

falling ill, we removed to Hackney, on account of the air, where I have been ever since, being just able to gain a livelihood, by laying out the gardens for the new buildings going on in the neighbourhood. I have often been advised to take up a public-house; but besides that my wife is against it as considering it beneath the dignity of her family, I consider that it would be degrading the profession to which I belong if I were to become a publican.

Having now, Sir, given you a short history of my life, you will see what a very poor business a gardener's is, and especially a jobbing gardener's. When I first began it, I was preferred as being considered a regular gardener; but now a labourer who has, perhaps, worked a year or two with some market-gardener is just as much employed, and as well paid as myself; it is true, I have hurt myself much by going into the jobbing line; but what led to that was my vain ambition of being a nurseryman, without having the means. I need not say any thing of the prospects of an old man near 70; my wife is dead, and if the disease which shall carry me off be a lingering one, I have no other prospect than the workhouse. If you think my letter worthy of a place in your Magazine, I hope it will be a warning to gardeners when they are in good situations to keep in them, and not let discontent or ambition prey on their minds so as to make them leave their places for little faults; and, especially, not to let them give up the condition of servitude for the very uncertain one of being in business for one's self. And, especially, let them never give up any place whatever for the condition of a jobbing gardener, for that is greater slavery than being a common labourer.

I am, Sir, your most obedient servant,

ARCHD. M'NAUGHTON.

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ART. VI. *On Cultivating a Collection of Grasses in Pleasure-grounds or Flower-gardens.* By MR. GEORGE SINCLAIR, F.L.S., H. S., &c. Nurseryman, Author of *Hortus Gramineus Woburnensis*.

Dear Sir,

A COLLECTION of the different species of grasses arranged in a distinct compartment of the pleasure-ground or flower-garden will be found to constitute one of its most interesting features. It has been justly observed by Sir James Edward Smith in his *English Flora*, that the grasses afford more sustenance to man and to the larger animals than all the rest of the vegetable kingdom together; their herbage so perpetually

springing, and so tenacious of life, accommodated in one instance or other to almost every climate, soil, and situation, affords to nature her most welcome clothing, and to the cultivator of the soil his chief riches. Nothing poisonous or injurious is found among them. Their farinaceous seed supplies man with the staff of life; in wheat, barley, rice, oats, maize, *Holcus spicatus*, *Holcus cernuus*, and in *Poa abyssinnica*. The *Cynosurus cristatus*, which supplies a most valuable herbage for pasture, has culms too fibrous and wiry to be eaten by cattle; yet these sustain the seed of the plant until winter, and when the snow covers and conceals every other kind of food, these supply the smaller and even several of the larger birds with the means of existence.

The grasses constitute one of the most perfect natural orders of plants, and although humble, and until lately, overlooked by the general observer, consist of upwards of a thousand perfectly distinct species, distinguished from each other by their specific botanical characters, by the difference which exists in the proportions of the constituents of the nutritive matter afforded by each, by the different periods at which their produce attains to perfection, and by the peculiar soils and situations to which the different species are adapted. The observation of these habits and properties, as they present themselves in the progress of growth of the plants, will be found to afford more amusing variety, and perhaps useful and instructive occupation of time, than can be obtained from the cultivation of any other distinct family of plants whatever.

The flowers of the grasses are perfect, and are remarkable for the simplicity and elegance which pervades their whole structure; they will be found to want only examination to excite our admiration that so slender and simple a structure should be productive of such important ends, and capable of receiving upwards of a thousand clear specific shades of variation without in the least affecting its primary essential family character.

As an example of the truth and beauty of the natural orders of plants, the grasses afford the best illustration to the young botanist.

In the botanical investigation of the different species, a high interest is kept up from a consideration of the various properties and separate habits peculiar to each individual species, yet all tending to one great and important end—the support of animal life; from the moth which lives on the Way bennet (*Hordeum marinum*) to man himself, who, from many species, draws support directly, and, in remote consequences, from the whole tribe. *Park* in his travels, (Vol. i.

pp. 63 — 75.), informs us that the *Holcus spicatus* and *Holcus cernuus* were cultivated largely in Africa by the natives, for the like purposes as wheat and barley are in Europe. The *Poa abyssinica* has a very small seed, and yet, as Bruce informs us, it is cultivated extensively in Abyssinia for the manufacture of bread, (teff.) The annual species of grass have larger and heavier seeds than those which are perennial, and the creeping rooted species have lighter, and in general, less fertile seeds than the fibrous rooted. The creeping roots of the common couch grass (*Triticum repens*) contain a large quantity of nutritive matter; in its composition or properties approaching nearer to that of corn, than the nutritive matter afforded by the herbage of any of the other grasses. On the continent, particularly at Naples, these roots are regularly sent to market, and are there highly esteemed for the food of horses. The writer of this had some of these roots for examination sent from Naples, they proved to contain more nutritive matter than the roots of English growth. Dogs eat the leaves of this species of grass as well as those of the *Holcus avenaceus*, to excite vomiting.

The farinaceous seeds of the annual grasses supply man with the staff of life, and the herbage of the perennial species afford to the more valuable domestic animals, that constant supply of essential food without which they could not exist in any considerable number, or for any length of time, much less be brought to furnish us with the most important articles of clothing, and some of the most important parts of food; meat, milk, butter, and cheese; wool, and leather, with all the concomitant advantages, such as labour, manure, &c. which result to the cultivator of the soil from the use of cattle, would be lost without the cultivation of the perennial grasses.

The nutritive powers of the different species of pasture or hay grasses are found to be in direct proportion to the quantity of saccharine, mucilaginous, albuminous, bitter extractive, and saline matters which each affords.

Not two species of grasses are found to agree in the proportions of these vegetable principles contained in each; as instances, the *Elymus arenarius* affords the largest proportion of sugar, the *Poa compressa*, var. *erecta*, consists almost of pure mucilage, and the *Festuca pennata*, or *Holcus avenaceus*, &c., a greater proportion of bitter, extractive, and saline matters.

There are but few species which attain their height of produce at the same period of the season, consequently, scarcely a month occurs which is not the season of some particular species attaining its perfection of growth: and here, it may be ob-

served, that a grass-garden, where a number of different species of grasses are arranged side by side, illustrates this important point in the economy of the grasses in a clear and interesting manner. It is from this property of the natural grasses, connected with a combination of a considerable number of different species, which are always found in the most rich or fattening pastures, that the great superiority of these over artificial pastures, or of such as are formed of one or two species only, chiefly arises; and hence it is that the former, whether formed by nature in the course of many years, or by art in one, (by sowing the seeds of all the essential species, or by stocking the soil at once with a sufficiency of these plants, precluding thereby the introduction of spurious grasses or weeds,) are productive of a perpetual verdure and supply of fresh herbage unknown in artificial pastures, consisting of one or two species of plants only.

(To be continued.)

ART. VII. *Of the best Mode of Washing Water Cresses and other Salads so as to free them from the Larvæ of Insects, and Worms.* By MR. JAMES SIMSON, Gardener, Musselburgh, near Edinburgh.

SIR,

I RECEIVED your letter with a prospectus of the Gardener's Magazine, which work I think will be very useful to us here, who know little of what is going on in the gardens about London. I am sorry you did not mention some subject that you wanted me to write about, as I do not know what to fix on; however, as you say you must have all your papers for the first number by the end of this month, the only thing I can think of is to send you some remarks on the water cresses, and other winter salads, such as brooklime, scurvy grass, American cress, &c.

I understand there has been something written on the culture of the water cress in the transactions of the London Horticultural Society. I have not seen these transactions, though my master got me to cultivate the cress in consequence of somebody's telling him how it was described in them. We grow them in a small pond behind the melon ground in the slip, and only round the margin of the pond; but what I have principally to communicate does not concern the growing but the gathering. After these cresses had been served up to breakfast for several weeks, it happened one morning that a

The ventilation by the heating apparatus I leave to Mr. Sylvester to describe. Its full heating power we have not yet had occasion to try, not having had any intense frosts. As far as it has been tried, I am satisfied that we have gained a desideratum in heating large houses. We were at a loss how to heat this immense house, steam not being thought sufficient unless the pipes were kept above ground; and Mr. Sylvester's hot-air stove, with which he proposed to heat it, would have produced too arid an atmosphere for luxurious vegetation. I suggested to Mr. Cockerell the possibility of combining the two together; he instantly saw the advantage to be obtained by so doing, and we have as yet every reason to be satisfied with the result. The medium fire heat kept up may be stated at 45 degrees.

I am, dear Sir, yours, &c.

P. M'ARTHUR.

*The Grange, Nov. 15th, 1825.*

*Note.* This opinion of Mr. Sylvester's mode of heating is amply confirmed by a subsequent letter from Mr. M'Arthur, dated the 1st of March last, received since the above was sent to press.

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ART. III. *On Cultivating a Collection of Grasses in Pleasure-grounds or Flower-gardens, and on the utility of studying the Gramineæ.* By MR. GEORGE SINCLAIR, F.L.S., H.S., &c. Nurseryman, Author of Hortus Gramineus Woburnensis.

(Continued from page 29.)

DIFFERENT species of grasses affect different soils and situations, but generally in combination; in few instances solitary. The *Aira præcox*, on elevated, dry, and poor sands, where the whole plant scarcely attains half an inch in height, the *Festuca ovina*, *Festuca vivipara*, *Poa alpina*, *Nardus stricta*, *Melica cærulea*, &c. on heaths and alpine situations, are in general solitary, growing in separate tufts or patches; the *Arundo arenaria*, *Elymus arenarius*, and *Festuca rubra*, on the blowing sands of the sea coast; the *Glycerea fluitans*, *Aira aquatica*, and *Poa aquatica*, in water, are almost the only exceptions to the almost universal law in the natural economy of the grasses, viz. that of growing in intimate combination with each other. If we may be allowed the expressions, the greater part of this family of plants are gregarious, while but few are solitary. In a recent publication on the subject of grasses (*Hort. Gram. Wob. 2d. edit.*), the above facts are illustrated by a number of details deduced from actual cultivation of the different species of grasses during a series of years. The facts there

brought forward on this point clearly prove that any certain soil will maintain a greater, and produce more nutritious produce, if cropped with a number of different species of grasses, than it will maintain and produce if cropped with only one or two species. This is a curious and important fact, and which has been unnoticed in previous works on the subject, as well as neglected in practice. If an acre of good land is sown with three pecks of rye-grass, and one peck of the clovers, or trefoil, 470 plants only will be maintained on the square foot of such land; if a larger quantity of these seeds is sown, whether of these two species, or of any other two, the extra number of plants vegetated, (which will certainly appear at first if the seeds are good,) will decay in a short time, and leave blank spaces to be filled up with weeds or spurious grasses; or, in fact, plants of different species, supplied by the soil, manure, or neighbouring hedges. But if, instead of two species of grasses, from eight to twenty different sorts are sown on the same soil, or that now alluded to, a thousand plants will be maintained on the same space, and the weight of produce in herbage and in hay increased in proportion. (Hort. Gram. Wob. pp. 24. 245.) It may be truly said, therefore, that every variety of soil and situation, from the alpine rock to water itself, is provided with its appropriate grasses, destined for the support of animal life, and for covering the soil with the colour most pleasing to man.

The shades of green colour in the herbage of the different grasses are numerous, and highly interesting, as may be proved by applying these varieties of tints to the test of the practical system of colours, by that eminent artist, G. Hayter, Esq. exhibited in the diagram inserted in the Hortus Ericæus Woburnensis; or by comparing at the same and at different seasons a select number of the leaves of distinct species. The colouring matter of grasses, when the saccharine and mucilaginous principles are in much less proportion, as is found in the leaves or latter-math late in autumn, in general accompanies the solution of the constituents of the nutritive matter. After the first evaporation of the solution, the green colouring matter may be destroyed and again recovered successively, by alternate solution and evaporation in water and in alcohol. The important law in the natural economy of the grasses before alluded to, which provides that a number of many different species should always be found intimately combined; that one species should not exist or thrive for any length of time by itself, even in its natural soil; and that a greater number of plants is maintained on the same soil, and a greater weight

of produce obtained by many different species being intimately mixed together, than can by any art or means be effected from an equal space of ground, by the cultivation of any one or two individual species of grass, has lately been made available in practice with great success in the formation of rich permanent pastures, converted from tillage land, as well as in that of artificial pastures of the alternate husbandry.

But, besides the important uses above enumerated, we may observe that the culms or straws of several of the grasses afford a most valuable article of manufacture for bonnets, mats, and of various ornamental works. The culms of several of the perennial grasses afford a material which, in proper hands, may be manufactured into an imitation of the Leghorn straw plait, far surpassing the original, *even the finest of them*, in texture and in durability. If the subject be properly encouraged by the public, and persevered in by the manufacturers, there is not a shadow of doubt but that England would become, and that at no remote period, an exporter, instead of, as at present, an importer of this useful and ornamental part of dress.

The *Elymus arenarius*, *Arundo arenaria*, *Festuca rubra*, and *Poa maritima*, arrest the inroads of the sea on the land; their habits or tenacity of life are such as to enable them to grow and flourish on the blowing sands of the beach, which collect around these plants, forming hillocks; the *Elymus arenarius*, being the most robust, occupies and secures the top, while the *Arundo arenaria* secures and supports the sides, and the last two species are found straggling on the level sand, preparing a foundation for the latter; the creeping *Fescue* I have found on the beach near Skegness, with roots extending six feet in length in the blowing sands.

A consideration of these various properties and important uses, peculiar to the different species of grasses, and of which a slight and short mention only has now as above been made, will be found to infuse itself into every botanical investigation of the species, and render the cultivation of a proper collection doubly interesting.

A collection, consisting of from two to four hundred species of the most interesting kinds, may be formed and kept up at but little trouble and expence.\*

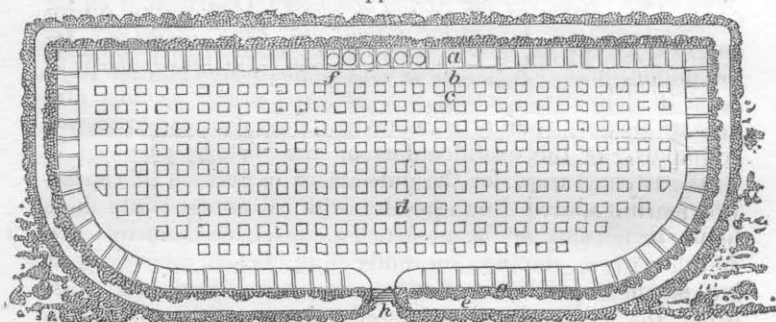
The Hortus Gramineus, in the gardens at Woburn Abbey, belonging to the Duke of Bedford, may serve as a model for forming such a compartment in a pleasure-ground as is capable of affording the pleasure and instruction alluded to in the foregoing observations. The spaces allotted to the proper grasses

\* Collections of several hundred species of grass seeds may be obtained at Cormack, Son, and Sinclair's, 53. Regent Street, or New Cross, Surrey

are in number two hundred and forty-two, of two square feet each, inclosed by cast-iron frames. Paths of gravel two feet nine inches wide separate the spaces on every side; these are surrounded by a path three feet wide, with a border for the herbage plants, such as clover, lucern, saintfoin, vetches, &c. A hedge of hornbean separates the compartment from the rest of the grounds, and an outside border of roses completes the grass-garden. The entrance to it is a Grecian structure, designed by J. Wyattville, Esq.; the grass-garden was designed and executed by myself, then the Duke's gardener.

At the Nursery Gardens, New Cross, Surrey, a grass-garden (*fig. 14.*) has been established, for the supply of seeds

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of all the different species; and, for exhibiting to agriculturists and farmers living specimens of the most useful grasses.

In this garden, *a*, represents a border for the herbage plants, as clover, trefoil, lucern, saintfoin, &c.; likewise for new or dubious varieties of grasses, and for experiments and trials generally.

*b*, A path or walk of sand or gravel. *c*, Paths between the different grasses. *d*, Spaces inclosed by iron or timber borders, for the perennial and known annual grasses.

*e*, Border furnished with two rows of roses; the back row consisting of moss roses, and the front row of rose unique.

*f*, Leaded tubs, or tanks, for the aquatic grasses, or such species as live in water.

*g*, Hedge of hornbean, holly, box, or privet, to inclose the grass-garden, or compartment, from the rest of the surrounding garden or grounds.

*h*, Entrance to the grass-garden.

In planting a grass-garden thus formed, it is of importance to suit the different species of plants with *their natural soils*; this is easily effected, as the separation of the spaces allotted to each by the gravel or sand paths prevents any admixture



from the rains, transplanting, or other accidental circumstances. The plants should be arranged according to their natural affinities, as affording the greatest assistance to the memory, and presenting the most pleasing general view of the different species constituting the natural order.

I am, dear Sir, yours very sincerely,

GEORGE SINCLAIR.

*New Cross Nursery,*

*Nov. 30th, 1825.*

ART. IV. *Remarks on Mr. Thompson's Observations on the Effect of the Lombardy Poplar in Park Scenery.* By RICHARD MORRIS, Esq. F. L. S., Surveyor and Landscape Gardener.

THE poplar, as an ornamental tree, does not possess beauty, grandeur, or the qualifications of the picturesque; yet in combination it may, for the purpose of opposition of character, be introduced into scenery with advantage; and it is upon this principle that Mr. Thompson recommends this tree to notice. No one can differ from Mr. T. upon the rule on which his recommendation rests, "that horizontal lines should be balanced and supported by perpendicular lines" — what induces me to make any comment upon his illustration of this subject, is to endeavour to prove a better adaptation of forms to the scenery presented; and to show, that although horizontal lines require to be balanced and supported by perpendicular lines, much depends on the contour, forms, and outlines of the adjacent objects and scenery. Although Mr. T. has studied well the description of his subject, he has not succeeded so well in the elucidation. In the sketch, No. 1. of his article upon this subject, in the first Number of the Gardener's Magazine, in illustrating his argument, he has introduced perpendicular forms which are prejudicial to both pictorial and scenic beauty. I agree with Mr. T. that the bridge requires perpendicular forms to oppose its horizontal lines, but the plantation behind the bridge, where by the intermixtures of poplars an agreeable irregularity of outline is produced, would have been sufficient for this purpose, at least as far as poplars should contribute their aid. From the manner in which this plantation ranges with the scenery, it was indispensable to introduce poplars, otherwise the broad masses of foliage would have formed an horizontal and somewhat parallel line