# THE O'NEILL-NAGEL NON-GLARE ADJUSTABLE ILLUMINATION FOR STEREOSCOPY*

## INSTRUMENTAL AIDS IN PHOTO-INTERPRETATION. II†

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IN STUDYING aerial photographs under a stereoscope the photo-interpreter, after a relatively short time, commonly finds his eyes fatigued to a point where a rest is necessary. It is well known that there are several causes. In studying glossy prints the reflected glare is the predominating cause of this fatigue. For light prints, whether on glossy or matte finish paper with large-light-toned areas on the picture, e.g. beaches, sand-dunes, snowcovered landscapes, etc., so much excess light is reflected that the eyes of the interpreter are

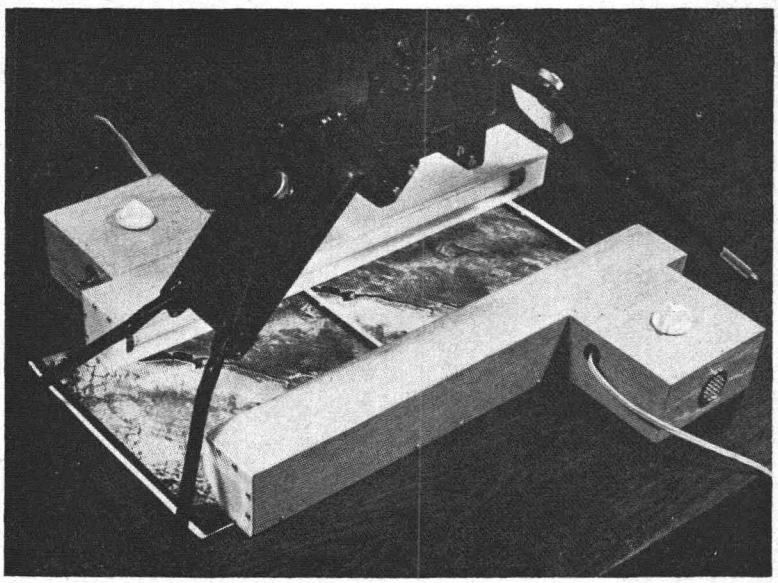

FIG. 1. Shows the non-glare adjustable lights in use with a stereoscope.

soon tired. In the case of dark prints, especially those showing large areas in shadow, the eyes of the interpreter are soon strained in the opposite way, in the effort to distingush the insufficiently illuminated areas.

To meet this need, the inventors have devised an adjustable non-glare illumination using a tungsten filament tubular lamp with a rheostat control so mounted that the lamp is quite close to the photographs and causes no glare. Incidentally the housing of the lamp helps to hold the photographs flat on the table. By means of the rheostat, the interpreter increases or decreases the amount of light at will until he finds the intensity of illumination which will enable him to see the most detail with the least possible eye-strain.

* Invented incidentally to a contract between the Amphibious Branch, Office of Naval Research, Department of the Navy and the Arctic Institute of the Catholic University.

† The first paper in this series was published on pages 134–139 of Vol. XVIII, No. 1 of PHOTOGRAMMETRIC ENGINEERING. Other devices to aid in photo-interpretation will be completed shortly and published as additional numbers in this series.

Another great advantage of such a conveniently adjustable illumination is that as the interpreter focuses his eyes on a dark area, for example shadow, he can increase the illumination to a point where he can see details which would not be visible with less light. In the case of light-toned areas, he can by gradually diminishing the intensity of the light, arrive at the intensity of lighting that will enable him to see objects previously unnoticed. The yellowish tint of the light from the tungsten filament seems to be especially restful to the eyes.

For the convenience of anyone wishing to make such a light the materials used in its construction are listed at the end of this paper.

It may interest the photo-interpreter to know that there is now completed a "Selected Bibliography on Chemical Factors Affecting Vision of Photo-interpreters." This will be reproduced soon after June 1952. It was compiled by Miss Jacqueline Chambers, one of the librarians at the Armed Forces In-

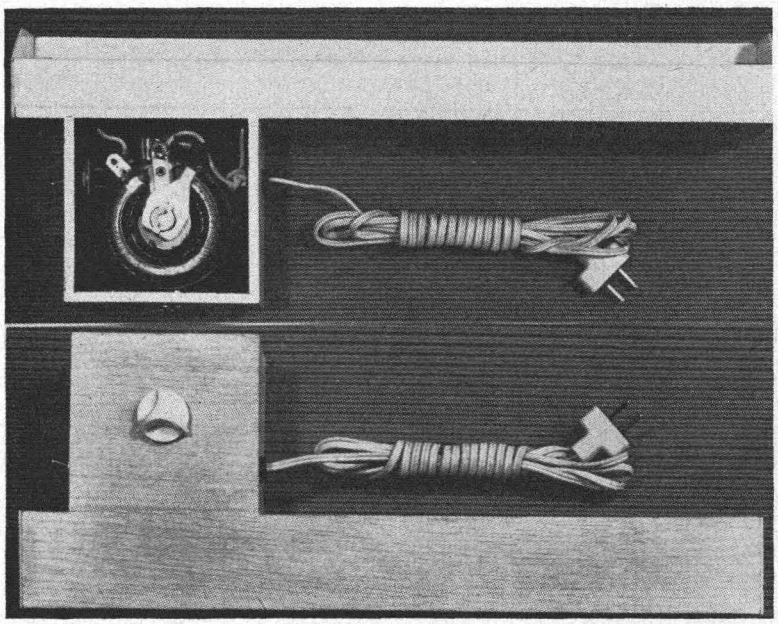

FIG. 2. Exterior and interior views of a single non-glare adjustable light.

stitute of Pathology Library as an M.S. dissertation with the senior author as major professor.

The authors also call attention to a standard available non-glare light source which can be extremely useful to the photo-interpreter although the intensity of the light cannot be controlled since the lights are fluorescent. This device is manufactured by the Burton Manufacturing Company of Chicago for the use of dermatologists.

LIST OF MATERIALS AND PARTS USED IN CONSTRUCTING ONE NON-GLARE ADJUSTABLE LIGHT

2: 49×698 GE Lumiline holder
2: 49×805 GE Lumiline sockets
1: 60 watt GE Lumiline lamp
1: 500 ohm, 100 watt Model K Ohmite rheostat
1: single pole-single throw switch

1: male plug, plus 110 volt wire
1: Vent-hole cover
1: piece of $\frac{1}{4}$ inch, white opaque Plexiglass, $1\frac{1}{4} \times 18''$
2: pieces of $\frac{1}{8}$ inch, white opaque Plexiglass, $2\frac{3}{8} \times 2\frac{3}{8}''$

Wood used was $\frac{1}{4}''$ white oak plywood:

1: piece $2\frac{3}{8} \times 18''$ (outside diameter) for top of lamp housing
1: piece $2\frac{3}{8} \times 18''$ (outside diameter) for side of lamp housing
3: pieces $2\frac{3}{8} \times 4\frac{5}{8}''$ (outside d ameter) for side of rheostat housing
1: piece $4\frac{3}{8} \times 4\frac{5}{8}''$ (outside diameter) for top of rheostat housing

All connecting edges of wood are mitered at a 45° angle. The inside of the reflector is painted with white enamel. The lamp is attached to the top of the reflector. The wiring is simple series hookup.

# THE AIRPHOTO-INTERPRETATION PROGRAM OF RESEARCH AND INSTRUCTION AT PURDUE UNIVERSITY*

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ABSTRACT

A report on the cooperative program conducted by the Joint Highway Research Project of the Indiana State Highway Commission and the School of Civil Engineering of Purdue University.

Full-time airphoto-interpretation research projects were performed for the State Highway Commission, The Civil Aeronautics Administration, and the Corps of Engineers. Miscellaneous part-time projects were conducted for such organizations as the Indiana Aeronautics Commission and the University of Indiana.

The State Highway Commission projects included soils mapping and pattern development, drainage mapping and pattern development, highway strip mapping and pattern development, material surveys, and the application of strip photography to road improvement and location problems. Procedures were developed employing the simplest of equipment requiring a minimum expenditure of time and money. Airphoto-interpretation of soils and permafrost in arctic and subarctic regions, and soils trafficability, constitute the studies conducted for the Corps of Engineers. Part time projects for the State of Indiana included the preparation of engineering-soil maps for use in site selection and materials surveys.

To promote effective utilization of the results obtained from the various research projects, dissemination is made through training programs and various publications of professional organizations, the Civil Aeronautics Administration, and Purdue University Bulletins.

The instruction portion of the airphoto program at Purdue includes both undergraduate and graduate courses. The teaching schedule covers lectures, laboratories, special problems, field trips, and examinations. A thesis is required for both civilian and military students majoring in photo-interpretation. Military students from the Corps of Engineers and the U. S. Air Force receive the same instruction; however, Air Force personnel who are studying for a Masters Degree in Civil Engineering take additional university courses. The University also sponsors a Reserve Military Intelligence Unit for officer and enlisted personnel.

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* Paper read at Eighteenth Annual Meeting of the Society, Hotel Shoreham, Washington, D. C., January 9 to 11, 1952.