PROGRESS REPORT 1

ON THE

THICKNESS OF SEDIMENTS IN

MOORE'S VALLEY

7 October 1958

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To: Mr. G.F. Hudspeth.

Progress Report One on the Thickness of Sediments within Moore's Valley

1. Introduction

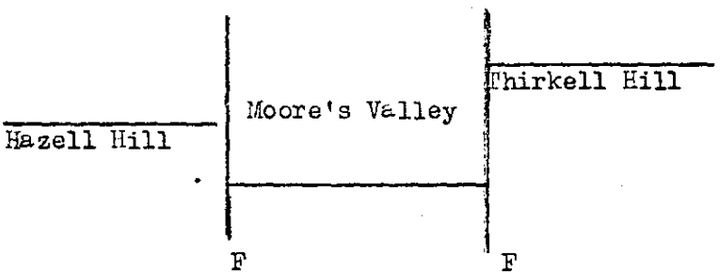
One of the areas suitable for detailed prospecting work this season is within Moore's Valley. As has already been stated in previous reports, the Dundas Group and associated structural features here are in part obscured by Tertiary and Recent sediments, the nature and thickness of which will have a considerable influence on the type of investigation to be undertaken in order to penetrate this cover and investigate the basement. There is no doubt that ground geophysics would play a major role in any work.

2. Nature and Thickness of Sediments

Generally they consist of loosely consolidated sands and gravels with thin bands of clay. Cyclic sedimentation is pronounced in the area, each cycle beginning with a cobble gravel, grading via pebble gravel and sand to a lignitic clay. From a compilation of sections taken inside and outside the Valley, seven cycles can be recognised, each cycle is approximately 50 feet in thickness and ends in a band of clay 2 to 4 feet thick. In the sections examined, large particles of rock (+ 12 inches) are absent, generally the particles are less than 8 inches in diameter and consist of rounded cobbles/pebbles of Precambrian metaquartzites and quartz schists, with fewer particles of Owen Conglomerate. Particles of the Dundas Group are surprisingly rare.

In a north-south section (P73) the sediments represent the filling of an ancient valley which was formed by block faulting in Late Tertiary times. There are good reasons to suppose that the old surface before faulting had been peneplaned to a level surface. Treating this faulting as a single fracture the downthrow has been to the south, the relative displacement of a marker horizon would be:

SOUTH NORTH



F = Fault. No Scale.

The sediments are practically horizontal and it is a relatively simple procedure to build up a stratigraphical column from the exposures found in the stream courses.

The top of the sediments is known at an elevation of approximately 800 feet above sea level at the edges of the valley and at 220 feet in its centre. Just to the west of the Valley the base of these sediments is exposed in the Wanderer River at an elevation of 150 feet (report G50). Assuming that this last figure has some relevancy inside the Valley, from the known structure there are three possibilities:

A. <u>The Floor of the Valley is still Flat</u>

In this case (section P73A) the thickness of sediments will bear a direct relationship to the amount of fault movement at the edges of

the valley, and the measurement of a stratigraphical column from these edges to the centre of the valley will give a minimum figure for this thickness, at least 180 feet have been established in this manner (G50). Using the elevations already given the thickness of sediments remaining in the centre of valley would be 70 feet and at the edges 550 feet.

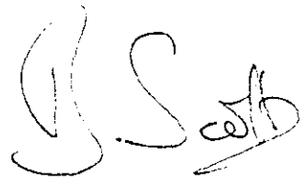
B. The Floor of the Valley is Formed of a Series of Faults (Section P73B)

In this instance the sediments need still be only 70 feet thick near the centre but they would be an unknown thickness at its edges with a maximum thickness of 550 feet. It is to be noted that in this instance the measurement of stratigraphical thicknesses on the floor and edges of the valley will bear no relationship to their effective thickness.

C. The Floor of the Valley is Folded

This would resemble the present floor of the Linda Valley, and a section would correspond to P73B, with the same inferences.

Work is continuing on this problem.



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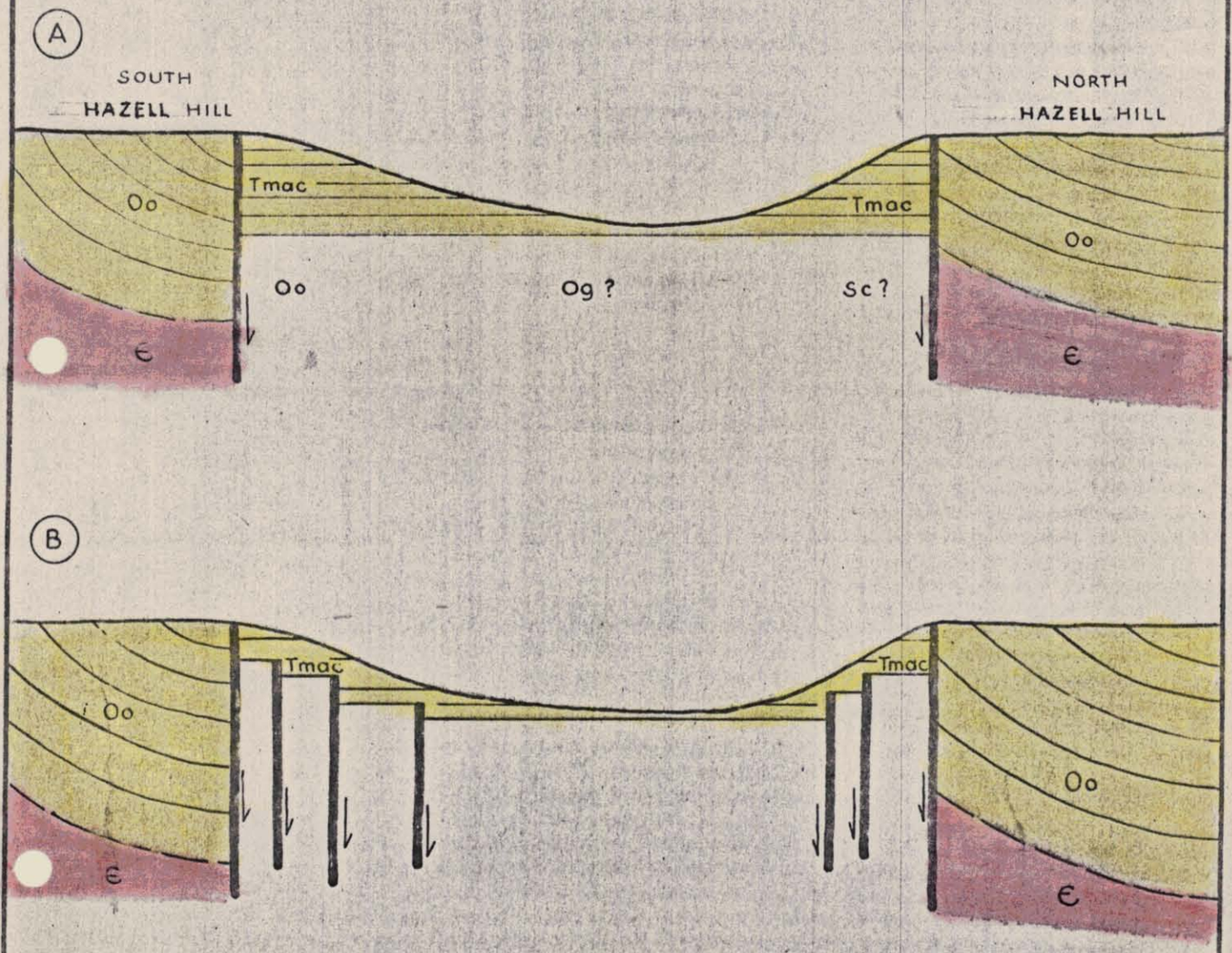
MOORES VALLEY



Horizotal Scale 1" = 10,000 ft.

Vertical Scale 1" = 1,000 ft.

Tmac	Tertiary & Recent
Sc	Crotty Quartzite
Og	Gordon Limestone
Oo	Owen Conglomerate
ϵ	Dundas Group
⌒	Bedding

5 cm

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