

An Aerial Photo Stereo Teaching Aid

This portable teaching aid utilizes a Polaroid SX-70 camera to simulate the process of obtaining overlapping vertical photographs from a moving aircraft.

MANY PRINCIPLES of aerial photography can be effectively shown through timely use of demonstrations and teaching aids. Unfortunately, few of these aids exist, necessitating innovation on the basis of need. One such aid, used to demonstrate the principle of vertical aerial stereoscopy, utilizes a Polaroid SX-70 camera and was constructed in the home workshop from easily obtained materials. The stereo kit simulates the process of obtaining vertical overlapping color photography from a moving aircraft with the unique feature of being able to view the stereo pair almost instantaneously.

The kit is portable, completely self-contained, and housed in a wooden case (13 by 14 by 5 1/2 inches) containing the camera, camera stand and base, stereoscope, terrestrial model, and accessory equipment to operate the camera (Figure 1). The Polaroid SX-70 was chosen because of its through-the-lens viewing and close-up focusing features. All contents are firmly anchored in the case with clamps and brackets (Figure 2). The 1:960 scale (1 inch = 80 feet) terrestrial model simulates a small forested community. The trees—conifers and hardwoods—are fabricated from semi-flexible styrofoam, such as that found in the packing of small electronic appliances. Round toothpicks serve as tree trunks and

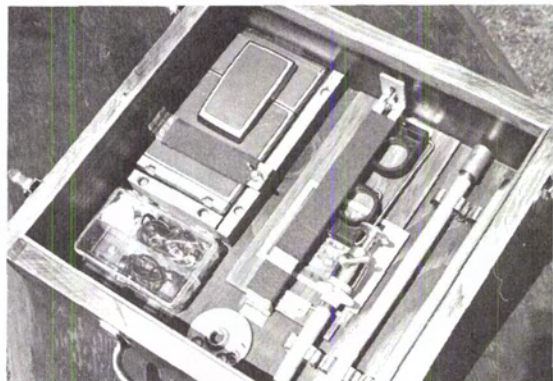


FIG. 2. The bottom section of the case contains the camera, stand, stereoscope, and accessories. All objects are clamped in place for portability.



FIG. 3. The stereo kit prepared for operation. The terrestrial model is actually the underside of the cover. Note the circular bubble level on the lower left side of the camera.

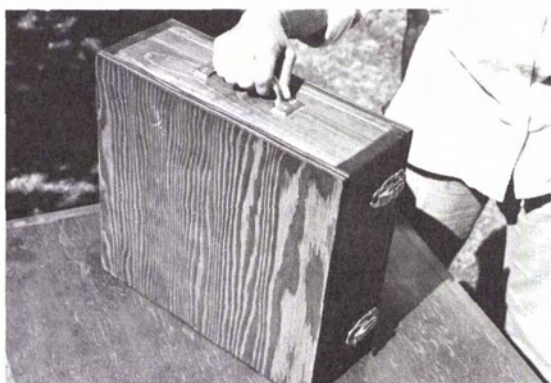


FIG. 1. The self contained instant stereo kit.



FIG. 4. Viewing the newly acquired photographs in stereo.

telephone poles. The buildings are cut from soft pine. All objects are painted.

In assembling the kit, the cover is removed, inverted, and placed beside the base (Figure 3). The cover underside contains the terrestrial model. The camera stand, consisting of three sections of 3/8-inch galvanized pipe, a connector, a 90° elbow, and a

ball-head camera swivel, is assembled and the camera attached. A small circular bubble level is placed on the camera to insure a horizontal platform. The camera is then focused and the first exposure taken*. To simulate aircraft movement, either the camera stand or terrestrial model is shifted laterally a short distance (approximately 2 inches for 60 percent sidelap) and the second exposure taken. Following a 3-minute film developing period, the paired photographs are placed in the stereoscope and viewed stereoscopically (Figures 4 and 5).

The kit can be used to complement any aerial photography or stereoscopy teaching program. It demonstrates the principles of aerial photography using vertical-overlapping photographs. Additionally, subsidiary principles such as change in scale with change in elevation, object height determination by shadow measurement, and change in displacement (vertical exaggeration) with variable sidelap distances, can also be effectively shown. The demonstration also appeals to a wide spectrum of audiences, including those who have viewed stereo for the first time.

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* A cable shutter release is preferred. An electronic flash or indoor bulb (color balanced) can be used, but best results are obtained under natural sunlight.

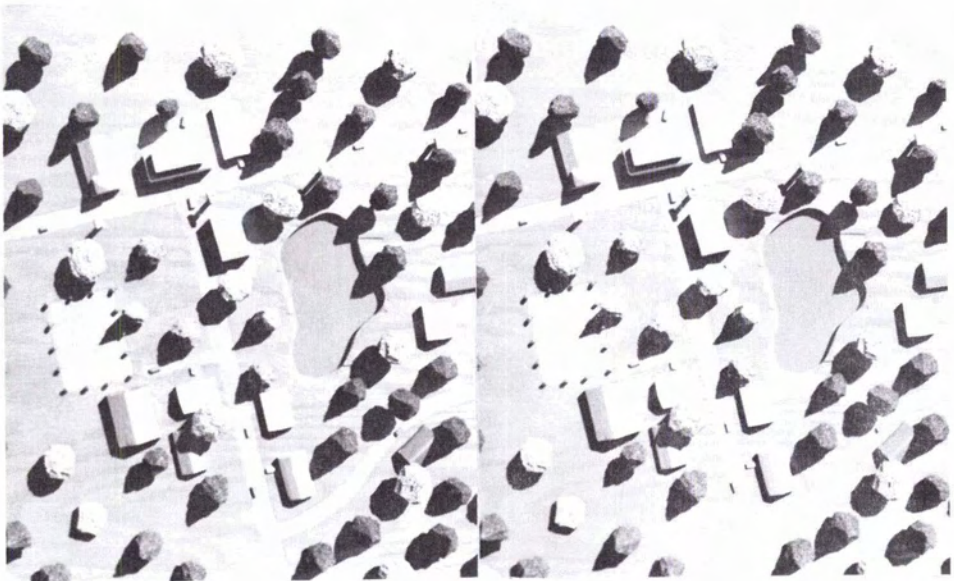


FIG. 5. The stereogram.