STREAM AGGRADATION FOLLOWING RECENT GLACIER RETREAT (NOTE)

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A comparison of old and modern photographs is being carried out to assess recent changes in erosion features (Whitehouse, 1978). A pair from a collection of over 200 is presented here.

Figure 1 shows the Reischek Stream and Glacier in the Rakaia River Catchment, South Island, in 1933. Another photo of the same scene was taken in 1979 (Figure 2).

Comparison of Figures 1 and 2 shows considerable aggradation in the lower channel in the intervening 46 years. An on-site investigation indicated that the deposition of gravel lobes below the mouth of the gorge has raised the stream level on the true right side about one metre above the 1933 level. The source of this aggrading material is apparently the lateral moraine and adjacent colluvium that collapsed following rapid retreat of the Reischek Glacier. Little change has occurred in erosion features within the vegetated part of the catchment; screes and gullies in this zone do not appear to have contributed much sediment. Thus the aggradation is probably the result of an amelioration of climate (Salinger, 1976), rather than the result of erosion following depletion of the vegetation cover by noxious or domestic animals.

Photographs of the mouths of Rutherford Stream and North Branch in the Godley Valley taken in 1921 and 1979 also show aggradation. Both streams have small glaciers in their headwaters and their aggradation probably results from the same mechanism. This climatically induced aggradation may be occurring in many small alpine valleys throughout the Southern Alps.

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REFERENCES

Salinger, M. J. 1976: New Zealand temperatures since 1300 AD. *Nature v260:* 310–311.
Whitehouse, I. E. 1978: A century of erosion and recovery, *Soil and Water 14(5):* 10–14.

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FIG. – 1 Reischek Stream and Glacier from Meins Knob (map ref. S72:488857) 28 March 1933.
(Kennedy Collection, Canterbury Museum, photo J. Pascoe)

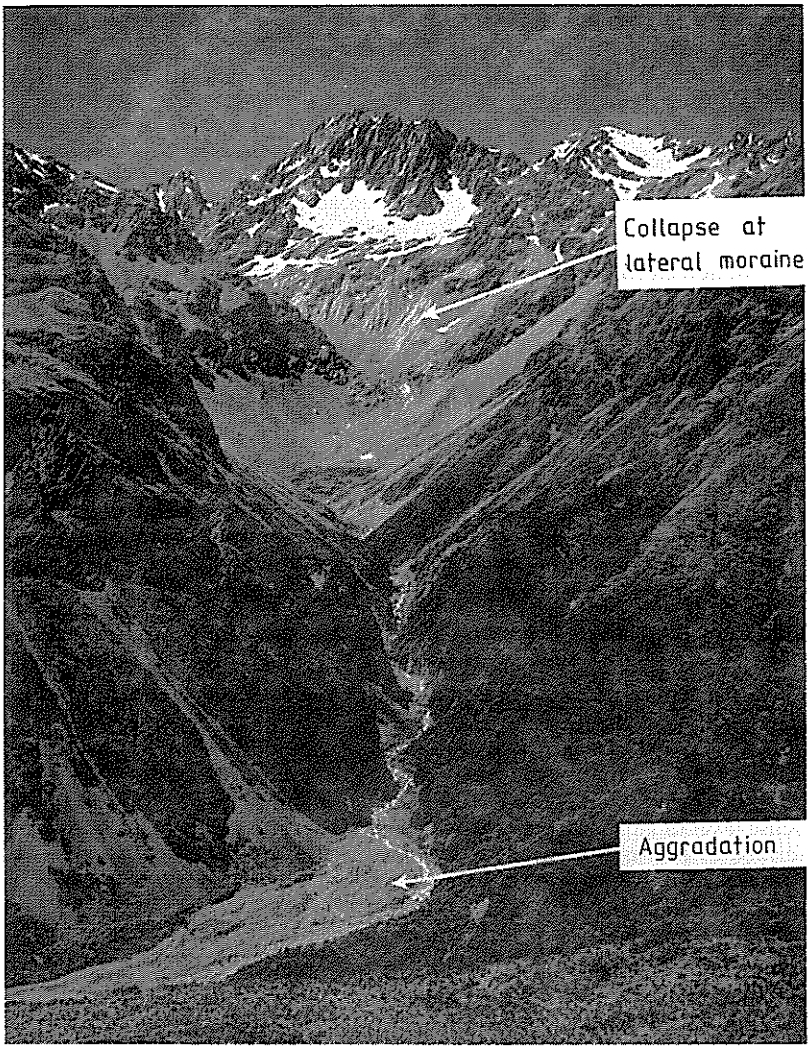

FIG. – 2 Reischek Stream, 23 January 1979. (photo I. E. Whitehouse)