

special reasons for such carrying-capacity. Further, excepting those few grasses easily recognizable for which there are popular names—names, however, used quite loosely—he knows but little regarding the composition of his pastures. Even with regard to the known grasses, as pointed out in my last article (p. 5), two neighbouring sheep-farmers, each of exceptional experience, may hold diverse views with regard to their palatability. Nor is such divergence of opinion confined to the pastoralist, for when the writings of New Zealand botanists regarding the palatability of the indigenous grasses are compared the divergence of opinion becomes still more marked. This may readily be seen from the table drawn up as an appendix to this article, where various opinions of botanists are compared, commencing with those of Buchanan (for many years the leading authority on New Zealand grasses) in 1869 ("Transactions of the New Zealand Institute," 2nd ed., Vol. i, pp. 182-84), but first put forth so early as 1865, and ending with the provisional results of my present investigation.

Most of the statements made, up to the present, regarding what sheep eat only say that such-and-such species are eaten, but nothing is definitely said as to relative palatability. This latter is the crux of the whole question. From what I have observed sheep do not take their food haphazard; they distinctly select—their feeding, indeed, may be called "selective." *The term "palatability" as here used is not primarily concerned with what species are eaten, but with what species are preferred before all others when the sheep have a choice.* For instance, certain plants may be eaten by starving sheep which under ordinary circumstances are not touched; other plants, again, are only eaten if more palatable species are absent. Several interesting examples of this latter class are dealt with farther on. Each species appears, indeed, to have its special measure of palatability, so it should ultimately be possible, as explained in my last article (p. 6), to assign to each species a number denoting its palatability. This plan is tentatively adopted in the appendix to this article, the number 5 denoting the maximum of palatability, while the number 0 means that a species is not eaten under any circumstances. The remaining numbers, 4 to 1, show, of course, different degrees of declining palatability. It must be pointed out that these palatability numbers are merely my interpretation of the various authors' statements. Another matter which leads to confusion is that, in estimating palatability, frequently no distinction is made between grazing by stock as a whole and grazing by the different kinds of stock. Nor has any notice been taken of the different races of species: e.g., red tussock and snow-grass—two very different plants from the standpoint of palatability—have been treated as one species under the name of *Danthonia Raoulii*.

This matter of palatability has little to do with the relative food-values of the plants, except that it is probably true that one kind of natural food specially liked by an animal may be quite equal as a food, or even better, than another more unpalatable kind which, on chemical analysis, shows more nutritive qualities.

The palatability of a species must vary considerably according to the season of the year, the general climate of the locality, the climate for the time being, the nature of the soil, and so on; in fact, it must be greatly influenced by its environment. So, too, must different