic bag and underexposed dramatically. Another was shot with the subjects in deep shade.

- The problem of midday light in a shot of a black-headed oriole was solved by using a 70mm lens very close and an aperture setting of 2.8. In this situation, you might also use a macro lens to get the same blurring effect behind the bird.

- As we've said, it's also possible to put the subject in shade and use your flash. This approach gives you a wide depth of field.

- Remember, a great picture needs three things: good light, good composition, and an interesting subject. Sometimes, just one or two of the three are present, and your job is to figure out how you can get the missing elements.

Urban environments represent the most difficult task in problem solving; look for interesting subjects and think about how you can clean up the background.

Easy to Complex Situations

- Antarctica might be one of the easiest places on earth to make good pictures; it offers clean backgrounds (no telephone poles or vans driving by); soft, overcast light; and gregarious animal subjects. You can point your camera in almost any direction in such a location and get a good shot.
    - Even in a dream location like Antarctica, however, you need to think about horizon lines and framing.
    - You also want to go beyond the obvious and show big, deep scenes, with plenty of depth of field.
    - If you find yourself in Antarctica or a similar environment, look for layering opportunities, as well—interesting animals in the foreground and middle ground and beautiful scenery in the background.

- Rural America represents the next level of complexity in problem solving. There aren't too many distractions, but you start to see elements that can muddle your images, such as roads, fences, train tracks, or buildings.

Behind the Lens

This snowy road is in Yellowstone National Park…. I was out there looking for gray wolves, only there were no wolves to be found that morning—or any other—[during] my first two or three weeks out there. Talk about nerve-wracking! I was actually on assignment, [and] I couldn't find wolves. I'm doing a story on gray wolves, [so] that's a problem. I took pictures of whatever else I could find, out of nervousness, I guess, in this case, bison.

I really like the way the road takes you to him, literally leading, and the fact that the bison fits perfectly right there on the road, his horn fits in there. I like the way the road frames him a bit. I like that this is a nice stage with one player on it—a player has appeared and the road takes you to it. The bison is a little bit of a payoff, visually.

I remember it was 30° below zero that morning, and my assistant, Nathan Varley, had made excellent sandwiches that day, and that was the high point. We did get our wolves, but it was three weeks of waiting it out. We did eventually get the wolves, and that was lovely. Out of eight weeks of being in the park, by the way, we got about 20 minutes of being with wild wolves, but it was enough to do the story. I guess that's one of the reasons I love still photography so much. A

picture, like a good song, can immediately take you back to a time and place when something excellent or exciting was going on, maybe just the bone-chilling cold. It got to 49° degrees below zero one time out there, and I had to go to the bathroom. That was really bad. But these pictures remind me of a place and a time when I was very happy and much younger, so that's all right. Pictures do that for us.

- The primary problem with most images is compositional, but in this course, we've learned how to look at water towers, phone lines, and the occasional pickup truck as potential compositional elements that can be used to our advantage.

- Instead of letting a fence ruin your picture, use it as a framing element. Or change the background by walking around your subject and shooting from different angles. You might even try using panned action to eliminate a cluttered background.

- Again, the beauty of a digital camera is that you can see immediately whether or not you're getting the effect you like. If not, keep experimenting.

- The ultimate task in problem solving—and one that many of us have to deal with—is producing great pictures in a city. In an urban environment, a photographer has to fight to find a clean window in which to shoot.
  - Think first about what you want to show. A street festival, for example, offers lots of possibilities for capturing light and color. In a city like New York, you might try shooting an urban icon, such as a taxi.

  - It's important to note that cities have tall buildings that shape the light and shadow at all times of the day. Skyscrapers can provide dramatic darkness and reflection in your images.

  - When you're shooting in a city, the number of choices you have can be overwhelming. It's important to be discerning and

selective in what you shoot. Try putting the city itself in the background of the scene, as in the shot of the cocktail party on the boat. But with a shot like this, choose the camera height carefully. You don't want a cluttered background interfering with the heads of your subjects in the foreground.

- Whenever you pick up a camera, for any reason, think about composition, background, the placement of the horizon line, the shadows and highlights, and so on. Even in a city and even with all those elements in place, you still have to come up with an interesting subject. Here, for example, we see a woman wearing an imitation Dalmatian-fur coat and walking a Dalmatian, a street prayer meeting, and a view from the stands at a baseball game.

- Think about what people do for fun in your city or something your city is known for; then go to that location and try to capture the energy. A basic truth in photography is that if you want your pictures to be more interesting, you have to stand in front of interesting stuff.

- A city often seems like an electrified beehive. An aerial shot showing the Customs House in Boston tries to capture that feeling. The exposure here was perhaps 10 seconds or so, resulting in an image in which the lights from cars seem to flow like a river through the city.

Assignment

- Look back over some of the first pictures you took during this course and try to identify some visual problems you encountered.

- Now, return to one of the locations, rethink the situation, and shoot some more pictures. Work out the visual problems until you're satisfied with the picture.

Suggested Reading

Communication Arts magazine.

Vesilind, *National Geographic: On Assignment USA*.

Homework

Look back over some of the first pictures you took during this course. Chances are, you'll notice visual problems you were not able to overcome. Go back, rethink, and reshoot one of those situations until you are satisfied with the picture.

After the Snap—Workflow and Organization

Lecture 22

Just like all the other elements in photography, organization and workflow after the images are shot require careful thought from the photographer. Whether you're shooting film or digital, you'll need a system to organize your pictures. In this lecture, we'll go step by step through a system for downloading and storing your images and briefly discuss the process of "toning," that is, touching up your images on the computer so they look just like they did when you took them.

The Hidden Costs of Digital Photography

- In the days of film, most photographers stored their negatives in plastic sleeves in three-ring binders, perhaps with a date on the spine of the binder. Slides were often stored in boxes or in file cabinets, preferably in a cool, dry room. If the atmosphere wasn't damp, such negatives and slides would be readable even after 25 years.

- Today, with digital photography, we shoot flash cards instead of film, and we can tell immediately whether or not our pictures are exposed properly. This instant feedback is great, but it doesn't come without a cost.

- Instead of cardboard boxes, our pictures are now likely to be stored on a server, on an external drive, or on DVDs. All these advances in storage technology are far more expensive than three-ring binders or cardboard boxes, and we don't yet know how long into the future they will last.

Organization

- Whether you're shooting film or digital, organization is critical to being able to find your pictures months or even years later.

- When you have a full flash card, write your name, e-mail address, and phone number on the underside of it and insert it with that side up in the card wallet. That means the card has been exposed but not yet downloaded. You might also store cards in color-coded wallets.

- Develop a consistent, logical system for filing your images and stick with it. Create folders on your computer for images and make sure the name of each folder includes a date and a subject name. It may also include a coding system to indicate whether the images were shot for personal use, as part of an assignment, or for a client. In the file name for each image, include the same date and subject name, along with a sequential number.

- If you shoot lots of pictures, a system such as this will help you know where to look if you need to go back to the original shoot or find a near frame. It's not difficult to organize and find pictures using this system, but it's nearly impossible to find images if you don't develop some organizational system and use it consistently.

- Most image organizational software, such as Photo Mechanic, will name, ingest, and caption images automatically.

- Make sure your system is easy for you to use. If you have to manually drag the digital files from one shoot into 50 different folders to categorize them, you're likely to get bored of that process in a hurry. Instead of using folders, think about tagging your images with categories and then searching them using an image organization program.

What Makes a Good Caption?

- If you've ever taken a journalism class, you know about the five W's: who, what, when, where, and why. Good captions list all of these for a given situation.

- Always include a date in your captions. If you can't pin down an exact date, at least include the year.

- An uninformative caption for a photo of cowboys might read simply: "Cowboys in Brazil's Pantanal Region." The caption is accurate, but it tells us very little about the image.

- A good caption for the same image might read this way: "November 15, 2005. Cowboys, known locally as *pantaneiros*, ride horses to round up

livestock in Brazil's Pantanal region, about 100 kilometers south of the town of Campo Grande. The Pantanal is a seasonally flooded marsh, often compared to the Everglades, but in South America."

- Type your caption into the computer at the end of a shoot and ingest it into each of the pictures. You should also try to include contact information in your caption, such as the name, phone number, and e-mail address of the person who owns the land where you shot or helped you arrange the shoot.

- If someone wants to publish one of your pictures at a later date, the caption gives context that may not be apparent in the photo. Don't be afraid to include lots of information in your caption; you type it in once and it automatically goes onto all your pictures upon ingest.

Backups

- Digital files can be duplicated with just a couple of mouse clicks, so there's no excuse not to have at least one backup of your best images.

Although you should always strive to get the shot right the first time, it's expected that professional photographers will make minor adjustments to the color, contrast, and exposure of digital images.

- If you're shooting film, get your best images scanned and keep the scans in a safe place. If you're shooting digital, have a drive of the files you work from and a backup drive that is updated regularly.

- If possible, keep two backups, one on-site and one in a safety deposit box or at the home of a friend or relative in another town.

The Download Process

- Get in the habit of downloading full cards at the end of every day of shooting. Once a card is full, store it underside up in the card wallet, so you know at a glance whether it is full and needs to be downloaded.

- Whenever you get a break from shooting, ingest the photos you've taken. The ingest process involves copying the photos from the compact flash card to your computer's hard drive and backup drives, adding captions and other pertinent information, and renaming the files. Most image management software allows you to do this all in one step. A typical ingest process includes these steps:
    - Plug the camera into an external hard drive and put the compact flash card into the card reader. Using an external drive allows you to make two copies of the images at once.

    - Open the image management software and select the ingest option. If you're on a field shoot, use the batch-caption option to type in one long caption for all the images you've shot that day. Later, you can use the information in the long caption to create more specific captions.

    - Double-check to make sure the folder and file names match and are correctly formatted. Then, click the ingest button. In just a few minutes, the images on the card can be downloaded, copied, captioned, and renamed, all at once.

Toning and Image Manipulation

- Every time an amazing photo appears on the Internet, someone insists that it has been manipulated, and many have. Digital technology makes

manipulation easier, but fakes have been around since the days of the darkroom.

- As we've said several times in this course, it's better to think about shooting a good image in the first place, rather than spending hours tinkering with images on the computer.
    - If something needs cropped in, you should walk closer to it in the field or use a longer lens. Move around the scene as you shoot to find the best light, or wait until the light improves.

    - An extra hour or two spent in the field practicing techniques you've learned in this course will improve your photography far more than the same hours spent in front of a computer pushing pixels around.

- That said, most professional photographers do make minor adjustments to the color, contrast, and exposure of their digital images before shipping them off to their editors or printing them. Professionals set their cameras to capture the maximum amount of information, and that results in an image file that can be used in a variety of ways. It also usually means that the images may need a little adjustment to look their best in any given medium.

Behind the Lens

If you want to ensure that you'll be able to view and enjoy your photos years from now, this backup routine [is] critical. I cannot stress this [enough]. Do not learn the hard way, like I did when I was starting out. Hard drives fail; basements flood; disks, optical disks, CDs, DVDs—they get scratched and they are not readable. It's not a question, really, of if but when. Just as you wouldn't go on a shoot without an extra camera battery, do not trust your files ever to a single hard drive or a single type of storage medium. We save things in triplicate back in my office, maybe more, depending on how rare those pictures are.

- If you're trying to achieve a specific look in your pictures, you can automate the adjustments with a custom profile in your camera or with batch actions in your software.

- A series of photos of an iceberg shows the difference a few touch-ups can make.
    - The first image looks a little washed out—definitely not what it looked like when the image was taken. In a scene like this, the eyes and brain expect to see true black—clipping, in other words, on the left side of the histogram. When that black is not present, the image looks washed out and bland.

    - Image software can correct this problem by clipping the blacks. The software can also eliminate dust spots that show up in an image from a dirty sensor.

    - This process is called "toning." It is generally accepted—and even expected—that images taken by professionals will be toned to make the scene look the way it did in real life. The colors will be punched up, the contrast will be adjusted, and so on.

Archiving

- Digital photography is a wonderful development; it allows you to experiment in ways that might never have been possible with film. But as we've seen, it's more expensive and complicated to store digital files.

- It's also true that digital images may not be archival; that is, they may not last for 75 or 100 years. In fact, the only way to make sure an image will be seen by future generations is to put it in a format that doesn't require a machine to read.

- The easy solution to this problem is to make prints for photo albums, just as you've probably been doing all your life. Print your photos on archival paper and keep them out of the sun. There are even services now that will print and bind a photo book for you (see bibliography).

- If you have prints made, ask your printer to use archival materials and methods. Display your images under UV glass and don't hang them where they'll be exposed to direct sunlight.

Common Workflow Errors

- The most common mistake people make when it comes to workflow and organization is not being organized in the first place. Develop a system that works for you, including a naming structure, and stick to it.

- Also make sure you know which cards are full, and don't delay in downloading them.

Assignment

- If you're shooting film, organize your negatives at least by year.

- If you're shooting digital, label your images with the date and subject, and make a backup drive of all your work.

Suggested Reading

Bendavid-Val, Delaney, and Mulvihill, *National Geographic Image Collection*.

Krogh, *The DAM Book: Digital Asset Management for Photographers*.

Sartore (with Healey), *Photographing Your Family*, pp. 128–171.

Homework

If you're shooting with film, organize your negatives at least by year. If you're shooting digital, make a backup drive of all your work. Label your images by year/month/day and subject.

Editing—Choosing the Right Image

Lecture 23

In this lecture, we'll go through several groups of images to see if we can choose the best photos from a shoot. Just like good shooting, the editing process takes time and practice. You first eliminate the bad images—those that aren't sharp or well lit—then look for subtle distinctions that make one photo stand out from the rest. As you're sorting your images, you'll develop an eye for good lighting and composition and, of course, an interesting subject. In the end, this process will make you a better photographer, highlighting where you can improve on your next shoot.

Sorting Images

- Earlier, we saw a photo of a lion in a tree at sunset, but of course, not all of the images taken on that shoot were as stunning as this one.
    - First of all, getting the shot required waiting many hours for the sky to darken, as well as experimenting with the composition—going in tighter or framing from different angles.
    - In the final shot, the spotlight is a little bright, but the lion is quite visible in the tree, not blocked by shadows or branches.
- Another set of images—aerial shots of crater lakes in the Albertine Rift of Uganda—also illustrates the process of sorting images. In the last image, the color is good, the horizon is straight, and we have a wide field of view. Getting closer to the lake allowed an additional shot of Cape buffalo crossing its surface, their trails forming a graphic pattern in the water.
- Both of these shoots offered a healthy number of frames to choose from and covered the elements we've talked about—interesting subjects in nice light.

- Keep in mind that it's hard to find a truly beautiful image if the frame was never taken in the first place. If you find yourself in a visually loaded situation, shoot heavily.

Case Study: Picking the Best Image

- A shoot documenting mountain goats in Glacier National Park started with some research to learn the habits of the animals and where they might be seen. In the summer, these mountain goats migrate to lower altitudes to lick salt off rocks.

- As the mountain goats appeared, a variety of shots was taken—panned action, tight, loose, vertical, horizontal, and so on. Soft light, interesting subjects, steep surfaces, and craggy rocks combined to make this a visually loaded situation.

- One frame with a mother and baby and another with three goats look promising; the texture of the coats of the animals matches the rocks, and the overall scene is very graphic.

- Additional shots show a mountain goat in an incredibly precarious position. Again, multiple shots were taken, with the goat centered, with more space above and more space below, wider, with different framing, and so on. A shot with more space underneath the goat dramatically conveys the danger of its location.

- Comparing two similar shots of the goat also helps to identify which shot is better. The "keeper" image shows the goat's face a little better, and the positioning of its hoof implies the grace of the animal. The framing of the shot includes a good deal of vertical space underneath.

A Mental Editing Checklist

- When you're editing, you'll probably want to make at least two passes through all your images. On the first pass, eliminate any images that aren't sharp, especially if the eyes of the subjects aren't sharp.

- Also check the exposure on the first pass. In general, eliminate any shots that are too dark or too light. But if you have a frame of something really

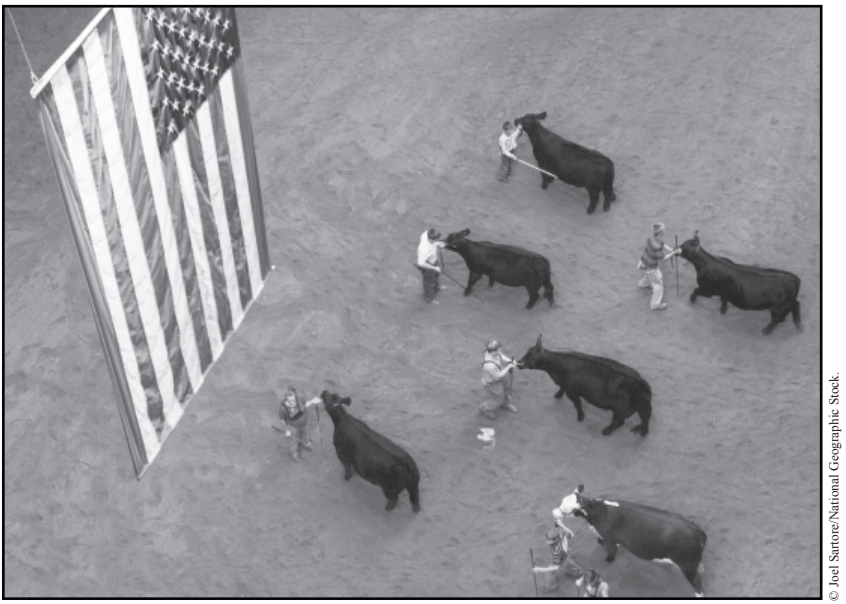
special that's dark, don't discard it right away. You can often digitally render a nice image out of a dark picture.

- Keep in mind, though, that it's usually worth correcting an image digitally only if it's very valuable, for example, a photo of a grand old building that has since been demolished.

- In most cases, it's better to shoot the image correctly in the first place or go back and redo the shoot.

- You'll probably keep most images from a shoot, even if you don't select them as "winners." Simply save them to your storage media and hold on to them.

- Once you've made a first pass through your pictures and eliminated the soft or poorly exposed ones, then you can concentrate on finding the best images.



An aerial view begins to show possibilities for capturing patterns on the floor of a state fair.

- With digital technology, many pictures these days are technically fine but lack a truly interesting subject.

- When you're looking for keepers, ask yourself if your photo passes the "Hey, look at that" test. In other words, would you call someone over to view the scene if it happened outside your window?

- If you're still stuck trying to find the better of two seemingly equal photos, trust your initial reaction to the pictures.

Photo Analysis: State Fairs

- A series of shots taken at state fairs illustrates the photographer's thinking in the editing process.

- The series begins with photos of livestock owners who must sleep at the fair overnight to tend their animals. Some of these images could be improved by using a longer lens.

- At another state fair, getting a higher view improves the shots, but some of the early images still show a lot of dead space. The aerial view, however, presents possibilities for capturing patterns in the scene. Patience pays off as more and more cows come in to view and parade in circles past the judge.

Photo Analysis: A Portrait

- Again, we follow the thinking process in a series of portrait shots of a man in front of his historic home.

- The first shot is underexposed but can be brightened up on the computer. Still, the chimney seems to be coming out of the subject's head, and there's too much sky in the picture.

- With a longer lens, some of the house remains in the image, but there's too much depth of field, and the gutter line seems to split the subject's head in half. With an even longer lens and a tighter shot, the house is lost.

Behind the Lens

I was on assignment for [*National Geographic*] in Uganda, and I was there for months. I had an assistant there running camera traps, as well. We would set these cameras along water holes, game trails, and carcasses, and we got lots of really intimate shots: leopards coming down off Cape buffalo at dusk…, hippos at waterholes glowering at the camera…, hyenas lounging around a den at night. We really, I thought, did well.

In the end, *National Geographic* used about 6 pictures out of that entire coverage of 30,000 frames! Six pictures from the two of us working there for months and months. That's tough, isn't it? I mean, they were good pictures that were used—don't get me wrong—but 6 out of 30,000! You better have a tough skin if you work for *National Geographic*. [On the other hand,] *National Geographic* was delighted. They were very happy with the coverage. They'll employ me again. It looks like I'll live to shoot another day.

My point is in all this: At *National Geographic*, we are not afraid to really hone our edit down to only the very best. You shouldn't hesitate to do the same. Maybe not that drastically, of course, but you need to be fairly brutal in your edits nonetheless. Bad photos and a lack of editing are [among] the reasons that slide shows have gotten such a bad rap as a snooze-fest over the years. [But] you can avoid falling into the same trap.

- With a 70-200mm lens and a change of perspective, the subject stands out against his home, and the columns tell us that the home is an older one. Moving around to find the right frame for the subject makes the photo even better.

Common Editing Mistakes

- Perhaps the biggest editing mistake you can make is not being critical enough of your own work. Be brutal on yourself, and if you can't be, find a friend with a good eye whose judgment you trust.

- With digital technology, we shoot a lot more pictures than we ever did with film, so it's important to be discriminating when you edit. A good photographer can probably find problems or room for improvement in almost any shot. The editing process will make you a better photographer because it shows you what you missed in the field and what to address on your next shoot.

- When you're narrowing down your pictures to find the best shot, put yourself in the editor's shoes. An editor doesn't care how hard you worked or how far you traveled to get a picture. What matters is a well-crafted image.

Assignment

- Do a complete edit from one day of shooting. Start by making a rough selection, eliminating bad shots, and noting possibilities for keepers.

- Narrow your images down to one picture per situation, view, or direction. From a full day of shooting, choose 20 pictures or even fewer. Finally, see if you can find your favorite picture from that day. This exercise will make you a better photographer.

Suggested Reading

Abell, *The Life of a Photograph*.

Lubben, ed., *Magnum Contact Sheets*.

Homework

Do a complete edit from a full day of shooting. Start by marking rough selects, then selects, then primes—the real keepers. Narrow your choices down to one picture per situation or one picture per view or direction. If you've had a really big day of shooting, narrow the selection down to 20 pictures, 10, or even your favorite single image.

Telling a Story with Pictures—The Photo Essay

Lecture 24

The ultimate use of photography is to tell a great story—one that moves people, perhaps simply to smile or to do something significant, such as save the planet. Photo stories are the highest calling in still photography. Thus, it's fitting that our last lecture is devoted to telling stories with pictures. We've learned how to shoot and select good frames; now, we'll find out how to put them together to build a photo essay.

Elements of a Photo Essay

- A wide variety of light, situations, lens choices, and above all, storytelling moments are at the heart of any good photo story. Whether you're putting together a photo essay, a web gallery, or a vacation slide show, getting your images in the right sequence and edited well can elevate your work and grab the attention of your audience.

- Of course, putting all these elements together takes time. Great moments happen in front of your camera only so often, so you have to be patient. The perseverance of the photographer plays a significant role in determining the end results.

- Photo stories, no matter what their final format, should have a great deal of variety; be well executed; and should have a beginning, a middle, and an end. In other words, you'll be shooting and editing a lot of pictures to pull this off well, but the result will be well worth your time.

Alaska's North Slope

- A good photo story starts with a wide or an establishing shot of some kind, something that feels like an opening. It should grab the viewers' attention and let them know right away what the story is about. Give your viewers a sense of the place where the drama of your story will unfold. For a story on Alaska's North Slope, an aerial view establishes the setting as rough and rugged.

- Next come the detail and intermediate shots: caribou crossing a road in traffic, a worm's eye view of cotton grass, and some shots of scientists putting leg bands on geese. These images work together to give a sense of place.

- All these photos prop up the "money shot": a polar bear feeding on the carcass of a bowhead whale.

- A good ending for this photo essay was a shot of a rainbow over a caribou antler.

For a photo essay, choose a subject that you care about deeply; you may be working with it for months or even years.

Leech Lake, Minnesota

- A photo story of a yearly family vacation taken at Leech Lake in Minnesota begins with a couple of scene-setting shots: a lyrical shot of the woods and some ducks on the lake.

- Next, a few people are introduced: a boy in a kayak at the last light of day and a woman on a boat dock. A particular tree by the lake with a tremendous bend makes for an interesting subject in different kinds of light and with and without people climbing it or swinging from it.

- Notice that the photos are presented in a sequence that is similar to cars on a train. We started with a few photos of the lake—that's the lake car; then we switched to land with a few photos of the tree—the land car. The cars might be linked by a similar quality of light, such as the light of sunset, followed by soft indoor light in the evening or firelight.

- A photo of a mayfly on a screen door shows us that we're back outside the next morning, ready to go fishing. The light is now bright and colorful.

- It's interesting to include portraits in a photo essay to add visual variety to the story.

- The return of sunset signals that the story is coming to a close. The shot of two girls waving serves as the final picture in the story. A closing picture should give a sense of completion and provide a strong ending to the story.

- Your family members may be the best subjects for beginning photo essays because you have almost constant access to them and can take many photos to document your lives together. Think, too, about the richness and variety of situations you can find to shoot around your hometown.

Photo Stories v. Photo Essays

- A photo story has a fairly obvious beginning, middle, and end. It could be shot over the course of a weekend. A photo essay is a collection of images centered on a theme. Its storyline may be less obvious, and it may combine fine art with storytelling.

- Whether it's your family or something else, choose the subject for a photo essay carefully. You want something that's physically close to you, so that you can work it repeatedly over the course of months or even years. Choose a subject that you care deeply about, because you will be spending a great deal of time with it.

- The point of a photo story on an endangered bird species is to increase awareness of the animals that could be lost if humans continue to take over their habitats.
    - The story begins with a shot of a stuffed ivory-billed woodpecker, a species thought to have gone extinct in the 1940s.

    - Next comes an establishing shot of the spot on the Cache River in eastern Arkansas where a sighting of the woodpecker had been reported.

    - An intermediate shot shows biologists out in the cypress swamps looking for the bird. The dappled light gives the viewer a real sense of being in the woods.

- Detail shots include a prothonotary warbler coming out of its hole and a water snake trying to swallow a catfish in the mud.

- Given that the bird may no longer exist, the essay includes shots of other woodpeckers, as well as photos of the local diner and woodpecker decoys.

The Biodiversity Project

- The Biodiversity Project is an extended series of animal portraits meant to highlight the value of these creatures to our world.

- Some of the species photographed now exist only in zoos, so it's important to document them for posterity. The goal of the project is to pique the interest of viewers and entice them to learn more about these animals.

- Not only are the animals photographed inherently beautiful and valuable, but they may hold the keys to important scientific or medical discoveries for humans.

- All of these photos take into account the elements of good photography we've discussed throughout this course: leading lines, clean backgrounds, the rule of thirds, interesting subjects, and beautiful light.

- Some of the amphibian portraits are of the very last representatives of the species, but the good news for many of these animals is that they can be saved. The goal of this photo essay is to make people care enough to visit a local zoo or aquarium and perhaps contribute to a captive breeding program for endangered species or a habitat protection program.

- So far, this essay includes photos of more than 2,000 animals, and it's likely that it will never end. Having said that, make sure your essays include images that won't go stale. The mark of a great essay is its ability to make us want to return to it again and again.

Behind the Lens

And so, my friends, that is it. It is up to you now, really. The training wheels are ready to come off, [and] you're ready to ride off into the sunset. That would be a good closing picture, wouldn't it? When you do, I will be standing right behind you, encouraging, smiling, cheering, and rooting you on.

A final thought: I've said it before, but photography freezes time, something nothing else can do. How lovely is that? That's a great thing. So think of the things you've learned throughout this course and judge each photo carefully. Is the light good? What about the background? Above all, is it interesting? It sounded so simple when we started, didn't it? But right now you know there's a world of subtlety in all of it. That's why I'm still in love with photography some 30 years after I picked up my first real camera.

…Now, go out there and make great pictures, pictures we all can be proud of, and thank you.

Assignment

- Shoot a favorite subject as a picture story. Be sure to think about scene-setting shots, detail shots and close-ups, a money shot or a nice moment, and a strong closing image.

- Try to get the most variety you can in terms of times of day, weather conditions, varying lens choices, and even the emotions of your subjects.

- Practice your editing by choosing only the very best frames and, if necessary, return to the scene to reshoot to get the perfect images for your story.

Suggested Reading

Allard, *Vanishing Breed*.

Forsberg, *Great Plains*.

LIFE 75 Years.

Homework

Shoot a favorite subject as a picture story—not an essay, just a picture story. You could shoot this in an afternoon if you wanted to, but be sure to think about a scene-setter, a detail shot, a close-up, a nice moment, and an ending frame or a closer. Work to get the most variety in terms of times of day, weather conditions, lens choices, even emotions if you can find them.

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