AERIAL PHOTOGRAPHS AS A GUIDE TO FOREST RECREATION

A Term Paper
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INTRODUCTION

In 1952 37,000,000 people visited our national parks, and 28,000,000 licensed sportsmen made use of our wilderness hunting and fishing areas (Leedy 1950). In order to increase the enjoyment of those people lacking an exceptional knowledge of our forest regions, many aids to enjoyment have been put at their disposal. Such aids as trail maps, posters and descriptive booklets have helped to make the vacationers stay in the woods not only a pleasant one, but a safe one as well.

Aerial photography is a relatively new tool in forestry, but it is adaptable enough to be used in any phase of forest land use. This is especially true in the case of forest recreation.
AERIAL PHOTOGRAPHS IN INDIVIDUAL USE

Aerial photographs have many possibilities which have only begun to be explored. Although they are becoming quite popular with many people there are many others who know nothing of the interesting and helpful uses of this tool.

To the hunter a few hours of stereoscopic study can mean the difference between days spent in fruitless searching, or an enjoyable trip. With practice, he can learn to recognize the topography and vegetation that is likely to hide game but also give good shooting conditions. Photos can be used to pick suitable campsites, and routes that will save time and trouble. They can be helpful to the fisherman since he can locate easy routes to his favorite streams, or to lakes which look promising but hitherto have not been fished. A graphic means of showing these areas to other sportsmen is also provided by aerial photographs.

Cross-country hiking away from the beaten path holds many terrors for the otherwise hearty individual, but through the use of aerial photos, a hiker can familiarize himself with strange country and plan the best routes through it. In order to save the trouble of backpacking weeks worth of supplies, many outdoorsmen have used a system of air-drops to supply themselves. What better map can be found than a suitably marked photograph to guide the pilot and thereby insure the waiting party of their supplies?

Had aerial photographs been used in the case of supplying a troop of Boy Scout climbers in the Goat-Rocks Wild Area of Washington several summers ago, perhaps the pilot would not have dropped his cargo on the
wrong party at the wrong lake. If it had not been for their emergency supplies, the scouts would have been in serious trouble indeed.

Inspection of climbing routes is another job for which aerial photographs are well suited. Although there are many "purists" who do not believe in using them for climbing, there are many more to whom aerial photographs are a Godsend.

A preliminary photo reconnaissance of a climbing area can aid the mountaineer not only in deciding on routes to avoid dangerous "pitches" but also in figuring the estimated time required to make the climb over these pre-selected routes. **Talus slopes can be used to gauge the general slope of a mountain side since the angle of repose of the rock on the central portion of a slope is invariably 35° plus or minus 2° (Colwell 1950).** Rest stops can be figured so that they occur at streams and points of interest, thus saving later stops.

Aerial photos are also handy for future reference. Important points such as safe drinking water, campsites, changes in the country since the area was photographed, workable routes and other important information can be drawn on the photos which are in turn filed away for later expeditions.

Mountain photographers can usually get good results by stereoscopic study of the object to be photographed before leaving home. Shadows can be estimated so as to decide on the proper time of the day to take the picture.

A question often asked by many outdoor photographers is, "Will intervening country interfere with the view?" In order to determine this, a very simple method can be used (See page 5).
Draw a line on one or both of the paired photos from your position (A) to the point which you seek (B), (in this case the lake). When viewed under a stereoscope, the line will seem to float above the terrain. If the line does not intersect any point on the ground between A and B then the two points are within sight of each other (Colwell 1950).

"Mountain rescue is an undertaking which requires excellent leadership, sound and thoughtful judgement, and the utmost care exercised by each member of the party" (Seattle Mountaineers 1948).

A rescuer must take special care to know the country to be traversed, lest he end up in the same or a more unfortunate position than the rescued. Aerial photos can be used to brief the rescue party before it sets out (See page 5), guide it on the way to the distressed person and then back to the pre-arranged meeting place with transportation and proper medical care. They will cut down the briefing time necessary as they can be used in an automobile on the way to the "jumping off point" and require no more equipment than a cheap or easily made stereoscope. "An enjoyable experience awaits the individual who has never used aerial photographs of his forest playground" (Colwell 1950).
(Left) A rescue party being briefed for a mission using aerial photos to supplement their map.

(Right) "arm chair" enjoyment of aerial photos after a long day.

A stereogram showing a sample climbing route (the dotted lines) and illustrating the method given on page 4, to find out whether point B can be seen from point A.
At this point there are probably many questions running through the reader's mind, and it is only fair that they be answered.

Question: Where can I obtain the photos and how expensive are they?

Answer: At this time there are few areas within the continental limits of the United States that are not covered by vertical aerial photography. These areas have been flown by both private and government organizations who will provide 9" x 9" contact prints for $.40 or $.60 cents apiece (Colwell 1950). This is a nominal price, since three or four adjacent prints are sufficient for complete stereo coverage of an entire mountain (See page 5). Those who cannot or do not wish to buy aerial photos can often borrow them from the files of the U. S. Forest Service, or various lumber companies operating in the area (Colwell 1950). Amateurs can take surprisingly good aerial photos with an ordinary hand camera and panchromatic film, providing the camera is capable of shutter speeds up to 1/100 second or faster. This eliminates the vibrations set up by the airplane. The picture should be taken through an open window or door although a slightly longer exposure will compensate for the glass (Henderson 1942).

Question: What equipment is necessary and how expensive is it?

Answer: The only equipment needed is a simple stereoscope. These stereoscopes can be bought for a nominal sum (Lense
stereoscope, Model F-271 folding pocket type, Fairchild Camera and Instrument Corp., $9.75), or made by those handy with tools (Perez 1950). Eye-glasses with 5 diopter lenses can be bought in a 5 & 10 cent store, or optical supply store for $1.50. These lenses are then mounted in a special holder and will be suitable for the needs of the recrea-
tionalist (Perez 1950). Note that the above prices are quoted as of July 1950. For those with good stereo vision, naked stereoscopic study is possible. The eyes are first focused on some distant object, this gives the observer parallel vision. Two adjacent photos are held so that they overlap, with a prominent point on one photo approximately 2½” from the corresponding point on the other. These pair-
ed photos are inserted in the field of vision with the eyes still focused on the distant point. By slightly shifting the eyes, the objects can be made to fuse, thus giving the effect of depth.

Question: What if I can't see stereo?

Answer: It is true that there are some people who cannot see stereo, but this should not stop them from getting some benefit from aerial photographs. A single photo can be used as a map and although no depth can be seen, such details as clearings, roads, and bodies of water will stand out. It is also possible for an individual to tell the difference between different types of vegetation by their tone quali-
ties. Often people are disappointed when their first
attempt at stereo vision proves a failure, but it must be realized that good stereo vision takes time and practice. There is no shame connected with not having stereovision.

Question: Can ground features be readily recognized on a photo?

Answer: In open country, orientation is relatively easy by comparing the position on the ground with respect to bushes, unusual trees, rock outcroppings, roads and topographical features. In heavily timbered country one can locate his position by keeping track of ridges and streams crossed and then referring to the photos. Aerial photographs can give much information to the observant person, but it is well to remember that they are only a tool, and like all tools have their limitations as well as their potentialities. The information gained from the photos alone more than compensates for the trouble taken to carry them, but a stereoscope is not always necessary especially where naked stereovision is possible.
CONCLUSION

In order to prevent disappointment it would be well for the reader to realize that aerial photos are not crystal balls and that only through time, practice, and patience can good results be obtained.

For those people who believe them too bulky to carry or feel that they are cheating when they use aerial photos, I can only say that recreation must be not only an enjoyable sport, but a safe one as well.

A tool such as aerial photographs in the hands of those who respect them, and are interested in their own welfare can be a great boon to the sport of forest recreation.
A source map of the United States showing the areas covered by aerial photography as of 1947.

Note: Current copies of this map may be obtained from the U. S. Geological Survey, Washington D. C.
A SIMPLE STEREOSCOPE

SCALE = 1" = 2"

DRAWN BY MARK SMITH
12/28/53
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