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DEPARTMENT OF SURVEYS & LANDS

LANDSAT REPORT

APRIL 1976

I INTRODUCTION

Title:- An Aid to the Development of Botswana's Resources.

Investigation Number:- 28070

Author:- J.A. Raffle
PI - William L. Dickson
Organisation:- Department of Surveys & Lands
Botswana Government.

Report:- Quarterly Progress Report No. 1
April 1976.

II TECHNIQUES

(i) All Landsat data is processed at the Department of Surveys and Lands.

(ii) On receipt of a consignment 1:1m positives are identified for position on the 1:1m Botswana map. Supplies are checked and stored in the Landsat Section of the Photo Library in Photo Boxes.

(iii) The frames are indexed and catalogued on small scale index maps. Each frame for each data is allocated a number from North to South on the strip. Thus a frame number can be identified as 18 Nov 75 No.2 (9300-07340.) 109 Frames are now available.

(iv) A 1:1M print is produced for each band for each frame. These are made on double weight bromide paper. They are trimed to remove the Northern and Eastern Borders to facilitate inspection of adjoining frames.

(v) Each frame is allocated a grading based on overal inspection of the frame at this scales and this is recorded in the index.

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(vi) Frames of special interests of specific areas are produced at 1:500,000 scale from the 70 mm negative. These enlargements are made from Band 7 imagery. They are produced using a Wild B4 enlarger with an enlargement factor of 6.738. These are made on a stable base translucent material and prints are annoted with names of prominent topographical detail.

(vii) This enlargement can be used to make dye-line prints for field use. The Department holds the master print and bromide copies can also be supplied as required.

(viii) The 1:1M positives are held in the Photo Library for reference purposes.

(ix) No special equipment is held in the Photo Library for use with Landsat imagery investigations.

III ACCOMPLISHMENTS

(i) The processes outlined in paragraph II are aimed at the selection of the most suitable frames for future cartographic work.

(ii) The most important factor in the 'Landsat' investigation is that the 70mm negatives can be used for this initial work. Once the most suitable frames have been selected 1:1M negatives will be ordered from N.A.S.A. for use for the production of 1:250,000 scale enlargements.

(iii) Imagery has been used to supply additional control for the production of mosaics for blocks of medium scale aerial photography. The use of the graticule data on the imagery has proved to be most useful in this work. (A further report will be made)

(iv) Conversly, imagery has been used for the control of aerial photography in areas covered by uncontrolled Print lay downs. The benefits to be derived from the use of Landsat imagery for control in remote areas cannot be overemphasised.

IV SIGNIFICANT RESULTS

Fom the cartographic aspect no significant result have yet been obtained. This must await the arrival of selected imagery, see paragraph III.

By far the most significant aspect of Landsat to development work in Botswana is the fact that 70mm negatives can be used directly to produce 1:500,000 enlargements. This Department cannot report on the wider use of this imagery but in areas where limited aerial photocover is available Landsat is being used by field investigators for all types of

development work.

V PUBLICATIONS

No publications have been produced by this Department on Landsat to date. A report for the Journal of the Botswana Society is in preparation.

VI PROBLEMS

(i) Lack of suitably qualified staff with dark room experience to get maximum benefit from Landsat data.

(ii) Lack of time available to spend on Landsat work in the course of normal work of the Department.

(iii) Problems of just who should be contacted in the United States of Ameriica for quick answers on specific problems.

(iv) The problem of large computer printouts which need explanation to local staff. These printouts tend to be put away as "too difficult."

(v) Problem of indexes giving world wide cover whereas Botswana Data only is required.

VII DATA QUALITY AND DELIVERY

The quality of Landsat data in comparison with ERTS is good. The benefits to be gained by the use of the 70mm negatives cannot be overstressed.

Delivery is not really a problem with a cartographic investigation. The main question is lack of close cooperation with NASA and the proliferation of names for various agencies in the United States of America.

VIII RECOMMENDATIONS

(i) Need for one contact in United States of America for advice and information.

(ii) Need for more details of delivery from the U.S.A. i.e. When despatch is made and when it will arrive.

(Supplies invariably arrive without warning at very busy times.)

(iii) Need for provision of 1:1M negatives as a standard supply. 70mm negatives are small and rather tricky to use for production work.

IX. CONCLUSIONS

(i) Landsat is a great improvement on E.R.T.S.

(ii) It's use as a development aid in the work of this Department cannot be overstressed.. For example for first stage field work, a Landsat image can form the basis for a Geological investigation. As a follow up aerial photography may be required but the system works from

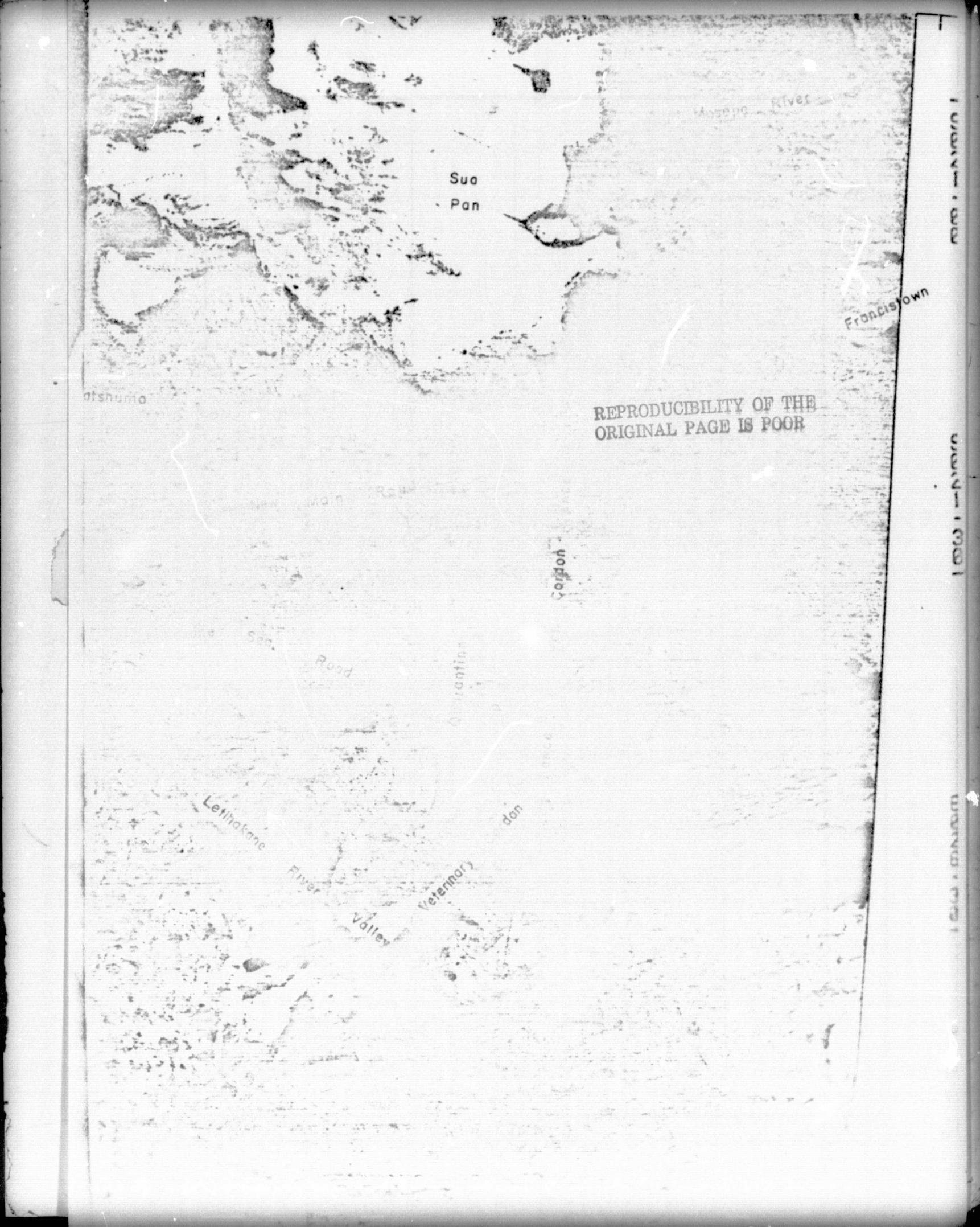
Landsat to mosaics to the photo.

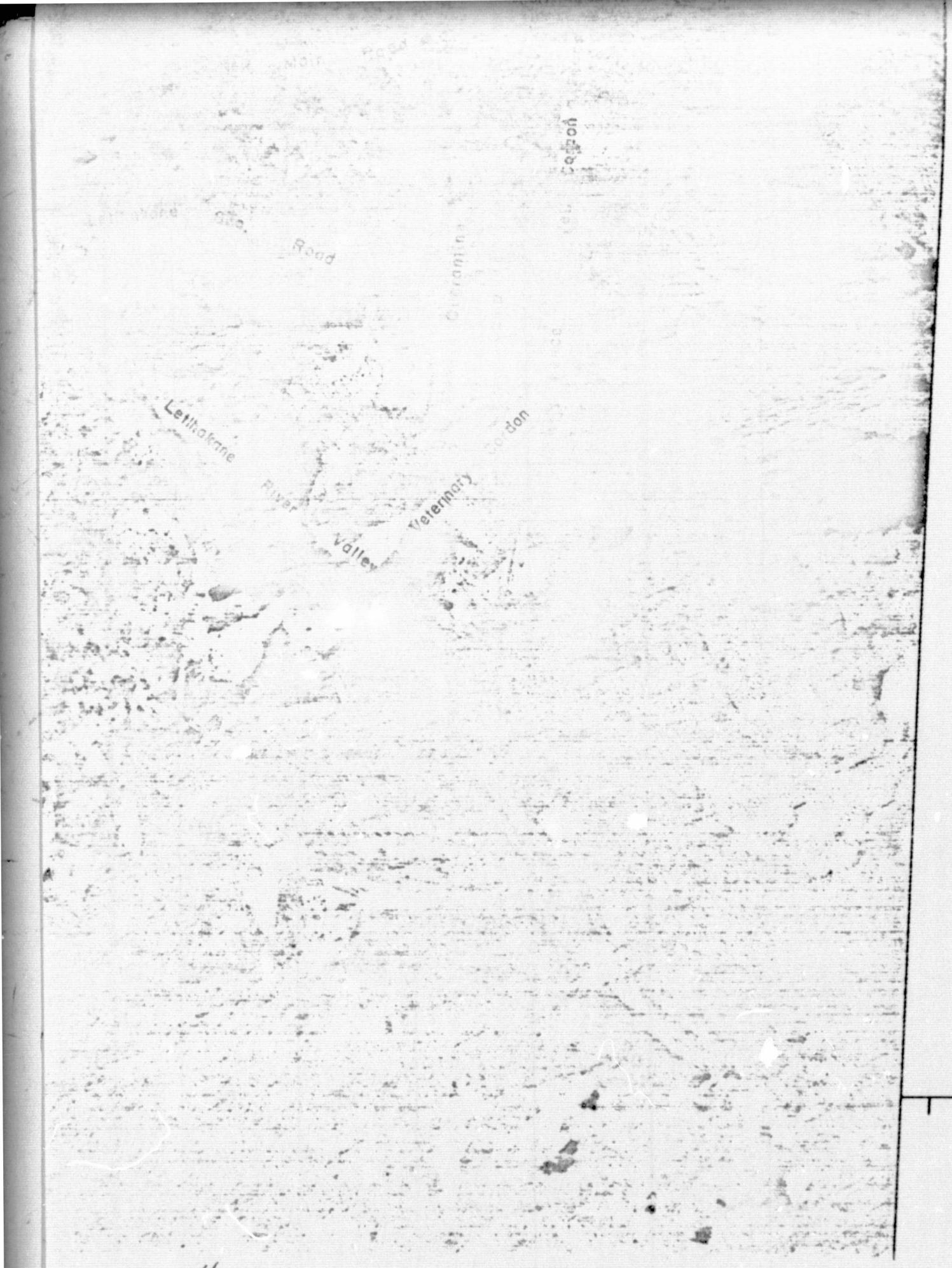
(iii) The Development of Remote Sensing work in Botswana is slowly gaining momentum. The availability of imagery as an integral part of the Departmental photo Library ensures that all types of field investigations can get off to a good start without expensive and time consuming work on the production of numerous aerial photos. The planning of the project along sound lines can begin on the image itself. Work can proceed from the whole to the part.

J.A. RAFFLE

PROJECT COORDINATOR
GABORONE.

30TH APRIL, 1976





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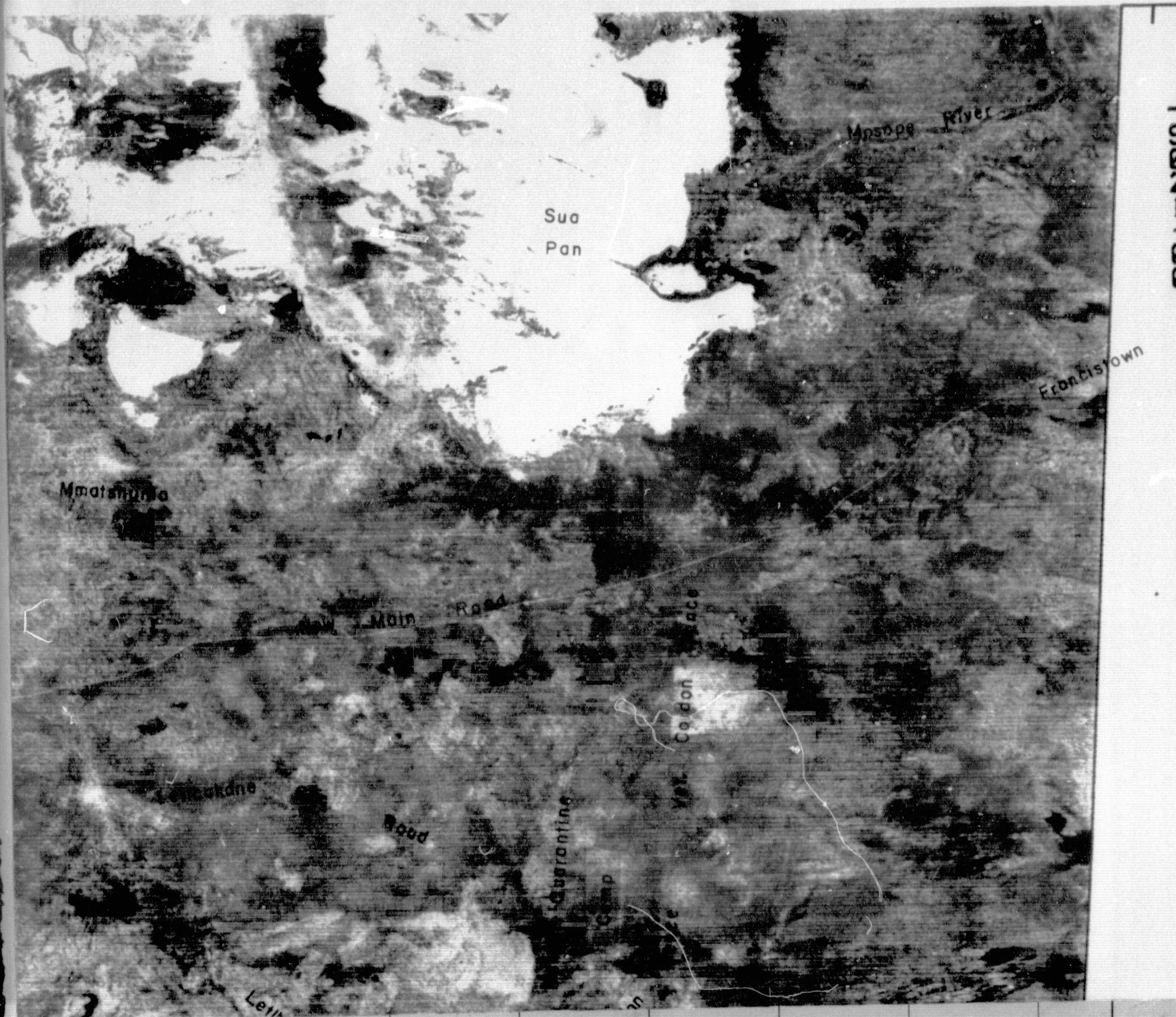

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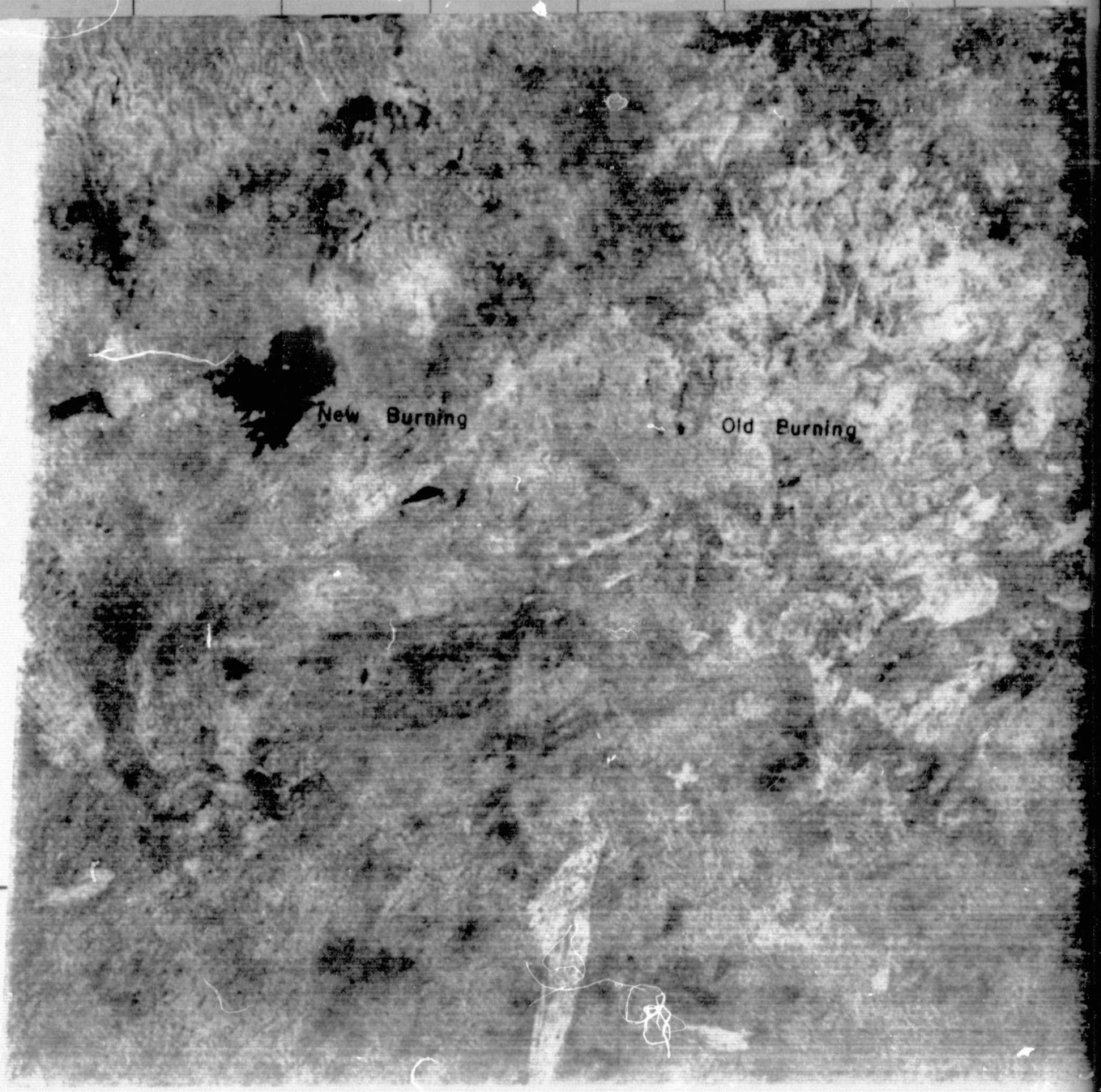

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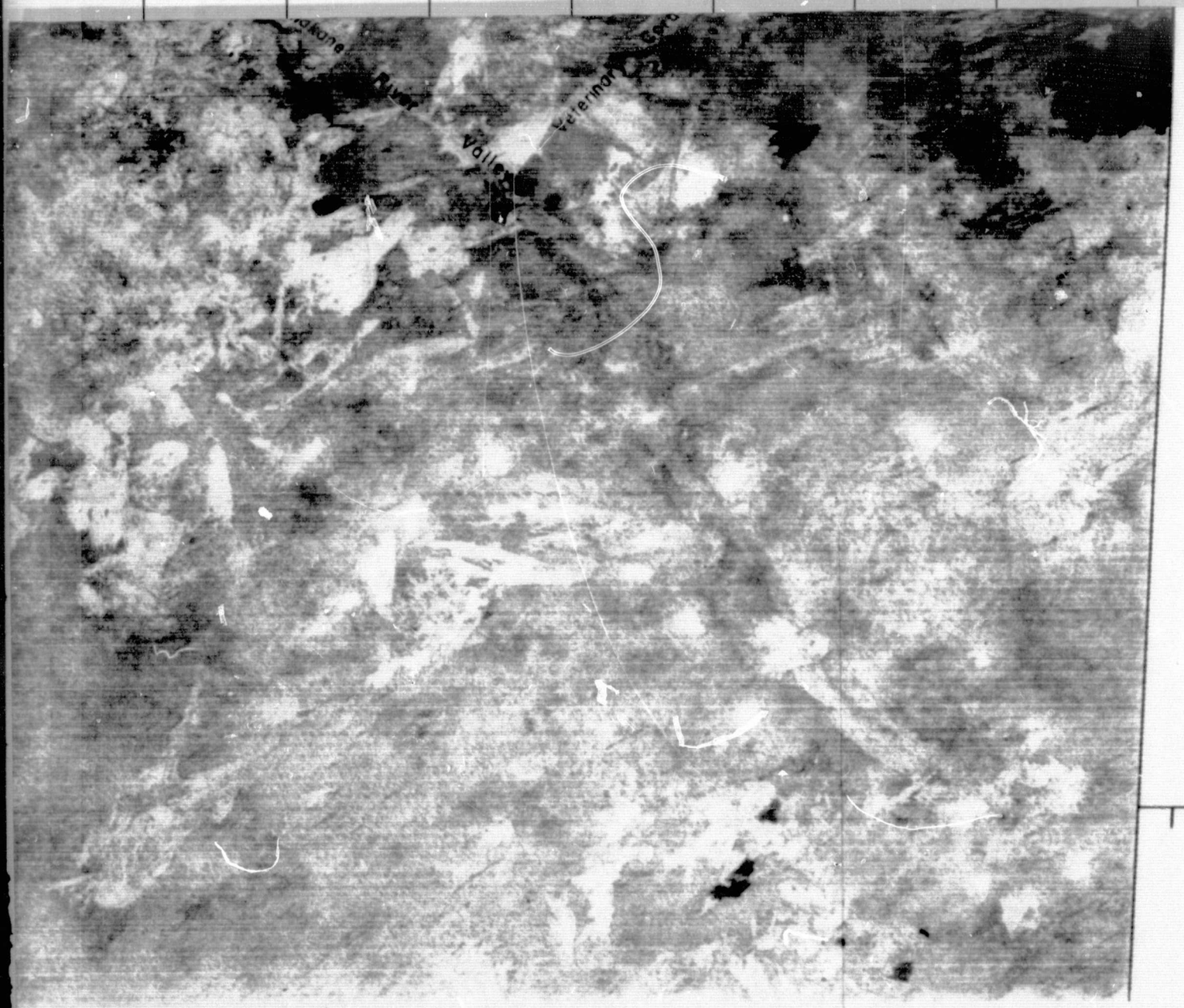

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