Table I.—Comparison of Lengths of Regenerated and Normal Appendages of New Zealand Wetas.
(All measurements are in millimetres.)

| | Femur | | Tibia | | Tarsus | | Cercus | |
|---|---|---|---|---|---|---|---|---|
| | Norm. | Reg. | Norm. | Reg. | Norm. | Reg. | Norm. | Reg. |
| *Turbottoplectron* sp. adult ♂ (middle leg) | 11 | 11 | 12 | 6 | 8 | 4 | | |
| *Hemideina thoracica* penultimate ♂ (hind leg) | 16 | 15.25 | 17 | 14 | 7.25 | 2 | | |
| *Hemideina thoracica* adult ♀ (hind leg) | 16.75 | 16 | 20 | 12 | 8.5 | 4.5 | | |
| *Hemideina thoracica* adult ♀ (hind leg) | 19 | 18 | 20 | 17 | 8 | 7.25 | 4 | 2 |
| *Deinacrida rugosa* adult ♀ (fore leg) | 15 | 12 | 14 | 5.25 | 8.5 | 3 | | |

of spines. The second example is a penultimate male henicid, *Hemideina thoracica* (White), from the Tararua mountain range, Wellington, in which part of the right hind tibia and the whole tarsus have been lost. A short conical tarsus comprising three segments and rudimentary claws has been regenerated on the shortened tibia. The next two are adult female henicids of the same species from Wellington, in both of which a complete hind tibia and tarsus have been regenerated on the left side. The regenerated tibiae are relatively slender and a little distorted in both specimens. Distal spurs are present on each, but superior spines are lacking. On one tibia a few inferior retro-lateral spines are present. In the fourth specimen the left cercus, probably almost completely lost at an earlier stage has regenerated and formed a short blunt projection. The fifth example is also a henicid, *Deinacrida rugosa* Buller, from Stephen's Island, in which the entire tibia and tarsus of the left fore leg have been lost, probably during the sixth or seventh instar, so that by the adult stage a miniature tibia and three-segmented tarsus without claws have been regenerated on a slightly smaller than normal sized femur (Fig. 4).

With *Deinacrida rugosa* under laboratory conditions examples of regeneration were more frequent, limbs, portions of limbs and antennae often being lost as a result of the aggressive character of nymphs kept together. Data from these are summarised in Tables II and III.

In the first two examples the tarsus was deliberately amputated during the first instar, one specimen requiring two and the other three moults before a regenerated element became visible. The new tarsus did not become as large as the corresponding normal one of the opposite side, even after seven or eight moults. In the third example a tarsus lost during the sixth instar commenced regenerating at the next moult but was smaller than normal at the adult stage. A complete tibia and tarsus lost during the third instar in the fourth example, commenced regenerating after the fourth moult when the femur also was found to be smaller than normal.

Regenerating antennae show relatively enormous increases in length at each moult. In the final example an antenna was lost as far back as the scape, probably during the second or third instar. The figures quoted for the normal antenna of the opposite side are not quite comparable, because portions of the flagellum were broken off—a frequent occurrence in captivity. By the fifth instar five elongate antennal segments had been regenerated (Fig. 1) and at the sixth instar, twenty-eight, including five much smaller terminal segments which may have resulted from apical growth of the flagellum (Figs. 2a and 2b). At the seventh instar seventy segments, including three much smaller terminal ones, had developed.