

GRASSES AND SEDGES.

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Most people imagine that there is very little to be said about such a common thing as grass, yet there is not a single species whose structure, uses, and life history are fully known to us. Those things which are most familiar to us are apt to be regarded with the least wonder, and to occasion the least thought. It is only when we study with care the familiar objects about us that we begin to see how wonderful they really are, and to recognise the fact that "our daily life is girt with wonder and based on wonder."

In common usage, the term grass includes the green plants on which cattle and other beasts feed; or any herbage that serves for pasture. This sense includes what are sometimes called the Artificial Grasses (food plants for horses and cattle, which are not true or Natural Grasses), as clover in Canada and the United States and sainfoin in Europe, as well as some other plants, principally of the legume or bean family.

From a botanical point of view, grasses are herbaceous (or rarely woody) plants with round, jointed, mostly hollow stems bearing alternate 2-ranked leaves with the sheath split or open on the side opposite the blade. The leaves are long and narrow, and at the junction of the blade and sheath there is often a short membranous prolongation of the epidermis of the sheath, called the ligule. The flowers are enclosed in glumes and are arrayed in spikes, racemes or panicles. The stamens are hypogynous, sometimes only one, sometimes 6 or more, but very generally three, the anthers being attached to their filaments by the middle of their back and easily

moved by the slightest breeze. The styles are mostly two or two parted, the stigmas being hairy or feathery. The ovary is one celled, one ovuled, and in fruit forms a seed-like grain or caryopsis in which the pericarp is adherent to the seed. The seed consists of a small embryo, being at the base and on the outside of a large farinaceous albumen, from which arises in great part the extreme importance of this order (*Gramineæ*) of plants to man; very many of the species being valuable on account of their starchy seeds or nutritious herbage. Usually grasses are annuals of humble growth, but sometimes perennial and woody, occasionally, as in bamboos, attaining the height and magnitude of trees. The roots are fibrous, and the root stock often throws out runners. The stems, leaves and glumes contain a large proportion of silica, particularly the epidermis, so that when large quantities of them are burned, a sort of glass is formed; a fact which requires attention in questions relative to the manure suitable for particular crops, and the most profitable attention of crops in husbandry.

The grasses constitute a very natural order, or family, containing about 4,500 species distributed over all parts of the world. Some are characteristic of the warmest tropical regions, and some of the vicinity of perpetual snow; but they abound most of all in the northern temperate zone, where they form the chief vegetation of meadows and pastures, where they are seen to advantage in their social character, clothing the ground with verdure. Every kind of soil is suitable to some or other of the grasses; and