

TELEPHOTO TECHNIQUE

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Zooming in to enlarge a distant subject is revealing and aesthetically satisfying—photography liberating seeing in the classic sense. Magnification further provides many creative opportunities that are not readily obvious. In addition to the candid close-ups and dreamy backdrops associated with telephoto photography, artistic effects include emboldening composition, making facial features more attractive, deepening mountain valleys, and correcting architectural perspective.

The benefits of telephoto have long been recognized, but its widespread use is a relatively recent development in the history of photography. Telephoto could not be used on most rangefinder cameras, and does not fit well with view cameras. Only with the advent of the affordable single-lens reflex (SLR) camera in the 1960s did telephoto become a practical, easy-to-use medium.

Telephoto Lenses and Format

Telephoto is a function of focal length, the distance between the lens and the film at which point a distant object is focused. The standard 50mm lens—lenses are designated by focal length—approximates normal vision with a 47° diagonal angle of view in regular 35mm film format. Magnification is directly commensurate to focal length. Telephoto is generally considered to begin at 70mm—1.4x magnification over 50mm—with a 34° view. Super-telephoto is reached at 300mm with an 8° view. Since the late 1980s, the majority of telephoto lenses have been zoom. A versatile and potent zoom telephoto lens is the 70-300mm, which affords photographers the flexibility to selectively isolate subjects and “fill the frame” in most situations—two of the particular benefits of telephoto. A tremendously powerful telephoto optic is the Canon 1200mm f5.6 lens weighing 36 lbs that provides a 2° view. The closest focusing distance is 46 feet.

Telephoto works best in 35mm film and digital photography. Current digital cameras offer a minor technical advantage with telephoto that results from the digital sensor being smaller than a 35mm negative. In all but the most advanced digital cameras, effective focal length and hence the magnification of standard 35mm lenses are expanded to the extent the area of digital sensors is smaller than the 35mm film frame. Typically the increase is about 1.6x the focal length of the equivalent 35mm film lens, e.g., a 50mm lens in digital cameras would have an effective focal length on the order of 80mm.

Telephoto can be applied beneficially in medium-format photography but the moderate and extreme telephoto lenses are heavy and cumbersome. Rapid-motor drive is available but much slower than for 35mm format. As to large-format photography, telephoto optics are available but rarely used. The lenses are ponderous, while the

primary creative feature of bellows cameras—lens movements relative to the film plane—lose some of their benefit in telephoto mode.

Creative Techniques for Telephoto

Telephoto can improve picture taking in many ways:

- ***Depth-of-field technique:*** The area of sharp focus decreases substantially as focal length increases. For this reason, blurry backgrounds are a characteristic commonly associated with telephoto. In compositions involving significant depth, it becomes possible (and in some cases unavoidable) to put the foreground in focus and background out of focus, or vice versa. The effect is to draw the eye to the subject in focus while creating a soft, hazy atmosphere. Depth-of-field technique works best when the area that is out of focus has bland or indistinct shapes, and is darker or a different shade than the main subject.
- ***Isolation technique:*** Magnification and the consequently smaller area of coverage of telephoto provide the photographer more selectivity to isolate and highlight particular objects. In architectural photography, the telephoto juxtaposition of two buildings is an example of magnification and isolation providing a unique perspective.
- ***Compression effect:*** Telephoto provides an illusion of bringing the foreground and background closer, the opposite of wide-angle photography that appears to exaggerate distances. The compression effect can be applied to particular advantage in portrait photography. Moderate telephoto lenses reduce the prominence of particular facial features, and the overall nose-to-ear distance. As a rule, lenses in the 70-120mm range (in film photography) are excellent for head-and-shoulder images. In digital photography, the ideal range would be about 50-85mm for most cameras.
- ***Full-frame technique:*** The combination of isolation and compression make it easier to “fill the frame” for a flush, dynamic look. In landscape photography, distant features may appear to gain depth and fullness. The effect may seem counter-intuitive, since an impact of telephoto is to reduce distances between objects. However in photographing far-off landscapes, the compression effect may be outweighed by the combined magnification and isolation of the background from the foreground, bringing out its details while excluding the larger distraction of the foreground.

Beware the *Pancake effect*: A uniformly shaped object filling the frame of a distant telephoto image will appear abnormally flat due to over-compression together with the lack of distinct foreground and background. For example, a townhouse that nearly fills the frame, having been photographed from a substantial distance with a strong telephoto lens, will appear nearly two-dimensional as if made of paperboard.

- ***Scale Effect:*** A further effect of isolation and compression in landscape and architectural photography is composition designed to accentuate the substantial size of the main subject, such as a mountain or building, by including a scale model in the foreground. Usually a person or two and occasionally small buildings or automobiles are used as scale models, a telephoto image of which highlights the differential of size. Without telephoto, a much larger and immediate foreground area would dilute the impact of a human-scale figure or object in the foreground.
- ***Repetition Technique:*** In artistic photography, telephoto is particularly amenable to images of consecutive objects—stairs, windows, panels, frames and other objects that form an engaging pattern. Repetition technique is a function of the isolation and full-frame effects of telephoto.
- ***Perspective Control:*** In architectural photography, wide-angle optics with lens rise are normally employed to maintain straight vertical lines when aiming a lens upward to photograph a tall building. When such wide-angle photography is not feasible or less than optimal, telephoto photography can assist in perspective control. As lens focal length increases commensurate with distance from a building, converging lines decrease to minor or insignificant effect. Consider a skyscraper photographed from a considerable distance with a powerful telephoto lens, compared to an image from a block or two away. In such a situation, telephoto offers natural perspective control. Various obstacles could of course block the telephoto view of the subject—such images are not always possible—but the technique is frequently employed by architectural photographers to dramatic effect.
- ***Magnification with Panning and Rapid Motor Drive:*** Telephoto is instrumental for photography of fast-action sports, birds and vehicles or aircraft. However the odds of capturing a well-composed, rapidly moving image in a single photograph are marginal. Panning means moving the camera, either hand-held or on a tripod, to follow and successively photograph a moving object using rapid motor drive or digital technology. Capture of up to 8 frames per second with either 35mm film or digital cameras improves the probability of producing well composed, compelling images.
- ***Candid close-up photography from a distance:*** Photographing people unawares from a distance has been a popular application of telephoto, although some photographers feel uncomfortable taking close-ups of subjects without their knowledge. In most jurisdictions in the United States it is legal to take pictures of people without their permission or knowledge, on condition that the images will not be used for revenue purposes, would not embarrass the subject, and are not photographed from the private property of the subject.

Problems of Telephoto

Stability of hand-held photography is the major concern of telephoto. As image magnification increases, the effect of camera shake is multiplied accordingly, requiring faster shutter speed. As lens size passes the 200-300mm threshold, the additional weight and bulk add to the stability problem. For these reasons, a tripod should be used whenever feasible, but if it is not possible, a number of assists can help produce a sufficiently stable image.

The key rule of thumb for hand-held photography:

Use a shutter speed equal to or faster than the focal length of the lens. For example, a 300mm telephoto lens requires a shutter speed of at least 1/300 sec.

Unfortunately the wider apertures enabling fastest shutter speeds become unavailable or impractical as focal length increases. The larger optics required for f2.8-5.6 in extreme telephoto increase in size and cost by geometric proportions. (The Hasselblad 300mm f2.8 lens costs more than twice the 350mm f5.6 lens.) Moreover, extremely narrow depth of field in wide-open telephoto lenses may be unworkable in many situations.

Techniques to Manage Stability in Hand-Held Photography

The following measures help to reduce camera movement:

- ❑ ***Release the shutter gently:*** The finger should be on the shutter before it is pressed, the motion slow but steady. Shutter release should not be jerky. In cameras with electrically assisted shutter release, the finger should ideally be rolled over the shutter in a smooth motion leading to release.
- ❑ ***Hold the camera at its center of gravity:*** The camera should be supported at the point where it feels balanced, to reduce stress caused by weight variance between the lens and camera body.
- ❑ ***Use fast film or push development:*** ISO 400 speed film is recommended for hand-held telephoto. Another option is to expose film an f-stop faster than normal, then push development time. Color negative and low-contrast black-and-white films such as Kodak Tri-X are more forgiving in this respect than slide film.
- ❑ ***Use gyro-stabilized lenses or cameras:*** Canon “Image Stabilization” and Nikon “Vibration Reduction” lenses have been demonstrated to effectively reduce camera shake as if shutter speed had been increased by one to two f-stops. More recently introduced Konica Minolta cameras such as the Maxxum 5D feature image stabilization built into the camera itself.

In using a tripod for telephoto:

- ***Rest a hand on extreme telephoto lenses:*** Some telephoto experts advise that resting a hand on the lens barrel above the tripod head may further stabilize very large telephoto lenses on tripod. I have not tried this myself, and it may be difficult to rationalize—would not the hand cause vibrations? —but the technique has been recommended. The independent center of gravity of the hand is apparently a buffeting factor for vibration originating elsewhere in the tripod and camera assembly. On the other hand, putting a weight on the lens is not recommended because it may magnify vibrations.

- ***Use a spirit level:*** Telephoto images can be surprisingly disorienting with respect to keeping a sense of the horizontal and vertical, especially with the Isolation technique in situations where neither land nor horizon figure in the image. Composition does not have to be level, of course, but a spirit level ensures the photographer is accurately oriented.

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