A Note on the Soil of the Otaki Plain

I. A. E. Atkinson

THIS plain is a gently sloping fan of alluvial deposits laid down by the Otaki R. in post-glacial times. The soil, mapped in Soil Bureau Bulletin No. 5 as Takapau stony loam (75b), is weathered from greywacke and some volcanic ash, and is representative of soils on many similar fans flanking the Tararua and Ruahine ranges. Further north, however, the Takapau soils contain larger amounts of volcanic ash.

A profile description made on a level site in forest alongside Old Hautere Rd. (grid. ref. N.Z.M.S. 1 Otaki 667822) is as follows:

35-30 ft. totara; 25-20 ft. matai;
15-10 ft. rohutu; 8-3 ft. matai;
3-½ in. *Oplismenus undulatifolius, Pellaea rotundifolia,* and dead branches;
½-0 in. decomposing leaves and twigs;
0-6 in. very dark brown (10YR 2/2) bouldery loam with stones; friable; moderately developed fine granular structure; roots throughout; indistinct boundary;
6-15 in. brown (10YR 4/3) stony sandy loam with rounded greywacke boulders; loose; weakly developed fine granular structure; few roots;
on bouldery alluvium.
Drainage: excessive.

On the day of description (1 August 1964) the weather was fine but there had previously been a wet spell. In the profile it was noticeable that the soil had only wetted down to a depth of about 6 in.; the lower horizon appeared dry.

The Soil Analysis Section of Soil Bureau has analysed a sample of similar untopdressed soil under pasture collected approximately ¾ mile west of the above profile on the same fan. Soil texture was a stony silt loam and the analysis is given in the table below.

Analysis of Takapau stony loam by Miss F. A. d'Ath and W. R. Owers. Collected by H. S. Gibbs, 29 Aug. 1957. Grid ref. N.Z.M.S. 1 Otaki 651822.

Lab. No.	Depth in.	pH	P mg %	C %	N %	C/N
SB 7204A	0-6	5.5	2	9.7	0.48	20
SB 7204B	8-13	5.6	2	4.4	0.22	20

CEC m.e. %	TEC m.e. %	% BS	Ca m.e. %	Mg m.e. %	K m.e. %	Na m.e. %
23.0	12.3	54	7.9	3.3	0.75	0.2
16.2	5.5	34	3.6	1.3	0.45	0.1

This soil appears to be moderately fertile. The average base saturation of the profile indicates that the extent of leaching of cations (bases) is moderate. Nitrogen and phosphorus values are medium. The carbon figure suggests a rather slow rate of breakdown in the organic matter.