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NPIC/P&DS/D/6- 1398
3 May 1966

Declass Review by NGA.

MEMORANDUM FOR THE RECORD

SUBJECT: Interim Evaluation Report on the [] Stereoviewer

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After many delays en route the stereoviewer arrived in March of 1966 and was unpacked and assembled by the people in [] shop. It was set up in Room 1S460 but nothing could be done with it until a 220v. outlet was provided in the room. This was done about a week later and the equipment was ready for evaluation. One very obvious short-coming, for our purposes, was the lack of standard film spool brackets. The device was delivered with 12"-wide film holders. Very quickly it was decided that they should be replaced with standard [] "T-channel" reel brackets so that standard spool holders and cranks could be mounted. This work was done by [] people a few days after the work was requested.

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I then spent portions of several days getting familiar with the viewer. The following are some hasty reactions to the device, but they are not to be considered definitive until the viewer has been evaluated thoroughly by P.I.'s from PAG and IAD.

Favorable Comments - My overall impression is very favorable.

The viewer is a cleanly designed, seemingly simply constructed device which apparently was produced with due attention paid to human engineering considerations. The controls are ingeniously marked with symbols which clearly indicate what each control does. After proper adjustment of the objective lens focus, the

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zoom optical train stays in focus. The individual eyepieces each have ^odipter settings marked on their rims, this permits each user to set his individual diopter focus adjustment. The large amount of open work-space over the light table and under the objective lenses would be very nice for some purposes and the provision for viewing opaque stereo-prints is ^{handy} nice, although probably of limited usefulness for NPIC operations.

Unfavorable Comments - The device was designed specifically for viewing roll film stereoscopically and if the film to be viewed is 9" x 9" or 4 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " format with 60% or 70% overlap then the film can be used as is, but the minimum separation in the X direction for the objectives is 3 $\frac{1}{2}$ " and many times adjoining stereo-pairs on 4 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " format rolls cannot be viewed stereoscopically because the overlap is insufficient. That is, common images on adjoining exposures are less than 3 $\frac{1}{2}$ inches apart. This is more often the case with 70mm format film. ~~Similarly the range of movement in the Y direction is too limited to permit viewing all of the stereo area in K11 fore-and-aft passes.~~

Without a slack loop arrangement it is impossible to view long format imagery (or imagery in which there are several feet of intervening exposures between the halves of a stereo pair) stereoscopically so long as it remains on the roll, uncut. If however, the film is cut into "chips", even 9" x 9" chips, then the pairs can be viewed stereoscopically no matter what their original separation was on the uncut roll. ^{However,} Since the maximum enlargement capability of this viewer ^e is 15 x,

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it is very unlikely that this device will displace either the Zoom 70 type or the Twin Dynazoom - type microstereoscopes *for viewing clips.* The advertised resolution capability of the viewer at three selected magnifications is:

2x	13 1/mm
6x	40 1/mm
13x	100 1/mm

Recommendations - That the device be turned over without ^{the} further delay to PAG and IAD for a more exhaustive operational-type evaluation. Because it seems to be designed for the type of imagery they often work with, I think the Geographic Branch of PAG is the best group to begin this evaluation.

If the operational units display a genuine interest in this viewer, it is further recommended that modifications be made to it by some local ^{contractor} organization. Among the modifications contemplated are: (1) the addition of a film loop capability between the objectives (this implies the fabrication of a completely new light table), (2) the extension of the Y travel capabilities of the objectives, (3) a similar mechanical modification in the movement of the objectives which would permit them to be moved closer together, or (4) instead of modifications (2) and (3) perhaps rhomboid arms could be attached to the objectives to achieve the same effect. Any final decision on modifications must be deferred until the existing equipment has been evaluated by the operational interpreters.

Orig - Project File (99843-5)

1 - DB chrono

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While it is possible to view the stereo portions of KH-4 fore and aft passes using this viewer it cannot be done very easily and the technique is not recommended. The two objectives must be separated nearly to the maximum in the "Y" direction and the image in each eyepiece must be rotated optically 90° . Then, in order to view the stereo area the interpreter must accustom himself to the trick of moving the objectives in a direction 90° away from the apparent motion of the scanned imagery as viewed through the eyepieces. The need to correct for differences in scale between the two images out near the ends of the long format photographs adds to the difficulty of scanning the imagery and retaining a stereoscopic view. Last, but not least, the interpreter studying KH-4 imagery ^{usually requires} ~~often wants~~ more magnification than the maximum 15x capability of this viewer.

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