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**PROJECT INSPECTOR**

**Progress Report for November 1964**

**1. PROGRESS OF WORK**

Through calculations and experimentation the practicability and limitations of the various methods for implementing the enhancement system were determined. Two basic methods were selected as the most feasible and the most likely to achieve the design requirements.

One method will back-light the photo with a modulated cathode-ray tube, using a broad, defocussed beam. Viewing will preferably be done by means of a vidicon and monitor. For direct viewing a memory device will be used. A possibility of direct viewing without the memory, and of coupling that with a "spotlight effect" is also being tried.

The second method calls for simultaneous scanning of the photo with a broad spot of light and with a very fine spot. This is accomplished with a single cathode-ray tube and suitable lenses and mirrors. The pickup device for this method is a photomultiplier and the viewing is accomplished by means of suitable monitors.

The basic elements for both these systems have been proven feasible. An effort is now being made to assemble small scale sample systems with materials that are available on short order.

To date, the use of vidicons and closed circuit television techniques appear to offer the best solution to the problems of low light levels, proper back-lighting control, magnification and X-ray hazards. The resolution capability, at the film plane, of a television

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viewing system is limited essentially by the illumination available. It presently appears that with proper techniques and state-of-the-art components, it will be feasible to attain the required resolution. A 1000- or 2000-line television system, properly interlaced and viewed from the proper distance, can match the resolution capability of the human eye and show no scan lines. Magnification and traversing can be done by remote control with no danger of damage to the film and the convenience of viewing the magnified image without squinting through a magnifier. An additional advantage of the system is the possibility for a number of people to view the same magnified area simultaneously, even in different locations. Photos could also be taken immediately of the magnified and enhanced view for comparison or future reference.

A trip was made to observe the photo interpretation methods used at Westover Air Force Base. Arrangements are being made to visit the Naval P. I. Laboratory in Washington, D. C. and some tactical P. I. installation. We feel that it is necessary to be familiar with existing practices in order to suggest new methods and/or devices.

2. **PROBLEM AREAS ENCOUNTERED**

Assembling a sample system to illustrate the true capabilities attainable will probably be impossible due to the cost and required lead time for the required components.

3. **PROJECTED WORK FOR THE NEXT PERIOD**

Assemble a sample system which will illustrate the suggested devices and provide a basis for extrapolation of the eventual capability.

Execute the planned field trips.

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4. STATUS OF FUND EXPENDITURES TO END OF PERIOD

As of the end of November [REDACTED] had been expended,  
leaving a balance of [REDACTED] exclusive of fee.

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5. VERBAL COMMITMENTS AND/OR AGREEMENTS

None.

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