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Type I Progress Report #2

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- a. TITLE: Compile Two Photomaps of the State of Nevada (4236)
- b. PRINCIPAL INVESTIGATOR: Joseph Lintz, Jr. (U-139)
- c. N/A
- d. Accomplishments to date include:

I. Cartography

The principal problem identified in the January report has been subjected to continuing research during the two months period and has led to a decision as to the operational procedure. The problem has been the difficulty of applying a bonding agent evenly to bind the negative and a substrate. Several bonds and several substrates were experimented with during the past two months.

A. Substrates

We have experimented extensively with plastic substrates, principally mylar and acetate. In neither case were we able to provide a smooth even layer of bonding material between the substrate and the negative material. With the mylar, especially, most bonding agents showed a pronounced tendency to bead. With the acetate substrates we found a tendency for the acetate to crinkle when bonding agents were applied.

Our only success has been to utilize glass and this is apparently giving by far the best results. We find we are able to apply several bonds very evenly on the glass and we are obtaining a strong bond between the glass and the negatives.

B. Adhesives

After two months of experimentation we are committing ourselves to the use of an epoxy (Buehler 20-8130AB) as the bonding agent for the negative/glass interface. We have discarded a series of adhesives and cements because of our inability to apply them evenly to various substrates, or else they affect the substrate by causing wrinkling, crinkling and other deleterious effects which will not permit optical projection in the map manuscript.

Abandoned cements include: Duco, 3M, Kodak, stryene, all opaque cements, and Canada balsam. Canada balsam provides many ideal characteristics insofar that it possesses fine optical properties and can be applied evenly. Our problem with Canada balsam is that it requires an inordinate period of time to set. Setting time could be reduced or accelerated by heating, but upon return to room temperature the cement became loose again and so the technique is unuseable.

The epoxy is applied via syringes, is clean, rapid and easy to apply. It also sets rapidly with minimal difficulties.

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 (E73-10398) COMPILER TWO PHOTOMAPS OF
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- C. The problem of getting perfect fit between adjacent negatives has cropped up in the past week. So far, even utilizing the greatest care, minor but unacceptable gaps between the negatives are occurring. It is anticipated these errors can be corrected by cutting the two negatives which abut simultaneously and attempts to perform this feat have been made on a preliminary basis. We anticipate solving this problem within the next week.

II. Geologic Interpretation

Interpretation of the geologic data on the ERTS imagery has proceeded slowly. To date best results have been obtained by observation of individual wave bands, especially the infrared (#7 MSS). Several circular features in southern Nevada have been seen and are believed to represent caldera. Two to three long arcuate faults (160+km) are visible on the imagery which are not established in the literature.

Conversely we are unable to detect east-west metallogenic axes postulated by R. J. Roberts of the USGS, E. C. Bingler of the Nevada Bureau of Mines and Geology, and others.

Multispectral Analysis has been attempted utilizing the Addicol System of International Imaging Systems (I²S) at Ames Research Center, Sunnyvale, Ca. The results of this day's investigation were generally discouraging and the problem appears to lie within the Addicol equipment. We were generally unable to obtain a valid discrimination between the various rock types, even some obvious features readily visible to the eye would not differentiate into multiple colors using this machine.

An order for GAF transparency material to allow a rough multispectral analysis by sandwiching these films after exposure with an ozalid machine has just been received. We anticipate proceeding with this line of analysis during the next period.

Planned activities in next reporting period include:

1. Completion negative mosaic maps.
 2. Continuation geologic interpretations utilizing ozalid sandwich technique.
- e. Results to date not considered significant.
 - f. No activities this category.
 - g. No recommendations this category.
 - h. No changes for standing order forms initiated.
 - i. ERTS image descriptor forms to follow this report in separate mailing.
 - j. No Data Request Forms have been submitted to GSFC/NDPF during the reporting period.
 - k. No report required.