
Shochie Burn

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Highlights

The sequence of deposits exposed in the stream section at Shochie Burn shows glaciotectonically disturbed sands and gravels overlain by till. It shows that a local readvance of ice interrupted the decay of the Late Devensian ice-sheet.

Introduction

The site [NO 071 292] is a stream section located on the south bank of the Shochie Burn near Moneydie, 5 km north of Perth. The deposits comprise a succession of two tills separated by sands and gravels, which are important in interpreting the pattern of recession of the Late Devensian ice-sheet margin. The site occurs within the area of the formerly recognized Perth Readvance, and although the succession represents a readvance of the ice margin, this was probably only a minor oscillation. The only description of the site is by Paterson (1974).

Description

The section at Shochie Burn was described by Paterson (1974). It shows a sequence of:

4. Coarse gravel
3. Reddish-brown, sandy till
2. Silt and sand with clay laminae and gravel lenses
1. Reddish-brown, clayey till

The geometry of the deposits is illustrated in (Figure 14.3). The lower till (bed 1) is separated from the overlying silt and fine sand (bed 2) by what appears to be a shear plane (Paterson, 1974). The sediments of bed 2 are compacted and deformed: clay laminae are folded, streaked out and displaced by many small faults. The lamination dips generally at 15–20° to the west, but towards the western end of the section it is vertical where the deposit abuts a mass of reddish-brown, clayey till. Overlying bed 2 is a reddish-brown, sandy till (bed 3) which has the form of a wedge. The uppermost deposit (bed 4) is a coarse gravel 4–5 m thick.

Interpretation

Although historical arguments that tripartite sequences, comprising sand and gravel between two tills, imply ice readvance have been shown to be unfounded by work in modern glacier environments (Boulton, 1972b), Paterson (1974) considered that additional evidence from the Shochie Burn deposits supported a minor readvance or brief surge of the Late Devensian ice-sheet. The compacted nature of bed 2, interpreted as fluvial in origin, and the deformation of the sediments, suggested that it had been overridden and glaciotectonized by the ice that deposited the upper till (bed 3); at the same time blocks of till detached from bed 1 were emplaced into the silts and fine sands of bed 2. The gravels of bed 4 form part of an extensive deposit, probably an outwash fan produced as the ice subsequently retreated westwards.

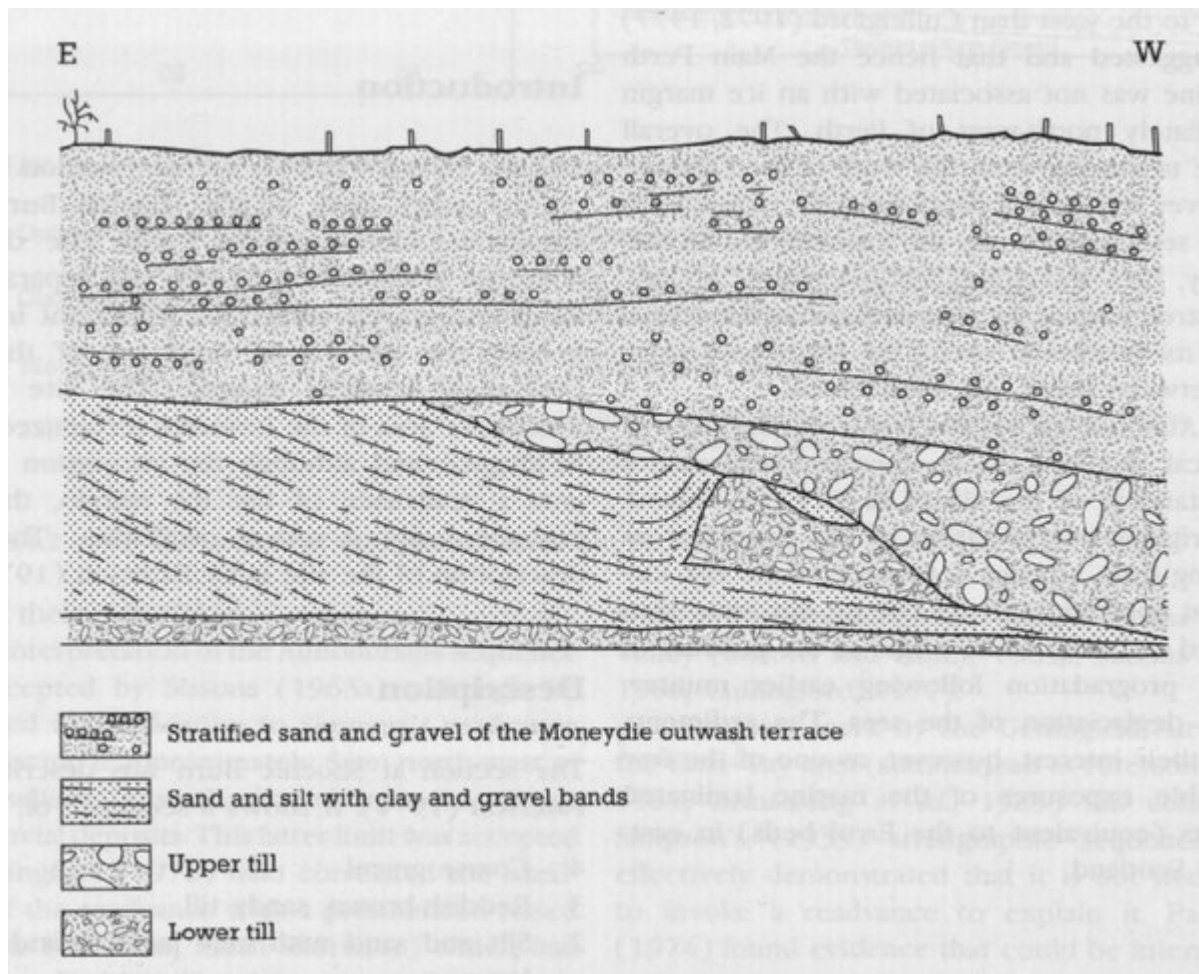
Shochie Burn lies within the limits of the formerly hypothesized Perth Readvance (Simpson, 1933; Sissons, 1963a, 1964). However, the evidence for this event has been reinterpreted, and the readvance is no longer recognized (Paterson, 1974; Sissons, 1974c). The succession at Shochie Burn, the only locality in the Perth area where two tills are known to occur (Paterson, 1974), therefore provides a valuable record of a localized oscillation of the Late Devensian ice-sheet margin and the accompanying sedimentary processes. In particular, the glaciotectonic features are potentially

of considerable interest although they have not been studied in any detail.

Conclusion

The deposits at Shochie Burn provide evidence for interpreting the pattern of decay of the last ice-sheet during Late Devensian times (approximately 14,000–13,000 years ago). They show that there was a local readvance of the icefront which overrode and disturbed previously deposited sands and gravels. Although there is no evidence for a widespread readvance, the site is important in demonstrating aspects of the complexity of depositional environments at an ice margin.

References



(Figure 14.3) Sketch section of glacial deposits at Shochie Burn (unscaled) (from Paterson, 1974).