Brief guide to a common form of deception.

SPOTTING PHOTO FAKERY

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When Soviet troops moved into Czechoslovakia in August 1968, television viewers in Poland were shown film apparently depicting the enthusiastic welcome the invaders received from the Czechoslovaks. The Polish audience was not told that it was in fact seeing a re-run of a film strip dating from 1945. This simple deception was an example of "photo fakery." Here we will look at other, somewhat more subtle photographic methods often employed. Although an expert job of fakery may defy detection even by another expert, there are some telltale signs anyone should look for.

Photo fakery as practiced by the Communists is usually employed to display their actions in a pleasing light, and to portray their countries and their leaders to the best advantage. It is also used as a form of propaganda support for the ongoing campaign against the United States and its allies. In any specific case, the intention is often revealed by detection of what may have been hidden, eliminated, or altered.

Visual Evidence

Photography has long been recognized as an important source of intelligence. Like other kinds of sources, however, photographs can be forged, faked, or otherwise altered to suit the purposes of the originator. Notwithstanding, the notion is still fairly widespread that a photograph of a given item is sufficient proof that the item in fact existed in the state shown by the photograph. This simple view can no longer be accepted. As a matter of fact, the art of faking photographs is as old as photography itself. Thus, portrait photographers discovered many years ago that removal of wrinkles and skin blemishes pleased customers. Although the public has perhaps become more skeptical than it used to be of "before and after" pictures or other photographic gimmicks employed in advertising, these devices have certainly not entirely disappeared.

Early techniques for altering photographs were relatively simple, but recent advances in optics, in the manufacture of film, and in laboratory processing have permitted great refinement of old techniques, and provided versatile and effective tools to propaganda, psychological warfare, and intelligence agencies. Some attempts at photo fakery are still amateurish and obvious, but the best work these days is subtle and sophisticated.

Properly used, a faked photograph can be a more effective and subtle weapon than a forged document. In propaganda or intelligence work, it can lead an adversary to wrong conclusions or cause him to dissipate his energies. The fact is that the veracity of photographs is rarely questioned. Intelligence analysts are accustomed to being critical of documentary intelligence, and as a matter of course attempt to establish its veracity and the credibility of its sources. Unfortunately, no similar critical attitude is generally applied in the appraisal of photography. Indeed, most analysts would probably not consider themselves qualified to make technical judgments of this nature. No manual on faking photography is known to this author, and manuals that treat the art of altering or retouching photography are concerned almost exclusively with techniques for enhancing the artistic or purely technical values of photography, and not with detecting alteration of the original negative or other manipulations for purposes of deception.

The purpose of this article is to warn intelligence analysts against accepting photographic evidence of Communist origin uncritically and to provide a few practical suggestions on how those lacking technical expertise can detect fakery in photography. The examples here presented have been selected from those collected in the course of research over the years by the National Photographic Interpretation Center, and other U.S. intelligence components. It is worth noting that Communist photographic forgeries were brought to the attention of the U.S. Senate as recently as 1961, and have been the object of continuing interest on the part of successive Directors of Central Intelligence.

Kinds of Faked Photographs

There are four kinds of faked photographs, distinguished by differing techniques: montages; retouched photographs; and retouched montages. The fourth category—false captioning—differs from these in

that tampering with the photograph itself is not a necessary ingredient of the fake.

A montage can be made either with photographic prints, resulting in what is known as a "paste-up" montage, or it can be made with negatives. The negative montage is the more effective of the two. Montages are widely used commercially for producing trick or artistic effects, assembling murals, and for advertising purposes. Extensive use is made of montages for portraying, and generally exaggerating, the industrial and scientific accomplishments and the military might of the Soviet Union and its allies—and others—as well as for many other propaganda and deception purposes. On occasion, photographs are altered for security reasons.

A retouched photograph differs from a montage in that only one photograph is used. By applying airbrushed paint or solvents, or by scraping, and by a variety of other techniques, the technician alters details, or obliterates portions of a photographic image. It is possible to tone down or disfigure images, and even to create an image that was not on the original negative. Since a hand brush or an airbrush is frequently used for this purpose, the terms "brushed-in" and "brushed-out" are often used in connection with retouching, even though many other artistic and laboratory techniques are used.

The third and most common type of fake photograph combines retouching and montage. In this type of photograph, an attempt is made by means of retouching techniques to soften the sharp edges of the cutouts usually apparent in a montage and to blend the varying tones and textures of the cutouts into a unified whole.

The falsely captioned photograph differs from the other groups of fake photographs in that the photograph usually is not altered. Proper captioning of a photograph normally includes descriptive data regarding the "who-what-where-when" of the subject. Photographs in Communist publications, however, are frequently printed with misleading or completely false captions, and the date of the photography is often omitted entirely. About the only way to unmask this kind of deception is to compare suspect examples with prints of known veracity. Where a date has been provided, however, close scrutiny of details will sometimes detect anachronisms that give the show away.

In Figure 1, the photographs on the left appeared in a Czechoslovak aircraft journal with captions indicating that they were scenes in a Czechoslovak jet engine factory. Actually, at least one is a retouched

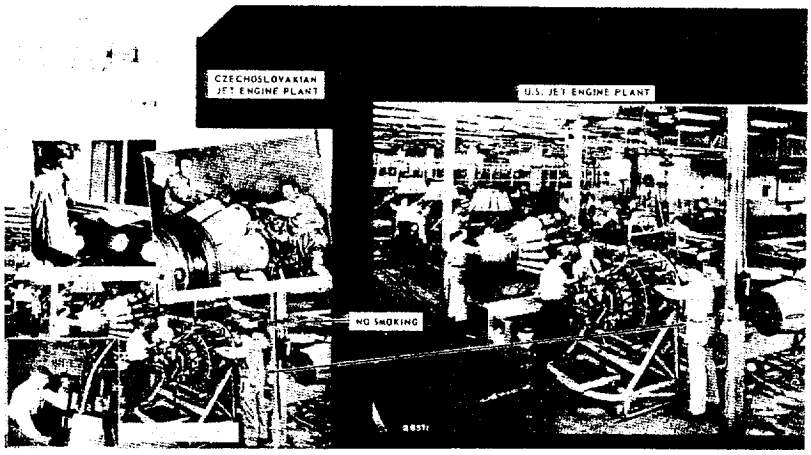

FIGURE 1. False Captioning and Retouching

photograph of a factory in the United States. An artist has provided the technician on the right with coveralls, and a Czechoslovak "no smoking" sign has been added, but note the different tone and texture of these added items.

Faking Techniques

Many technical factors have to be considered in the difficult task of creating a successful fake photograph. Details, perspective, and the relative sizes of objects and the distances between them must be kept in scale to produce a convincing result. Because of the inherent limitations of the camera lens, objects at different distances from the camera are in varying degrees of focus and have different tones and textures. Tone is the tint, shade, or hue of an object. In black-and-white photography, tone is the relative lightness or darkness of the shades of gray in the scene. Texture is the arrangement, size, and quality of the constituent parts of an object; it is the quality by which one determines that an object is rough or smooth, firm or loose.

Since retouching or the creation of a montage usually results in inconsistent variations of tone and texture, the technician will frequently reproduce a fake by the halftone process. This is a technique of representing shadings by dots produced by photographing an object (or, for instance, a montage) through a fine screen. By subjecting retouched photographs and montages to the halftone process, dots are substituted for continuous tone imagery, and this more or less elimi-

nates break lines and variations in tone and texture. Most newspaper reproductions of photographs are produced by this process, and practically everyone is aware that the sharpest lines and strongest contrasts of a glossy print are softened and blurred in newspaper reproductions.

Shadows of objects are present in most photographs, and in creating a convincing fake, the technician must make all shadows fall in the same direction and be consistent in relative size and shape with the objects photographed. The technician must also account for any motion or action and corresponding reaction represented on the photograph, and all elements of the photograph must be consistent in this respect. Obviously, smoke does not blow in different directions from the stacks of adjacent factories. Finally, the creator of the fake must make sure that his masterpiece as a whole is all of a piece. He must insure, that is, that elements added to or deleted from the photograph do not result in incongruity; a soldier does not wear naval insignia, nor does a watchmaker have pipe wrenches on his workbench.

The means of detecting a fake as described here are effective only when the faker has been careless or in the occasional instances when the original unchanged photograph is available for comparison. As noted, however, a good fake photograph is remarkably difficult to make, and the alert intelligence officer armed with a knowledge of what to look for can often avoid being taken in.

Clues to the Detection of Fake Photographs

The first and most obvious clue to fake photography is its source. The intelligence officer should have the same ingrained skepticism of photographs that he has of other documentation from Communist sources. Imbued with this basic skepticism, he should look for the following clues.

Clues to a montage. Since the final product of a montage made from prints is another photograph, the result cannot possess quite the same textures and tones of objects as depicted in the originals. Thus, such a "paste-up" montage will often appear flat and gray as compared with an original photograph. The montage made with negatives, while retaining much of the quality of the originals, still presents problems to the technician when he attempts to blend tones and combine textures. Hence, on negative montages, certain images tend to stand out from other images in the photograph. To detect either type of montage, the intelligence officer should look for identical images

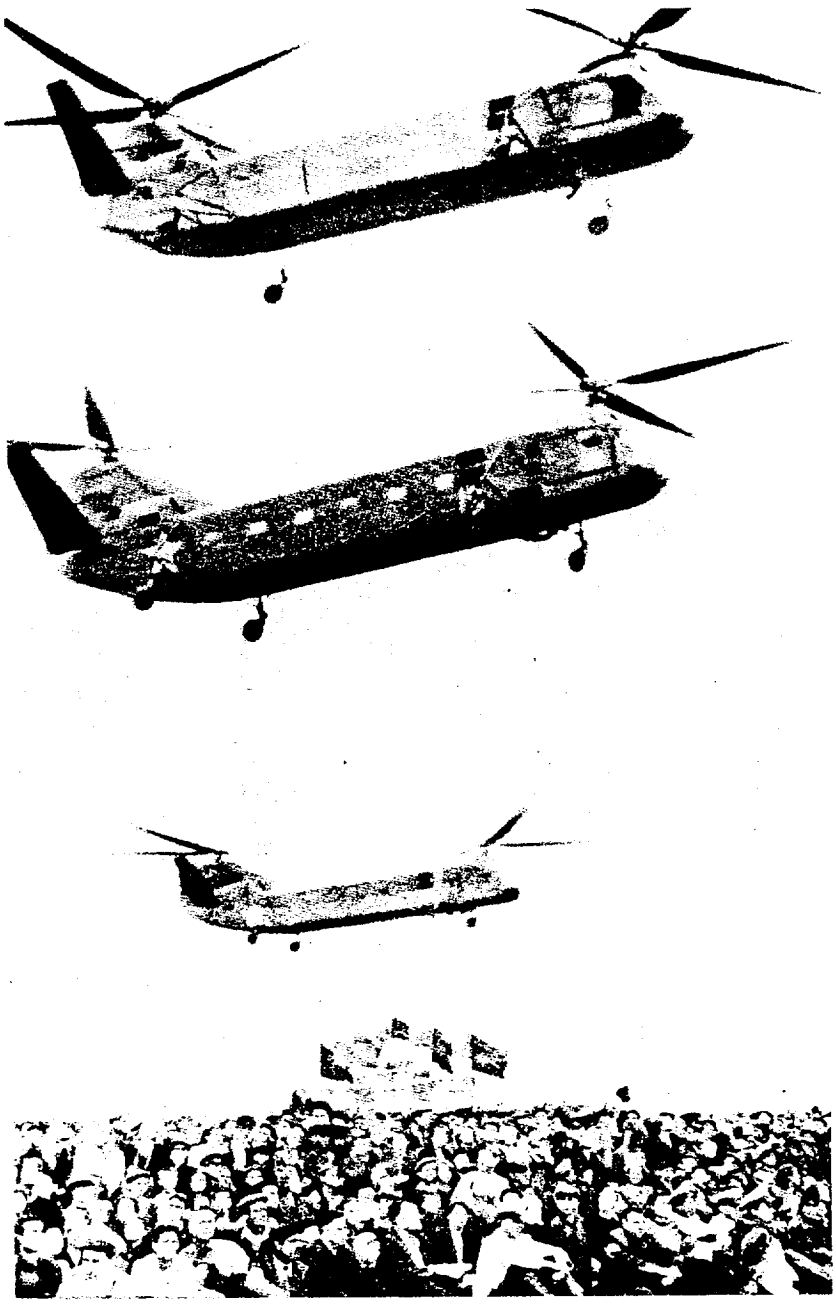

FIGURE 2. Action-Reaction in Montage

in the photograph. He should also look at the corners of images for match or join lines, the result of improper illumination at the time the montage was photo copied. The artist often fails to remove crop lines which indicate the presence of two or more photographs.

Combining two or more photographs in a montage often results in incongruities violating principles of action and reaction or technical consistency. This is the clue to the fake in Figure 2: not one person in the large crowd depicted is looking up at three helicopters flying a few feet over their heads, nor does there appear to be any prop wash.

Clues to retouching. To detect this type of fake, the intelligence officer should look for flat unbroken lines where objects appear to have been removed from the picture. In doing this, the artist often fails to remove parts of objects and to add an appropriate texture to the area. Such clues are visible in the retouched photograph of a hangar shown on Figure 3. The uncluttered gray area in the depth of the hangar on the right is in sharp contrast to the clutter in the rest of the hangar and is a clue to "brush-out" retouching, possibly to delete items for security purposes. A careless technician has provided positive evidence of retouching here by failing to brush out the stabilizers of two aircraft that have otherwise been deleted.

Placing a retouched photograph under magnification often reveals the marks of the artist's brush or artificial discoloration. When something is added to this type of photograph, the telltale features may be abrupt texture breaks and a flat, painted appearance. The perpetrators of photographic fakery often forget the shadows in retouching or in

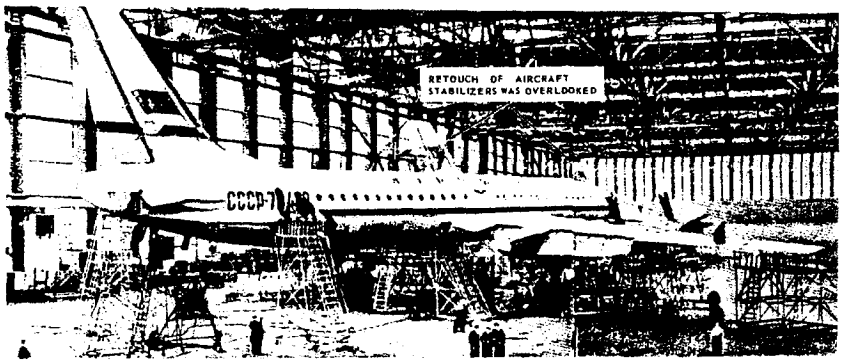

FIGURE 3. Retouching

montages, and the tip-off to the intelligence officer can be an object which does not cast a shadow, shadows falling in different directions, abnormal tonal contrasts in shadows, or shadow-object ratios which do not match. Shadows falling in opposite directions are a clue to deception on Figure 4. In this photograph of an alleged Communist Chinese amphibious exercise, shadows from the door of the landing ship in the left background fall to the right, but shadows on the amphibious tank in the foreground fall to the left.

Scale and proportion. Scale is the ratio of image size to the actual size of an object. If the size of one object in a photograph is known, the relative sizes of other objects can be determined by photogrammetric methods. When the size of one object appears to be out of proportion to the sizes of surrounding objects, the photograph should be suspect as a fake. Faulty proportion is the tip-off to the fake shown on Figure 5. The missiles in this photograph are identified as SA-2 surface-to-air missiles known to be 35.6 feet in length. If scale and proportion in this montage were correct, the marching men on the right would have to be pygmies. A crop line, characteristic of a montage, is apparent along the top of the shrubbery partially concealing the missiles.

Depth of focus. The terms depth of focus, depth of field, and depth of definition refer to the characteristics of lenses, and relate to size

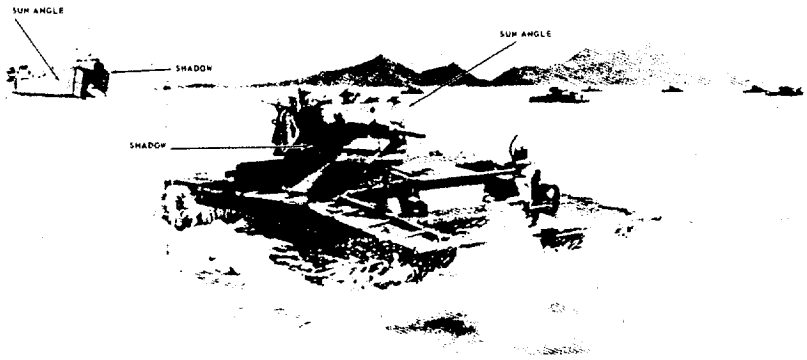

FIGURE 4. Shadow Fall in Montage

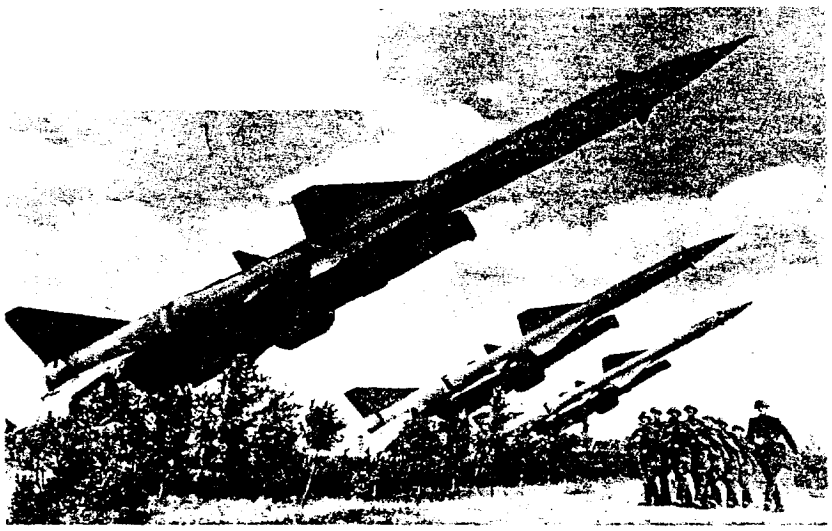

FIGURE 5. Shadow Fall in Montage

of the area within which details are sharply defined in front of and beyond an object focused on. Notice that the aircraft and the peasant shown on Figure 6 are some distance apart but in the same sharp focus. At the lens setting which would give this depth of focus, the distant foliage should also be sharply defined. The fact that the foliage is instead blurred indicates that more than one negative was used to make this print. The intelligence officer should compare the sharpness of objects in the foreground and background of photographs for indications of fakery.

Halation as a clue. Halation is the fog or halo in a photograph around the image of a highly reflective surface or light source. It is caused by lights in a night photograph or by reflectors or curved surfaces in bright sunlight. A faked photograph may show halation around one object and not around similar objects oriented in the same direction with respect to the sun. In the case of a night scene, halation may appear around some lights but not others. Thus in Figure 7, the tip-off is duplicate halation montaged to make this Chinese oil field appear larger. Perspective and scale are also faulty since the supposedly more distant items in the top half of the picture are the same size as those in the lower half.

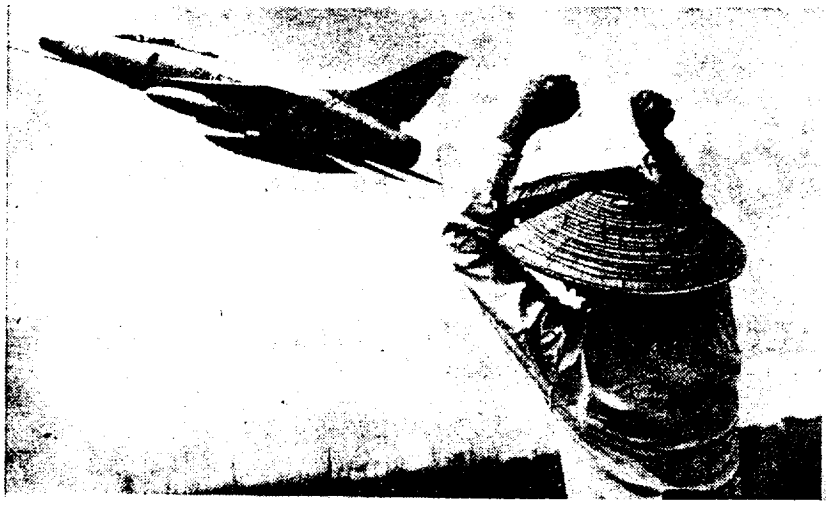

FIGURE 6. Depth of Focus

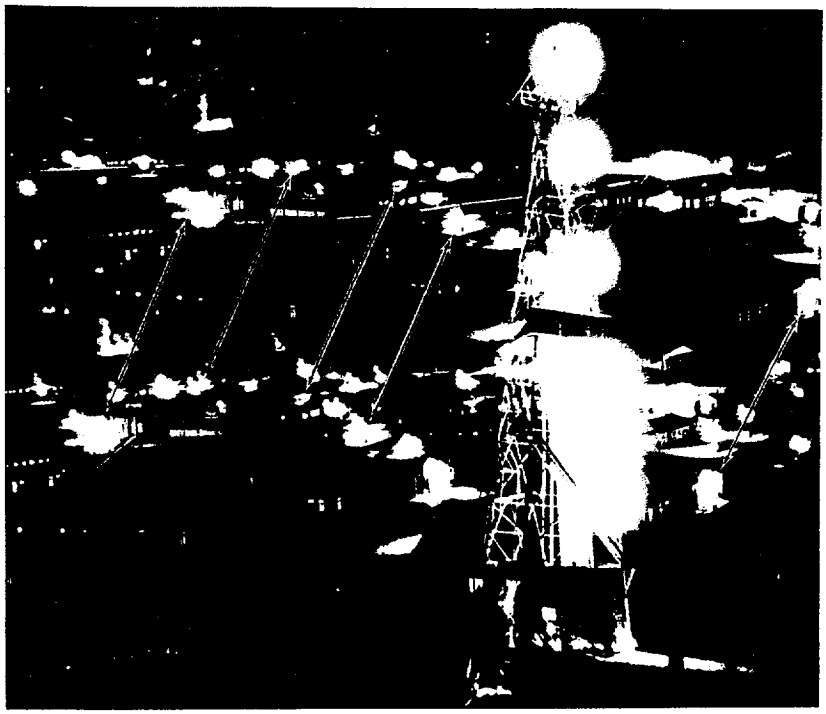

FIGURE 7. Halation in Montage

Conclusions

Every intelligence officer should be aware that photography can be, and sometimes is, faked before its dissemination. Viewing Communist-source photographs with a critical eye, the analyst can detect and take steps to neutralize a good deal of this kind of deception. A basic knowledge of the concepts and mechanics of faking photography as presented here can thus pay worthwhile dividends to our total intelligence effort.