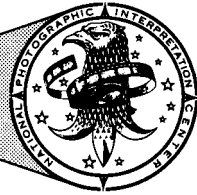
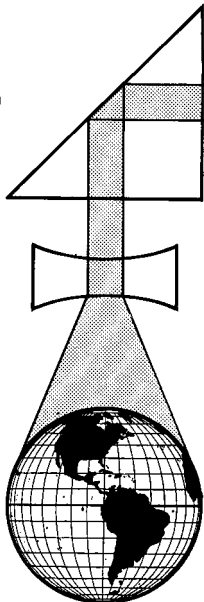
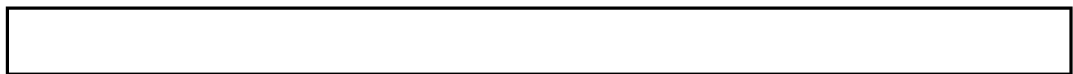


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NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

R & D NEWS NOTES

TECHNICAL SERVICES and SUPPORT GROUP



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Vol. 1, No. 7

August, 1968

The following items have been taken from R&D progress reports of the Technical Services and Support Group and are being distributed because of their general interest. We would like to know what questions or problems you have concerning the items reported in this edition. Your comments concerning related R&D topics will also be appreciated. A form is attached that will make it more convenient for you to submit your comments. An effort will be made to answer them either personally or in future R&D News Notes.

Summary of 8 Non-Conventional Film Systems

A large number of non-conventional film systems are either in the process of development or available as commercial products. A report written by [redacted] (Room 5S-453H) with the above title presents eight different non-conventional film systems in comparable format so that the reader can quickly decide which systems may fulfill his needs. The report does not purport to provide the detailed comparisons necessary to make decisions on marginal superiorities when two or more of the materials are in close competition for a special use. In a lot of ways, the comparisons made are those of "apples and oranges."

Because of the extensive market, plenty of room exists for each of these materials to supplant and/or supplement conventional silver films. The 8 systems fall into 3 different categories; unique ways to process conventional silver films, use of silver in unconventional film materials, and attempts at the ultimate non-silver and truly dry film and processing. The 8 film systems are: BIMAT Transfer Processing, BIMAT/DESIMAT System, GEL Processing, ITEK RS, Dry Silver, DIAZO, Photopolymer, Free-Radical. The report is classified Secret, but this article is [redacted]

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Survey Instrument for Hazardous X-Rays

The NPIC Test and Evaluation Branch has obtained an X-ray survey instrument from the National Center for Radiological Health of the National Institute of Health. It is the same type instrument that was developed by that center for their study of hazardous X-ray emissions from color television receivers.

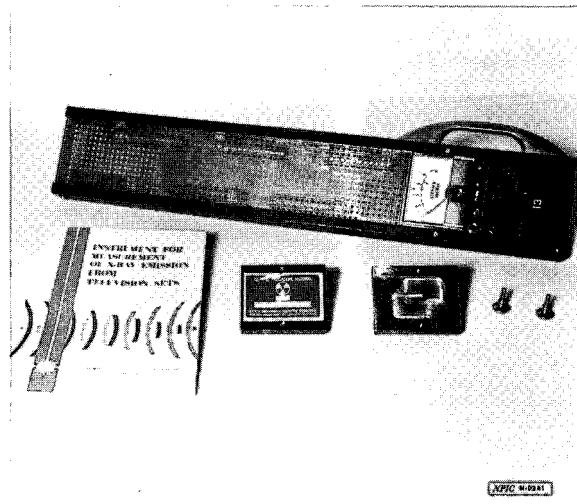
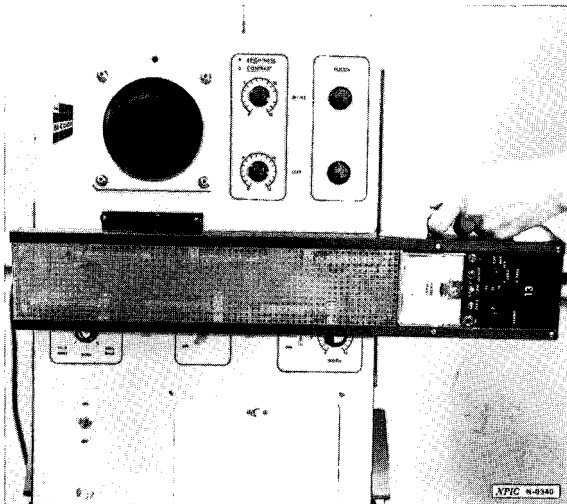
Any electrical equipment which generates high vacuum tube voltage may emit X-rays. Numerous machines at NPIC fall within this category and are being tested with this new instrument. So far the [redacted] Modulated Light Film Viewer, the Automatic Registration Electronic Stereoscope (ARES) and the [redacted] Ultrasonic and Detection Alarm Display Board have been tested and found free of hazardous emissions.

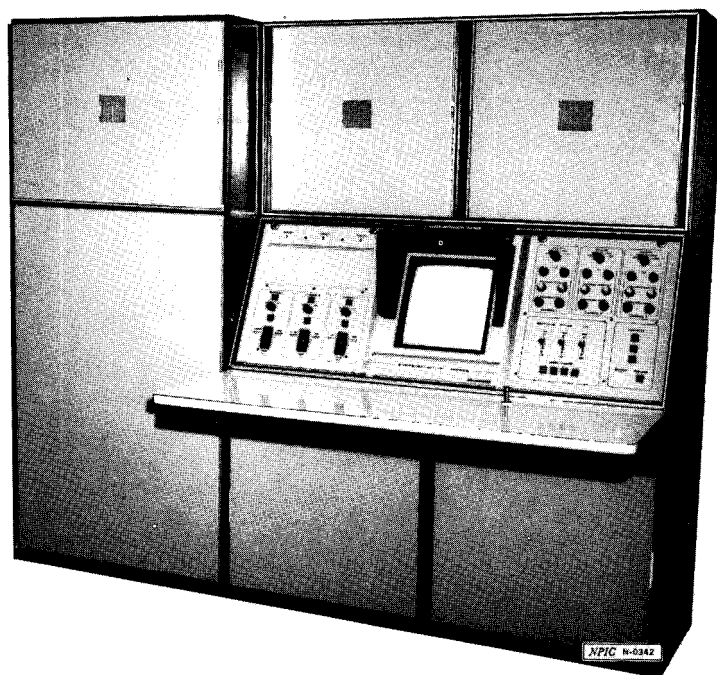
Figure 1 shows how the wand-like instrument is passed over all surfaces in conducting a survey. The small container which appears in Figure 2 was produced at NPIC to protect both personnel and unexposed silver halide emulsions from the mildly hazardous radioactive test source which was provided to test the instrument itself.

The National Council on Radiation Protection and Measurement has set the maximum acceptable level for X-ray emissions from home television receivers at 0.5 milliroentgens per hour at 5 cm. distance from the external surfaces. The NPIC T&E Branch will consider any emissions in excess of this a possible health hazard. However, making such a quantitative measurement is not simple. The survey instrument can only indicate that significant emissions are present. Other instruments and techniques must be used to determine the actual quantity.

To dig deeper see "X Radiation from Color Television Receivers," IEEE Spectrum, July 1968.

The test engineer is [redacted]



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Superimposition Viewer

The Superimposition Viewer is an electronic system developed by the Naval Reconnaissance and Technical Support Center to provide a display of three sensor records on one cathode ray tube monitor. The pictorial inputs may be: transformed to a common scale through a magnification range from .3 to 30X; rotated to a mutual alignment through 360 degrees; and viewed as a continuous image or with a flicker rate from 1 to 12 times per second. This instrument is a simple, versatile, reliable device that can be used for three tasks: screening, superimposition viewing and change detection.

Three input stations are provided: one accepts up to 9 $\frac{1}{2}$ " roll or cut transparencies; the other two accept up to 5" roll or cut transparencies, with the largest area projected being 4 $\frac{1}{2}$ " square. A joystick is employed for X-Y translations, and levers are provided for magnification, rotation, forward and reverse film device. All three channels are provided with horizontal and vertical tilt and panoramic rectification.

Testing procedures are now being delineated for the evaluation of the concept of superimposition viewing. A three-phase testing program is scheduled to begin in November 1968, with a completion date of 31 January 1969.

Point of Contacts: Naval
Reconnaissance and Technical Support Center,

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Custom Reticle Improves Estimates

An in-house development by the Exploratory Laboratory has resulted in the possibility of obtaining more accurate estimates of population, crop acreage, storage facilities, etc. from aerial photography. Working in cooperation with the Cartography Division/OBI/DDI, the Laboratory made a custom grid reticle for use in population studies by DIA/AP-7D.

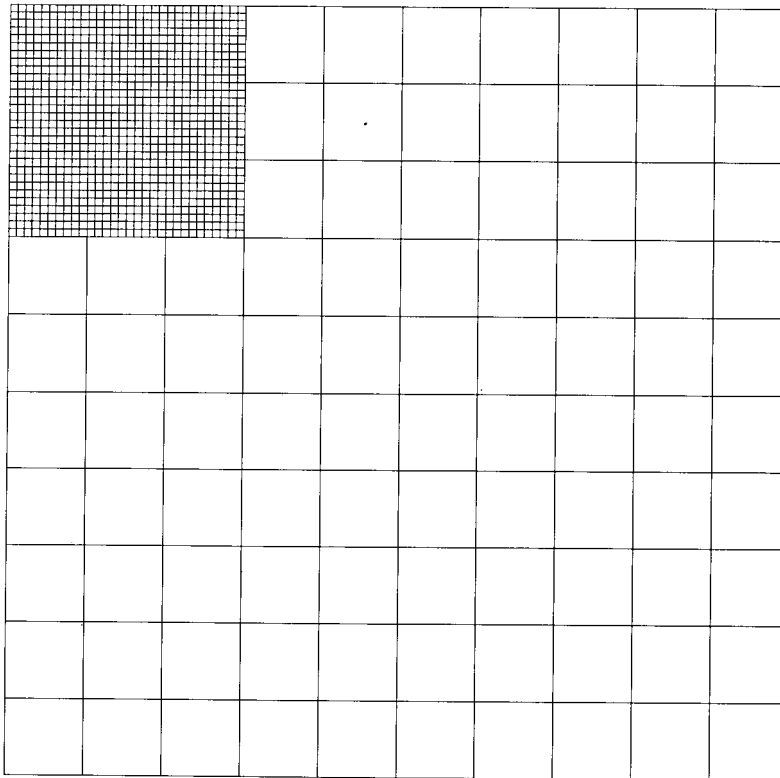
The 10 mm square reticle, shown in the enlarged photograph, contains 1 mm and 0.1 mm square subdivisions on a high resolution glass plate. The Cartography Division produced the model which was photographically reduced 25.4X by the Laboratory. Dimensions of the finished reticle were measured by TID/NPIC (IEG) on highly precise mensuration equipment and found to be only 0.03% in error (3 parts in 10,000).

The ability to make custom reticles in-house resulted in considerable cost and time savings. Commercial sources either did not stock this reticle or their estimates to develop it were judged excessive for the small number required. To date the Laboratory has produced 21 of the grid reticles for DIA. It is presently able to make a variety of similar reticles for custom applications.

The project is monitored by



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R&D NEWS NOTES

(Date)

TO: Editor, R&D NEWS NOTES, TSSG/DED

FROM:

I would like to offer my comments/questions concerning some of the following items.

- a. Summary of 8 Non-Conventional Film Systems

- b. Survey Instrument for Hazardous X-Rays

- c. Superimposition Viewer

- d. Custom Reticle Improves Estimates

- e. Other