THE GLEANER.

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THE GLEANER.

Agricultural Journal.

From the Fourth Edition of Mrs. Somerville's work "On the Connexion of the Physical Sciences."

Influence of Temperature on Vegetation.—Vegetation varies with the Latitude and Height above the Sea.—Geographical distribution of Land Plants.—Distribution of Marine Plants.

Near the equator, the oak flourishes at the height of 9200 feet above the level of the sea; and on the lofty range of the Himalaya, the primula, the convallaria, and the veronica blossom, but not the primrose, the lilly of the valley, or the veronica which adorn our meadows: for although harbarium collected by Mr Moorcraft on his route from Neetee to Daba and Garlope in Chinese Tartary, at elevations as high or even higher than Mont Blanc, abounds in Alpine and European genera, the species are universally different, with the single exception of the rhodiola rosea, which is identical with the species that blooms in Scotland. It is not in this instance alone that similarity of climate obtains without identity of productions; throughout the whole globe, a certain analogy both of structure and appearance is frequently discovered between plants under corresponding circumstances, which are yet specifically different. It is even said that a distance of 25° of latitude occasions a total change, not only of vegetable productions, but of organized beings. Certain it is, that each separate region of both land and water, from the frozen shores of the polar circles to the burning regions of the torrid zone, possesses a Flora of species peculiarly its own. The whole globe has been divided by botanical geographers into twenty seven botanical districts, differing almost entirely in their specific vegetable production, the limits of which are most decided when they are separated by a wide expanse of ocean, mountain chains, sandy deserts, salt plains, or internal seas. A considerable number of plants are common to the northern regions of Asia, Europe and America, where the continents almost unite; but in approaching the south, the Floras of these three great divisions of the globe differ more and more even in the same parallels of latitude, which shows that temperature alone is not the cause of the almost complete diversity of species that everywhere prevails. The Floras of China, Siberia, Tartary, of the European district including Central Europe and the coast of the Mediterranean, and the Oriental region, comprising the countries round the Black and Caspian Seas, all differ in specific character. Only twenty four species were found by MM. Bonpland and Humboldt in Equinoctical America identical with those of the Old World: and Mr Brown not only found that a peculiar vegetation exists in New Holland, between the 33d and and 35th parallels of south latitudes, but that, at the eastern and western extremities of these parallels, not one species is common to both, and that certain genera also are almost entirely confined to these spots. The number of species common to Australia and Europe, are only 166 out of 4,100, and probably some of these have been conveyed thither by the colonisis. This proportion exceeds what is observed in Southern Africa, and from what has been already stated, the proportion of European species in Equinoctial America is still less.

Islands partake of the vegetation of the nearest continents, but when very remote from land their Floras are altogether peculiar. The Aleutian Islands, extending between Asia and America, partake of the vegetation of the northern parts of both these continents, and may have served as a channel of communication. In Madeira and Teneriffe, the plants of Portugal, Spain, the Azores, and of the north coast of Africa are found; and the Canaries contain a great number of plants belonging to the African coast. But each of these islands possesses a Flora that exists nowhere else; and St. Helena, standing alone in the midst of the Atlantic Ocean, out of sixty-one indigenous species, produces only two or three recognized as belonging to any other part of the world.

It appears from the investigations of M. de Humboldt, that between the tropics the monocotyledonous plants, such as grasses and palms, which have only seed-lobe are to the dicotyledonous tribe, which have two seed-lobes like most of the European species, in the proportion of one to four; in the temperate zones they are as one to six; and in the Arctic regions, where mosses and lichens which form the lowest order of the vegetable creation abound, the proportion is as one to two. The annual monocotyledonous and dicotyledonous plants in the temperate zones amount to one sixth of the whole, omitting the Cryptogamia; in the torrid zone, they scarcely form one twentieth, and in Lapland one thirtieth part. In approaching the equator, the ligneus exceed the number of herbacous plants; in America, there are a hundred and twenty different species of forest trees, whereas in the same latitudes in Europe only thirty four are to be found.

A TREATISE ON AGRICULTURE.

By John Sproule.

Of all the practical arts, agriculture has lingred longest and farthest in the rear of scientific discovery. It is now however, rapidly making up its leeway, and assering its claims to the rank of science. This is owing to various causes, and pre-eminently to the patriotic exertions of the national and local societies which have been instituted for the improvement of the art first in Scotland, and more recently in England and Ireland.

The great national utility of such institutions is now universally recognized, and the wonder is that this was not the case long ago; but it is remarkably the fact, and although Scotland has long presented a model for all nations in the Highland Society, and although such a man as Washington recommended the formation of agricultural associations in one of his Presidential Messages, to the infant Republic of America, it is only within the last few years that this powerful stimulus to Agricultural improvement has been rendered available either in England or Ireland.

Its effects are now becoming apparent in the universal introduction of mechanical improvements, which lessen the labour of tilling the soil, while they improve the efficiency of the process; and, what is of more consequence, in bringing practical men to inquire into the principles on which the process of tillage proceeds, and a knowledge of which is fitted to elevate agriculture from the position of an empirical art, to the dignity of a science, second to none in importance, in ministering to the every day wants of mankind

While agriculture has been thus slowly struggling to disencumber itself of the prejudice of ages, and avail itself of the advantages which the other practical arts are deriving from the discoveries and applications of modern science, it has readily found a helping hand, both in this country and on the Continent, from men able and willing to guide it in the path of scientific inquiry. Foremost amongst those who are now contributing their enlightened labours for the improvement of agriculture is Professor Liebig, the founder of the school of organic chemistry in Germany, whose discoveries and works are now exciting a profound intererest in this country, not merely amongst practical agriculturists, but amongst scientific and intelligent men of all classes. Other agencies are in operation tending to the same results, and not the least powerful of which is the diffusion of botanical studies in our universities and schools, where the principles of agriculture are now regularly taught as part of the course of botany, and where the study is no longer confined to the medical curriculum.

Agriculture, too, has its literature, popular as well as scientific, besides its lecturers and its museums, and men who are never likely to know anything of it practically, or to follow the plough upon the 'mountain's side,' begin to feel as lively an interest in the startling theories of Liebig, the acute but intemperate criticisms of his physiological opponent Schleiden, and the more familiar disquisitions of our own Johnstons, and Maddens, and Martin Doyles, and such useful practical writers as the present author, as in any other productions of the literature of the day. The beneficial effects of this happy combination of scientific and popular interest in agricultural improvement, with the results of practical experience, cannot be over estimated.

Brief Hints for December.—Domestic animals should always commence winter in good condition, and this should be preserved through till spring To do this, never attempt to winter more than you have abundant means of providing for. All animals should be regularly fed, they should be kept warm and comfortable by sufficient shelter, should have a regular supply of water, and, sheep and cattle especially, should have a portion of roots constantly intermixed with their daily food.

Large troughs for feeding with hay, are preferable to racks, as they more effectually prevent waste.

Sheep, instead of being left out exposed to the weather all winter, should be properly protected by sheds. If this were attended to, and they have a daily supply of roots with their hay, very few would be lost in wintering.

Oats, for horses, will afford much more nourishment when ground, than when left unground.

Ruta bagas are excellent winter food for horses, fed in moderate quantities, with hay, and a small quantity of oats.

All stables for cattle and horses, should be kept constantly ventilated, very clean, and well littered with straw.

Straw and poor hay, are readily eaten by cattle, if it is salted by sprinkling brine over it; and it is still better if in addition to this, they are chopped.

It is a very suitable time during this month, to cart leached ashes on land which may need it. It is particularly valuable on wet meadows; a friend spread eight or ten loads on an acre on his meadow (which was occasionally overflowed by the large creek which passes near it) and the consequence was an increase of one half more grass, although it had previously produced yearly two or more tons to the acre. This effect continued for several years. Chaptel says 'The action of buck ashes (leached ashes from asheries) is most powerful upon *moist lands and meadows*, in which they not only facilitate the growth of useful plants, but if employed constantly for several years, they will free the soil from weeds.'

From the Maine Farmer.

Potato Starch Pudding.—The *very* best, and the *very* cheapest, and the *very* least known pudding that can be made in a family, is made of potato starch, eggs, and milk. It is made too, in the *very* shortest time of any kind. We give below directions for making it and every person that will try it, will say this recipe alone is worth a whole years subscription to this or any agricultural paper in the Union, from which he may chance to take it. And what we ask is that very person who avails himself of it in his family will in recompence for it send to us or some agricultural paper his subscrip- at least a year, and thus encourage the spread of useful information through the land. Let us add, that the starch though an article that is retailed for 12 1-2 cents per pound, can be had in quantities for a very considerable less price. The directions for making the puddings are as follows:—

To eight table spoonfuls of the starch, use one quart of milk and four eggs as follows: Set the milk on the fire in a sauce pan, reserving enough cold to wet the starch with to the sonsistency of thick cream—beat the eggs and mix them with the wet starch—when the milk in the pan commences boiling, (having seasoned it properly with salt) stir into it the eggs, and as soon as an egg would ordinarily cook, (say in two minutes) the pudding will be ready for the table. It is eaten with cream or milk, and white sugar, like *blanc-mange.*