General view of the agriculture of the County of Ayr, with observations on the means of improvement by Col. Fullarton of Fullarton. Drawn up for the consideration of the Board of Agriculture. And Internal Improvement.

GENERAL VIEW

OF THE

AGRICULTURE

OF THE COUNTY OF

AYR,

WITH OBSERVATIONS ON THE MEANS OF ITS IMPROVEMENT.

BY COL. FULLARTON,

OF FULLARTON.

DRAWN UP FOR THE CONSIDERATION OF THE BOARD OF AGRICULTURE AND INTERNAL IMPROVEMENT.

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M,DCC,XCIII.

ADVERTISEMENT.

THE following valuable communication, reſpecting the preſent ſtate of huſbandry in the county of Ayr, and the means of its improvement, drawn up for the conſideration of the Board of Agriculture, is now printed, merely for the purpoſe of its being circulated there, in order that every perſon, intereſted in the welfare of that county, may have it in his power to examine it fully before it is publiſhed. It is therefore requeſted, that any remark, or additional obſervation, which may occur to the reader, on the peruſal of the following ſheets, may be tranſmitted to the Board of Agriculture, at its office in London, by whom the ſame ſhall be properly attended to; and, when the returns are completed, an account will be drawn up of the ſtate of agriculture in Ayrſhire, from the information thus accumulated; which, it is believed, will be found greatly ſuperior to any thing of the kind ever yet made public.

The Board is now following the ſame plan, in regard to all the other counties in the united kingdom; and, it is hardly neceſſary to add, will be happy to give every aſſiſtance in its power, to any perſon who may be deſirous of improving his breed of cattle, ſheep, &c. or of trying any uſeful experiment in huſbandry.

TO SIR JOHN SINCLAIR, BART.

PRESIDENT OF THE BOARD OF AGRICULTURE.

For remarks and additional obſervations.

DEAR SIR,

Fullarton, Ayrſhire, Nov. 1793.

IT will afford me real ſatisfaction, if the following obſervations, on the agriculture and improvement of AYRSHIRE, ſhall fulfil the object of your application, and prove conducive to the purpoſes of that valuable inſtitution, which you have been ſo inſtrumental in eſtabliſhing.—Every landholder, whatever his purſuits in life may be, is bound in duty, and it is fortunate if he be alſo led by inclination, to promote the arts of cultivation, which form the baſis of all national proſperity. Happily for this country, the ſuperior influence of our conſtitution, has, in no inſtance, been more conſpicuous, than in its operation on every ſpecies of agricultural improvement. Inſomuch, that, although ſome favoured ſpots, ſuch as Lombardy and Flanders, have brought that art to an aſtoniſhing height of perfection;—there is no country in Europe, where men, poſſeſſing property in land, have ſo generally applied their ſkill and capital, to the encouragement of huſbandry, and the introduction of new modes of cultivation. Neither is there any circumſtance, which has tended more to aggravate the ſignal calamities, accumulated on the landed proprietors of a neighbouring and diſtracted nation, than their prevailing ignorance and inattention to that uſeful art, which it is the pride of this country to have cheriſhed with ſucceſs; and which, under the influence of ſo reſpectable an inſtitution as that where you preſide, we may ſtill hope to ſee advancing to a ſtill higher pitch of improvement. Introduction.

The county of AYR extends 90 miles along the weſtern coaſt of Scotland, from its ſouthern boundary, near Loch-Ryan, in Wigtonſhire, to Kelly bridge, which ſeparates it from Renfrewſhire upon the north. Its breadth is in general from 20 to 25 miles.——This county contains three diviſions; Carrick, on the ſouth; Coil, in the centre; and Cunningham, which includes all the northern diſtrict. Extent.

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In ſo large a tract of country, great variety of ſoil prevails.—On the ſhore it is generally light and ſandy, interſperſed with deep and fertile loam. A great part of the county is of a ſtrong productive clay. In many parts a bare till or ſchiſtus extends for miles; and over it only a few inches of a better clay ſoil. Further up the country, there is a kind of ſpongy clay land, cold, wet, and obdurate; producing graſs, unfit, in its preſent ſtate, for fattening cattle, and merely ſufficient to keep alive a breeding ſtock. On the eaſtern boundaries of the county, the land is high and mooriſh, interſected with moſſes, bogs, and marſhes.

In deſcribing the agriculture of a county ſo extenſive as Ayrſhire, it is extremely difficult to ſpecify the various particulars reſpecting the ſoil, management, and produce, without deſcending to a very tedious minuteneſs of explanation. I am ſenſible, too, that this, like other georgical eſſays, muſt unavoidably be the dulleſt of all writings, except to thoſe who mean to derive practical benefit from the communication. It ſhall, however, be my endeavour, to lay before you ſuch a view, as may leave no material fact omitted:—Conceiving it to be your object, to trace the various cauſes which have retarded or accelerated the progreſs of improvement, and to collect the ſtatement of all that is excellent or defective in the agricultural ſyſtem of every county; in order that your Board may be enabled to deduce reſults, and form concluſions tending to the general advantage of the kingdom.

Antient State. Before we enter on the preſent ſtate of Ayrſhire practice, it is eſſential to explain the barbarous miſmanagement from whence the county has emerged; containing, like many other parts of Scotland, and various ſpots in England, almoſt every thing that a good farmer ought to avoid. But, as acquired and rooted ignorance, is more difficult to conquer, than mere abſence of ſkill or knowledge, much praiſe is due to the landholders and farmers of this county, for the very rapid progreſs they have already made.——A ſtranger, paſſing through theſe diſtricts, muſt be ſtill ſurpriſed to obſerve ſuch a multitude of agricultural

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agricultural defects ſtill exiſting: But his applauſe would undoubtedly be excited, when he underſtood the great difference between the preſent management and that which took place forty years ago.—At that period, there was hardly a practicable road in the county; whereas, at preſent, few parts of the kingdom are ſo well ſupplied in that particular. The farm-houſes were mere hovels, moated with clay, having an open hearth or fire-place in the middle; the dunghill at the door; the cattle ſtarving, and the people wretched. The few ditches which exiſted were ill conſtructed, and the hedges worſe preſerved. The land over-run with weeds and ruſhes, gathered into very high, broad, ſerpentine ridges, interrupted with large baulks, ſuch as ſtill diſgrace the agriculture of ſome Engliſh counties. The little ſoil there was, collected on the top of the ridge, and the furrow drowned with water. No fallows,—no green crops,—no ſown graſs,—no carts or waggons,—no ſtraw yards; hardly a potatoe, or any other eſculent root, and, indeed, no garden vegetables; unleſs a few Scotch kail, which, with milk and oatmeal, formed the diet of the people: With little ſtraw, and no hay, except a ſcanty portion of the coarſeſt quality collected from the bogs. The quantity of dung produced was of ſmall avail; and that portion, little as it was, the farmers dragged on cars or ſledges, or on what were called tumbler-wheels, which turned with the axletree, and ſupported the wretched vehicle, hardly able to draw 500 ℔wt.——The ground was ſcourged with a ſucceſſion of oats after oats, as long as they would pay for ſeed and labour, and afford a ſmall ſurplus of oatmeal for the family; and then remained in a ſtate of abſolute ſterility, or over-run with thiſtles, till reſt enabled it again to reproduce a ſcanty crop.

The arable farms were generally ſmall, becauſe the tenants had not ſtock for larger occupations. A ploughgate of land, or as much as could employ four horſes, allowing half of it to be ploughed, was a common ſized farm. It was often run-ridge or mixed property; and two or three farmers uſually lived in the ſame place, and had their different diſtributions of

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the farm, in various proportions, from 10 to 40, 60, or 100 acres.

Many of theſe leaſes were granted for three 19 years. The rent was frequently paid in kind, or in what was called half labour, by the ſteel-bow tenants, like the *Metayers* of France; the ſtock and implements being furniſhed mutually, or on ſuch terms as could be fixed. One half of the crop went to the landlord; and the other remained with the tenant, to maintain his family and to cultivate his farm *. The tenants were haraſſed with a multitude of vexatious ſervitudes; ſuch as, ploughing and leading for the landlord, working his hay, and other operations; which, from the nature of them, unavoidably interfered with the attention neceſſary on the tenant's own farm. Theſe are now almoſt entirely aboliſhed.

The farm was ~~commonly~~ divided into what was called the croft, or in-field, and the out-field land.

The croft, which commonly was a choſen ſpot near the houſe, after two or three crops of oats, received all the dung produced from the farm; and then was ſown with bigg or four-rowed barley. It then remained a year in lay; and was broke up the following ſeaſon to undergo the ſame rotation.—As to the out-field land, it remained in a ſtate of abſolute reprobation. No dung was ever ſpread on any part of it. The ſtarved cattle kept on the farm, were ſuffered to poach the fields, from the end of Harveſt, till the enſuing ſeedtime; and thus the roots of natural graſs were cut on all the clay lands, or drowned with water ſtanding in the cattles footſteps. The horſes, during Winter, were fed on ſtraw, on boiled chaff or weak corn, and on ſuch hay as the bogs and marſhes ſpontaneouſly produced.

As the winter ſeaſons, in Ayrſhire, are extremely wet, the plough was never yoked till Candlemas.—It does not appear that the farmers were in the practice of uſing more than four horſes

* Of this mode, there is at preſent but one remaining inſtance in the county.

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horſes to each plough; but, there was a man to hold, another to drive, and a third to clear the mould board, and keep the coulter in the ground. The plough was of the Scotch kind; and, as the land was generally ſtiff and full of ſtones, and never properly cultivated, it was thought neceſſary to conſtruct it of the ſtrongeſt and moſt clumſy materials.—The cold and rainy ſprings ſuggeſted the practice of ſowing extremely late, ſo that oats were ſeldom harrowed in before April; and it was not unfrequently the end of May, before the big, or four-rowed barley, was put in the ground.

As there were few or no incloſures, the horſes and cattle were either *tethered*, during the Summer months, or truſted to the direction of a herd and cur-dog, by whom the poor ſtarved animals were kept in conſtant agitation; being impelled, through famine, to fly from their bare lays, and commit continual depredations on the adjacent crops.

Every farmer ſowed a ſufficiency of flax to employ the women of his family at leiſure hours. A ſmall portion of hemp was likewiſe planted to make ſacks and other coarſe materials needed on the farm. And a quantity of wool was either bought or reared for the purpoſe of ſpinning woolen ſtuffs to cloath the family. Theſe, as well as the linen were uſually worked by ſome weaver in the neighbourhood, and ſupplied the dreſs of both ſexes. The ſtalks of hemp were ſubſtituted in the place of candles; and, even in ſituations adjoining to a coalliery, whole months were waſted in cutting, drying, and leading peat; to ſerve as fuel.

The cattle ſtarved during Winter, hardly able to riſe without aid in Spring, and perpetually harraſſed during ſummer, never were in fit condition for the market. But undoubtedly they muſt have been of an admirable race and ſtamina, otherwiſe they never could have ſurvived the treatment they experienced.

Very little butcher meat was uſed, excepting a proportion, which every family ſalted at Martinmas, to ſerve during Winter, with their grots, or prepared barley, and kail or broth.

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The reſt of their food conſiſting at that time, only of porridge, oatmeal cakes, and ſome milk or cheeſe. So ſmall was the conſumption of butcher meat in this province 50 years ago, that there were not more than fifty head of cattle annually killed in the county town of Ayr, at that period, although it contained from 4 to 5000 inhabitants: And, now, there are ſeveral thouſand cattle, beſides great quantities of ſheep, killed every year; inſomuch, that it is one of the beſt markets in the kingdom.

Wretched as the ſyſtem of management was, it is obvious, that the light, rich lands, would by no means ſuffer in the ſame proportion with the hard and tilly * ſoils. On the contrary, they produced conſiderable quantities of graſs, and kept the cattle, fed on them, in good condition.

With reſpect to the moorland part of the county; as its bleak and elevated ſituation, with the cold, wet nature of the ſoil, render it by no means favourable to the growth of corn, under any mode of management, it neceſſarily, in thoſe days, retained a relative barbariſm with the lower diſtricts. The moor farmers in general occupied great tracts of land. They were perfectly unacquainted with planting or incloſures. In the bottoms, ſome ſmall lots of corn were cultivated, and a few loads of coarſe hay obtained from the meadows. The farms were ſtocked with a proportion of black cattle, which when fat, did not weigh more than 16 or 20 ſtone Engliſh; and with a ſmall hardy race of wild, black-faced ſheep, weighing when fat, about 10 lb. Engliſh per quarter, and yielding not more than two or three pounds of very coarſe wool per fleece. The moor farmers having hardly any fodder, and no green

* Till, is an obdurate ſchiſtus or clay, unmixed with vegetable or animal ſubſtances, and unfit for purpoſes of vegetation, until it has undergone a very long amelioration. It is of ſo tenacious a nature as to hold water, thereby chilling and drowning the plants in wet ſeaſons; and, as it cracks and hardens, like a brick, in dry weather, it may be conſidered as the moſt unpropitious of all ſoils.

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green feeding for their ſheep and cattle, the ſtock was regulated by the number that could be ſubſiſted in hard weather.

The ſtate of markets was in general ſo low, and public credit ſo ill eſtabliſhed, that no tenant could command money to ſtock his farm; and few landholders could raiſe the means of improving their eſtates. Indeed, when a laird wiſhed to raiſe money, he was obliged to ſell his property, perhaps for 20 years purchaſe, or accept of loans on wadſet: The nature of the obligation being, that if the money was not repaid within a ſpecified time, the land became the property of the lender.

There were no manufactures in the county, excepting of bonnets at Stewarton, and of ſhoes and carpets at Kilmarnock. Exports and imports from the harbours of Ayr, Irvine, and Saltcoats, were on a very ſmall ſcale indeed. In general, the fineſt lands were let for 2 or 3 ſhillings per acre; and there was neither ſkill, capital, induſtry, nor credit in the country to do away the wretchedneſs deſcribed *.

The conſequences of ſuch miſmanagement were truly deplorable. The people having hardly any ſubſtitute for oatmeal, were entirely at the mercy of the ſeaſon. If the ſeedtime was unfavourable, the ſummer bad, or the autumn late and ſtormy; a dearth or famine unavoidably enſued. The price of meal fluctuated, therefore, between extremes, which are never known in countries better cultivated; or where the means of ſubſiſtence are ſo varied, as to render the failure of one ſpecies ſuppliable by ſome other †. At the beginning of this century, and end of the laſt, there was a ſucceſſion of bad ſeaſons which laſted ſeveral years, and reduced the county of Ayr, and other provinces adjacent, to the loweſt gradation of want; obliging hundreds of families to fly for ſubſiſtence to the

* It is, however, true, that ſome rich holms and bottoms paid in kind to the extent even of two bolls of bear or big per acre.

† Frequently from 6d. to 1s. 6d. per peck, whereas, under the preſent improved mode of cultivation, it ſeldom varies more than 1d. or 2d. above, or below 1s. per peck.

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the north of Ireland, where their deſcendants ſtill remain. At that time, the price of oatmeal roſe to 2s. 6d. per peck, weighing 8 lb. 10 oz. Engliſh.

In thoſe ſeaſons of miſery, the poor people have not unfrequently been obliged to ſubſiſt by bleeding their cattle, and mixing the blood ſo procured, with what oatmeal they could procure *.

Change of Syſtem.

In a country, ſuch as Scotland, where ſoil and climate, in many inſtances, unite to counteract the endeavours of the cultivator; it required extraordinary exertions indeed, to bring the county of Ayr in ſo ſhort a time from the degradation already ſtated, to that period of improvement, which, if continued for a few years longer, will entitle it to rank amongſt the moſt productive diſtricts in Great Britain.

The means by which this important change has been effected, require to be detailed. The landed property of Ayrſhire was parcelled out among a multitude of proprietors, under very different deſcriptions; from the petty feuar or emphyteutical holder, paying a fixed rent in perpetuity, for a houſe and garden, through all the gradations of vaſſals holding the property of farms, and paying quit-rents to ſubjects-ſuperior; and of perſons who according to the feudal titles of Scotland, held eſtates in *capite* under the crown, from a few acres to 100,000, which is the largeſt in the county †. In ſhort,

* On reading this deſcription, one would think it applied to the dark and gloomy periods of the lower ages, when the beſt fields in Italy were deſolate; and when the north of Europe, under barbarous landlords, with ſerfs or bondſmen for their cultivators, exhibited thoſe ſcenes of ignorance and indigence, ſo emphatically deſcribed by Sigonius and Potgeſſerus.

† Thoſe feuars, of whom there are many in the country, probably paid the current rent for their feus at the time they were granted, and in ſome caſes perhaps more. But ſuch has been the riſe in the value of landed property, that theſe feu duties, now, are ſo perfectly diſproportioned to the actual rent, that they are little more than a mere acknowledgement, that the land is held of the ſubject ſuperior.

It has always occured to me, that if landholders chuſe to grant feus, in perpetuity

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ſhort, the tenures by which land was held, were various as the extent and value of the different eſtates.

The ſmall proprietor of 50 or 100 acres, was ſeldom ſufficiently active or intelligent to introduce amelioration. Contented with the produce of his fields, on the old ſyſtem, he left improvements to the upper order of proprietors. —— The medium lairds, or country gentlemen, were frequently driven by their ſituations and profeſſions into various quarters of the globe; and were no leſs diſtinguiſhed by their enlightened education, than by their intelligence and ſucceſs in various walks of life. But their habits and obſervations had hardly ever been applied to the beſt of all purpoſes, the cultivation of their native ſoil. Any attempts they made were feeble, deſultory, and unavailing; while the great lords and large proprietors, poſſeſſed ſuch extenſive tracts of uncultivated land, that to attempt a general ſyſtem of improvement appeared beyond their means: Neither was any plan thought of, for bringing the active exertions of the landed intereſt into one point of union and effect. On the contrary, deep rooted prejudices againſt innovation prevailed, eſpecially amongſt the inferior claſſes of renters and proprietors. The tenant conſidered all amelioration as tending only to augment his labour and increaſe his rent. If any landholder was hardy enough occaſionally to attempt improvement, he had every poſſible obſtacle to contend with. Labourers were ignorant and indolent. Stock, and implements, entirely inadequate and inapplicable to rational principles of huſbandry, and much time, labour, and expence, were waſted before any benefit could be derived from an improved mode of cultivation, in a country where the common elements of farming were rude and barbarous. No wonder, then, if thoſe, who firſt eſ-

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petuity for a rent certain, which is at beſt an improvident tranſaction, the rent ſhould be ſpecified, not in coin, which varies in its value, but in grain, which at all times muſt neceſſarily be the permanent ſtandard of value in every count ry.

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ſayed the arduous undertaking were diſappointed in their hopes, and commonly impaired the property they meant to increaſe.

Fortunately, however, the country poſſeſſed within itſelf the means of improvement in a ſuperior degree. Extenſive tracts of very rich and valuable land; abundance of coal and lime, almoſt in every quarter; a number of towns and villages; which, although at that time deſtitute of arts and manufactures, were however commodiouſly ſituated, and ſcattered over the different diſtricts of the county.

Exertions of Individuals.

But theſe advantages might long have continued dormant, had they not been called forth by the ſuperior energies of a few individuals, to whom the preſent advancement of the county is chiefly due.

About 40 years ago, the late Earl of Eglinton, who poſſeſſed a very large and valuable property, diſperſed over a great extent, in the moſt improveable parts of Ayrſhire, reſolved to reſcue his eſtates from the condition in which he found them. An eminent farmer Mr Wight of Ormiſton was brought from Eaſt Lothian to introduce the proper mode of ploughing, levelling ridges, fallowing, drilling, turnip huſbandry, and rotations of crop. Great attention was beſtowed on the breed of horſes and cattle. Ploughmen and dairy people were brought from various parts of England. Fences were made on an extenſive ſcale, and the county was beautified by a multitude of clumps, belts, and plantations. The noblemen and gentlemen very zealouſly concurred in proſ ot-ing meaſures ſo conducive to their own advantage and to the general intereſt of their country. The demand for cheeſe and butter to ſupply the multiplying wants of Glaſgow, Paiſley, Greenock, and Port-Glaſgow, led to increaſing care reſpecting milch cows and dairies. The Engliſh market afforded ready ſale for black cattle; and the growing manufactures of the country introduced the benefits of opulence.

Increaſing Opulence.—Eſtabliſhment of Banks.

Theſe concurring circumſtances gave riſe to private or county banks and paper circulation; and by their means the landholders,

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landholders, whoſe ſecurity was good, but who were in general deſtitute of ready money, were enabled to diſcount bills, procure caſh accompts, and eſtabliſh other modes of credit for the improvement of their eſtates. At the ſame time, induſtrious tenants, joining together as ſecurities for each other, were accommodated with money to ſtock and cultivate their farms. Whatever diſadvantages may reſult from an overſtrained circulation of paper currency, or incautious extenſion of credit; yet, in this inſtance, the effects of ſuch pecuniary accommodations were truely beneficial. In a very ſhort time, good turnpike roads were completed in every direction; wheel-carriages were gradually introduced; coallieries and lime quarries were opened; draw-kilns erected; almoſt every field was divided by hedge and ditch; good farm-houſes were conſtructed; ſown graſſes prevailed; the breed of animals was improved; the loweſt claſs of people were enabled to live better, by the introduction and general uſe of potatoes. The ſeat of every conſiderable perſon was ornamented with planting, and his fields improved; and there hardly remained a proprietor, of any condition whatever, who did not, in ſome form or other, promote the intereſting work of cultivation.

Obſtacles to Improvement.

Great as theſe advantages appear, they were inadequate to produce the ſuperior benefits which the county has attained. It is to be obſerved, that, notwithſtanding the advancement already mentioned, agriculture remained almoſt without a beacon or directory to guide its courſe, or ſpecify its progreſs. Much advantage had indeed been derived from imitating the better practice of Eaſt-Lothian, and ſome of the well managed provinces in England. But the mode of agriculture, eſtabliſhed in theſe places, preſuppoſed ſkill and induſtry in the labourer, ſtock and knowledge in the farmer, and a regulated cultivation; without which, the beſt bleſſings of ſoil and climate will prove unavailing. Beſides, the indiſcriminate adoption of plans and ſyſtems, formed for other diſtricts, ſoils, and climates, was liable to infinite objections. For example, the ingenious Secretary of your Board main-

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tains, that the only mode, by which a ſcientific or ſucceſsful huſbandry can any where be eſtabliſhed, is by granting extenſive farms to opulent and ſkillful tenants. But, in the preſent inſtance, this became impracticable; becauſe, without alluding to the neceſſary portion of induſtry and ſkill, few tenants had ſtock and implements ſufficient for 80 or 100 acres. —It is farther to be obſerved, that, in a ſoil and climate where ploughing, ſowing, reaping, and ſtacking corn, are liable to conſtant interruptions; it is hardly poſſible for any farmer to manage, without loſs, a large quantity of land in tillage; and, at any rate, it tends to diminiſh the number of farmers and their families, ſubſtituting hinds and cottagers, and labouring ſervants in their place *.

When the practice of winter-ploughing, ſo prevalent in dryer climates and in lighter ſoils, was attempted on the deep and tilly parts of Ayrſhire, the land was ſo drenched as to yield a ſcanty produce. In like manner, numberleſs improvers loſt their crops by ſowing early, in imitation of their ſouthern neighbours; and many a field of clay, by ſummer fallowing in a rainy ſeaſon, was rendered only fit to be converted into brick or mortar. When the high and crooked ridges were attempted to be cleaved and levelled, the productive ſoil was buried, and a ſterile till was thrown upon the ſurface; which, having been excluded from the air, and unmixed with any animal or vegetable ſubſtance, required a long courſe of ploughing, manure, and expoſure to the atmoſphere, before it could afford the pabulum of vegetation: Inſomuch, that the tract of old ridges is frequently marked with barrenneſs, at this day, in fields, which, after being levelled, have for 20 years undergone a ſucceſſive courſe of cultivation.—In ſhort, when any perſon, implicitly adopting the management of

* Pliny's opinion on this ſubject is expreſſed in the following words: "Modum agri in primis ſervandum, antiqui putavere. Quippe ita cenſe-"bant, ſatius eſſe minus ſerere et melius arare."—And Virgil ſays,

——————"Laudato ingentia rura
"Exiguum colito."

For remarks and additional obſervations.

of other counties, laid no other limitations upon his tenants than ſuch as were adapted to places, where the land was already dreſſed anddrained, the ſoil and climate dry, and a proper rotation of crops eſtabliſhed; he was invariably diſappointed in his object; and the farm, at the mercy of unreſtrained and unſkilful tillage, became little better than a caput mortuum.

In this ſituation the wiſeſt cultivator around Ghent, Bruges, or Aloſt, would have found himſelf perplexed. His endeavours to lay the land clean, and dry, by ſtraight furrows, well-proportioned ridges, and frequent drills, would have been fruſtrated, or at beſt have proved a tedious and expenſive undertaking, in a country where the ridges were high, crooked, full of ſtones and baulks; where every furrow was like a ditch, and every head-ridge a mound to prevent the outlet of the water.

Had he brought the beſt ploughmen from Norfolk, who, at home, with two horſes, will work near two acres daily, he would have found them ſoon conform to the Ayrſhire complement of 3 roods; while the native labourer would have learned from his inſtructors, to refuſe employment on any other work. In vain would he have attempted to ſave his land from poaching, and to increaſe manure by feeding every animal upon the farm within doors, as is the practice of the Netherlands. It would have required years before he could get into a courſe of clover, ſainfoin, vetches, tares, and lucerne, for ſummer feeding; and into cole, cabbage, carrots, turnips, rape, and oilcakes for winter. And, after all, he would have found neither ſhed nor ſtraw-yard on the farm, in which his ſtock could be accommodated,

Under theſe difficulties, it was fortunate for the county, that a gentleman of conſiderable property, united with great abilities and obſervation, (Mr Fairly of Fairly), devoted his attention to the gradual correction of abuſes, which no power or influence could at once aboliſh. Knowing the imperfect nature of the inſtruments he had to work with, he determined to proceed by a leſs rapid, but more certain, operation.

New Syſtem introduced.

For remarks and additional obſervations.

tion. Every farm, as it came out of leaſe, was incloſed and divided by ſufficient fences into three or more parts, and was allowed to remain in graſs, till it recovered from the exhauſting courſe of evil management already ſtated. About 100 bolls of ſlacked lime were ſpread upon the ſward of each acre *. A convenient houſe and offices were completed, and in this condition, it was ready for a tenant.

But, in order to preſerve the benefits ſo tediouſly and expenſively acquired, the moſt pointed limitations were neceſſary; not only to prevent the farmer from reducing his land by bad management, to its former wretched ſituation, but to enforce a rational ſyſtem of amendment.

The leaſe was uſually granted for 18 years; and the covenants obliged the tenant, not to plough more than one third of the farm in any one year, nor to plough the ſame land more than three years ſucceſſively. With the third crop, the tenant was bound to ſow 3 buſhels of rye-graſs, and 12 lb. of clover. To cut it for hay only one year, and paſture 5, before the ſame could be ploughed again. The tenant was bound to keep the houſes in repair, to maintain the gates and fences; and in caſe of failure, the landlord might employ labourers, and charge the amount with the next year's rent. The fodder was ſtipulated to be conſumed upon the ground, and all the manure to be ſpread upon it Heavy additional rents were ſpecified for every acre ploughed beyond the limitation: And theſe rents were not in the form of penalties, but as a compenſation for the very ſerious loſs of value incurred by cropping the ground beyond the periods admitted by the leaſe.

In confirmation of theſe remarks, it is to be obſerved, that the ſame ground which in paſture yields 20s. per acre, is frequently worth L. 5 or L. 6 per acre, annually for 3 years ploughing.

* The Ayrſhire boll of lime contains 14 Wincheſter buſhels, coſting, at the draw kill, from 3d. to 5d. and 6d. per boll.

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ploughing. It is not ſurpriſing, therefore, that any attempts to invalidate the courſe of ſuch covenants by appealing againſt the right of landlords to impoſe limitations on their tenants, ſhould have excited the ſtrongeſt feelings of alarm, and occaſioned impreſſions of poſitive wrong on the minds of all perſons, connected with the landed intereſt, whoſe properties might be injured to the amount of many hundreds per cent, and reduced to their ancient ſterility, if the courts of juſtice were to ceaſe ſupporting theſe covenants.

Under the regulations ſpecified by Mr Fairlie, there never could be more than one third of the farm in crop; and no land could be ploughed till it had lain ſix years in graſs. The produce on one third of the farm ſo ploughed, was uſually double or triple that which the whole yielded under the old management of croft and out-field land. The remaining two thirds being ſown down with all the lime, dung, and manure, that could be collected, afforded a ſupply of hay and graſs, more valuable than the whole produce of the farm under the antient ſyſtem.—Thoſe farmers, who perſiſted in raiſing three ſucceſſive crops of oats, undoubtedly, ſcourged the land as much as could be done in three years, or as could well be recovered by ſix years of reſt under ſown graſs. But many farmers had ſenſe enough to take beans and peaſe as the ſecond crop, and to ſow big or barley, and graſs ſeeds for the third; by which means, the land has been brought into a condition capable of yielding crops hardly equalled, and certainly not ſurpaſſed in any part of Great Britain. The ſame Gentleman, having fortunately undertaken the ſuperintendance of the eſtates of the preſent Earl of Eglintoun, and applied his ſyſtem to the management of that extenſive property; in the ſpace of little more than 20 years, has eſtabliſhed a reformation ſo complete, that it is univerſally adopted almoſt on every arable eſtate in Ayrſhire. The conſequences are, abundant crops of grain; plentiful returns of hay; and the fineſt paſture where little or no paſture grew before. Indeed, the principle of not allowing more than 3 ſucceſſive crops

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crops to be taken off the ſame field, without reſt or intervening fallow, and of ſowing graſs ſeeds along with the third and laſt crop, is ſo completely eſtabliſhed; that the tenant attempting to depart from that courſe, without ſtipulation, would be held, by the judicial country courts, as acting wrongfully to the proprietor, and an interdict would be obtained againſt him, on the principle that he was deviating from the uſage of the country, to the detriment of the proprietor, who is underſtood to let the uſe but not the abuſe of the land.

State of Property.

The diviſion of property, as has been already ſtated, is extremely various; and the different circumſtances, reſpecting its extent and diſtribution, are expreſſed in a column annexed to the map which accompanies this paper.

A great proportion of the landed eſtates have changed their owners in conſequence of individual extravagance, expenſive engagements, and the diſtreſſes occaſioned by the failure of the Ayr bank in the year 1772.

The run-ridge and mingled property, is now almoſt entirely divided, and unleſs around ſome burghs and villages; and, in a few other inſtances, there are no common lands in the county *.

The

* There are three tenures of land in this county, which, from their uncommonneſs, deſerve to be recorded. The firſt is of the Lands of Prieſtwick, on the coaſt of Coil, erected into a burgh by very antient charters; under the direction of a chancellor, baillies, and other borough officers. There are about 1000 acres of land divided among 36 freemen, or barons as they are called. Each poſſeſſes a lot of arable ground, and a right of paſturing a ſpecified number of ſheep and cattle on the common. The lots do not remain in perpetuity with any one poſſeſſor, but are appropriated from time to time by drawing for them at the end of a certain number of years; and no freeman can ſell his property without conſent of the corporation.

The next tenure, is that of Newton upon Ayr, very accurately deſcribed by the Rev. Mr Peebles, in his Statiſtical Report of that pariſh, already publiſhed. The property belonging to the community contains about 200 arable acres, divided among 48 freemen, and 150 acres in common among them.

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The proprietors are unacquainted with many obſtacles to improvement, which exiſt in the ſouthern part of the iſland. The land-tax, together with converſion of ſtatute labour for repairing of roads, miniſter's ſtipend, and ſalaries to ſchool-maſters, are the only aſſeſſments to which the lands are ſubjected. Theſe are uſually made payable by the tenant, over and above the rent ſpecified in his leaſe; and ſeldom amount to more than 2 or 3 per cent, of the actual rent.

Value of the Land—Produce—Kinds of Grain.

The light ſandy links, and downs along the ſhore, being unfit for tillage, ought either to be planted, or let in rabbit warren, which yields near 10s. per acre, while it is hardly worth 5s. for paſture. The flat and arable parts ought to be covered with 200 or 300 cart loads of clay; and the practice of folding or ſtaking ſheep on turnips as a preparative for barley and graſs-ſeeds, is found an eligible ſyſtem *. Potatoes, and

The laſt, and moſt remarkable, conſiſts of 240 acres of rich land, held by 40 perſons in lots of 6 acres each, adjoining to Kilmaurs, (which was erected into a burgh of barony by King James V.) under a charter granted by the Earl of Glencairn 1577; the holders paying at the rate of 2 merks for each 40th part. By this charter, the Earl of Glencairn binds himſelf to allow no articles of manufacture to be made on the eſtate, nor any article of produce to be ſold, excepting in the ſaid burgh of barony. His object undoubtedly was by theſe reſtrictive grants and privileges, to allure ingenious tradeſmen to the burgh of Kilmaurs. But his intentions were fruſtrated; for the tradeſmen ſo eſtabliſhed, and their deſcendants, have generally forſaken the buſineſs of handicraft, and employed themſelves in cultivating their reſpective lots, which ſtill continue run-ridge. On this land, for many years, were raiſed plants of Scotch kail, ſo valuable that great part of Scotland was ſupplied with them; but in no other reſpect has either agriculture or manufacture benefited by theſe three inſtitutions.

The particulars of this charter, and the ſtrange tenure in queſtion, are accurately ſtated by the Rev. Mr Millar in his excellent Statiſtical account of the pariſh of Kilmaurs.

* This ſyſtem has not only been found extremely beneficial in many parts of England, but is recommended by the beſt farmers of antiquity.—"Ubi ſementim facturus eris, ibi oves delectato, et frondem uſque ad pabula matura." CAT. Cap. 30.——And Pliny ſays, "Sunt qui optime ſtercorari putent, ſub "Dio, retibus incluſa pecorum manſione." PLIN. Nat. Hiſt. lib. 18.

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and all the kinds of Scotch kail, or curled greens, alſo ſucceed extremely well. Theſe lands under ſuch management, are worth from 10s. to 20s. per acre, according to the ſtaple of the ſoil. The better quality of ſtrong clays, are generally let from 20s. to 30s. per acre; and loams, or rich gravel, from 30s. to 40s.

On theſe ſoils, it is no unuſual circumſtance to raiſe 10 or 12 Wincheſter quarters of oats; 6 and 8 quarters of big or barley, and as much of beans, for which the ſoil of Ayrſhire is in many places admirably adapted; although the wetneſs of the harveſts renders it difficult to dry them. But this is in a great meaſure obviated by letting them remain till they become black and dry before they are cut. Beans are found to ſucceed well on lay; and it will be fortunate for the county, if the practice of uſing them, as an interveening crop between oats and barley ſhall become more general. Many farmers approve of ſowing peaſe along with beans, which cover the land more completely; but it muſt be the late kind of peaſe, otherwiſe they will not ripen with the beans.

Peaſe alone, though ſometimes a productive crop in this county, are extremely troubleſome to dry, occaſioned by the wetneſs of the climate; neither do they uſually yield more per acre than 5 or 6 bolls of four Wincheſter buſhels each, worth about one guinea per boll.

Turnips. There are not yet above a ſcore of common farmers in the county who are in the practice of raiſing turnips. Their crops, however, prove extremely luxuriant, and ſeveral of them have adopted the beſt mode yet extant of uſing turnips, namely, to draw every alternate turnip, and feed cattle with them in the houſe; to fold ſheep and young ſtock on the remainder; and whenever a turnip is broken or ſpoiling, to draw it for the ſtall-fed cattle. By theſe means, the whole produce is turned to account; whereas in other places the fineſt crops are frequently deſtroyed in rainy ſeaſons, for want of common care and ſkill.

Wheat. Wheat is not a crop in general practice; but thoſe who raiſe it, whenever they take pains to clean their land have

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good returns, uſually from 4 to 6 Wincheſter quarters per acre. The red wheat is often ſown, although the fine early Eſſex, Hertford, or Suffolk ſeed-wheat is preferable. But unleſs the grain be ſteeped in brine, we find it apt to blight and blacken. The wheat raiſed in Ayrſhire is of an excellent quality, often weighing from 60 to 63 lb. per buſhel; yet the cultivation of this grain is liable to great objection. The ſummers are frequently ſo wet, and the harveſt ſo late and ſtormy, that a large tract of land cannot properly be prepared for wheat, without a greater power of men and horſes, than belongs to ordinary farmers. If ever it ſucceeds on an extenſive ſcale, it muſt be after clover; the land having been previouſly enriched and cleaned with turnips, followed by barley, which, when good in this country, never fail to enſure a fine ſucceeding crop.

Rotation of Crops.

Of all the rotations hitherto diſcovered, the beſt for Ayrſhire appears to be from lay, oats, or beans*. After theſe, in dry ſoils, turnips or other green crops, ſuch as kail, vetches, tares, and potatoes.——In very ſtrong ſoils drilled beans, cabbages, and carrots, may be ſubſtituted in the place of turnips. Theſe followed by a crop of barley ſown with graſs-ſeeds. After the clover, wheat, or oats, and in very light lands, rye. By this mode, it is preſumed, that wheat may be cultivated on a large ſcale with advantage. For if the harveſt prove ſo wet, that the intended portion of land cannot be ſown with winter wheat, it only requires ſowing a larger quantity of oats or ſpring wheat, and ſtill continuing the ſame rotation.

Potatoes.

The culture of potatoes is ſo univerſally eſtabliſhed in every part of this county, that the pooreſt labourers, and the moſt extenſive farmers, raiſe a ſufficiency for their own conſumption. It is obſerved, that ſo far from exhauſting the land, potatoes, when luxuriant, are ſure to be ſucceeded by an abundant crop. Various kinds of them are cultivated; but the

* Beans, on old reſted lay, frequently yield 6 Wincheſter quarters per acre; worth about 32s. per quarter.

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round red and theround white of a dry nature are preferred, both for taſte and produce. They are generally ſold for 6d per peck, weighing 36 lb. or 8 ſhillings per boll of 16 pecks; and the value of L. 16 or L. 20, is not unfrequently gathered off an acre. In ſhort, of all the benefits, the lower claſſes of the community have acquired within the preſent century in this county, the general cultivation of potatoes is probably the moſt important. Lazy beds are almoſt entirely laid aſide; and the potatoes are planted in the month of June, on land prepared by the plough, manured and drilled like other green crops, and are lifted before there be danger of the froſt deſtroying them *.

Big and Barley.

The Ayrſhire farmers very frequently prefer big to barley. The average weight of the former is only 48 lb. per Wincheſter buſhel; while the latter is eſtimated at 52 lb. per buſhel. But the big, having four rows inſtead of two, is more productive, and is likewiſe hardier and quicker in its vegetation; ſo that it may be later ſown. This often proves a material advantage in ſuch a climate, where the land for barley can ſeldom be prepared before the month of May; although it is thereby prevented from ripening till the beginning of September, which interferes with the oat harveſt. Beſides, till of late, the maltſters did not allow a price adequate to the difference of value between big and barley. But now, when barley ſells at 25s. per quarter, big may be had 4 or 5 ſhillings cheaper; although it is difficult to diſcover any difference in the ale brewed from theſe ſorts of grain.

Oats.

With reſpect to oats, which form the great ſtaple of proviſions in the county, it may ſafely be aſſerted, that, in point of quality

* The prejudices againſt potatoes have been found in many places almoſt unconquerable. An idea of their being a ſpecies of ſolanum, and conſequently unwholſome, prevented their cultivation in Italy. And in France they were reckoned by the common people only fit for ſwine; until the celebrated Comptroller General, Mr Turgot, exerted his influence, and introduced them while Intendant of Limoges, by ordering diſhes of them in different forms to be regularly ſerved at his own table every day.

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quality and produce, no county in the kingdom ſurpaſſes Ayrſhire. Thoſe produced from lay are of the beſt and moſt farinacious quality. The ſecond crop is uſually better than the third. This grain being extremely impoveriſhing, farmers ought to learn that two crops of it ſhould never be taken ſucceſſively from any field.—The time of ſowing is uſually from the middle to the end of March *.

Much pains are taken to procure the beſt qualities of ſeed. The old kind of ſmall grey Scotch oats did not yield much farina. The Dutch and Poliſh oats, although they ripen near a fortnight earlier than the common ſorts, are extremely apt to ſhake with heavy winds; and are, beſides, much thicker in the huſks than the oats now cultivated in this county. Theſe were originally raiſed on a bleak farm in Berwickſhire called Blainſley, cleaned with great care, and ſold for ſeed all over Scotland. They do not ripen very early; and the oat harveſt ſeldom commences ſooner than September, and does not finiſh before October.

The average weight is 36 lb. per buſhel, which will produce meal at the rate of 18 pecks per Wincheſter quarter, —each peck of meal weighing 8 lb. 10 oz. Engliſh weight, at 16 oz. per pound. Upon the rich warm lands near the coaſt, no leſs than 22 pecks of meal have been produced from a quarter of oats. Farther up the country, the proportion will hardly exceed 16 pecks from 1 quarter of oats; and, in bad ſeaſons, on the bleak parts of the moors, there will hardly be a return of 14 pecks of meal from a quarter of oats. Weight of Grain.

No fact can more clearly ſhew the abſurdity of ſelling grain by meaſure inſtead of weight. For it is obvious, that a quarter

* The uſual rule in better climates, is to ſow the cold wet lands early, reſerving the warm dry bottoms till the laſt of the ſeedtime. Cato ſays, "Ubi quiſque locus frigidiſſimus, aquoſiſſimuſque erit, ibi primum ſerito. "In calidiſſimis locis, ſementim poſtremum fieri oportet." Cato Cap. 34. —Whoever adopts this advice in Ayrſhire is ſure, in a wet ſeedtime, to impair his crop. For, in this country, we muſt follow Pliny's rule, Never to touch land when wet—"Luteſam terram ne tangito." Plin. Nat. Hiſt. lib. 18.

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ter of oats, yielding 21 pecks of meal, is exactly worth 1¼ quarter, yielding only 14 pecks of meal. This I took the liberty of fuggefting to a member of the Privy Council, when the late corn bill was in agitation; and accompanied the ftatement with many obfervations on the fubject, from an ingenious friend of mine, very deeply converfant in the corn trade. The good fenfe, however, of the Ayrfhire farmers has at laft adjufted this bufinefs, as well as could have been accomplifhed by the wifeft legiflative regulation. And now, bargains of grain are ufually taken at a fpecified average weight, namely, at 36 lib. per bufhel of oats, or 18 pecks of meal per quarter. When the grain weighs lefs, there is a diminution in the price, at the rate of 6d. in the boll, for every pound of meal defaulting. If gentlemen in different parts of England eflay their oats, they will find them feldom equal to this average; and the oats from Ireland, imported into Ayr, Irvine, and Saltcoats, are commonly fold 1s. or 1s. 6d. per quarter cheaper than Ayrfhire oats *.

Chipping and Steeping Seed.

In a climate fuch as this, when feedtime and harveft are conftantly too late, feveral weeks might be gained by chipping or fteeping the feed in moifture, and then covering it up under cloths or facks in a barn or other warm place, for a few days, till it buds: By which means there will be the double advantage of proving the quality of the feed before it be fown, and of obtaining feveral weeks in its time of ripening. This mode is very generally practifed in feveral parts of Ruffia †; and I have known it with advantage applied to fome kinds of grain

* The average price of oats in Ayrfhire is about 16s. per Winchefter quarter, or 1s. per peck of meal. When meal is lower, farmers can hardly pay their rents, and when much dearer, the poor are oppreffed.

† In Ruffia the Guinea or Indian corn is raifed by this mode, and might, I doubt not, be brought to fufficient perfection in this climate, to act at leaft as a green crop, affording the fineft of all green feeding for cattle. I have raifed it to its full fize in the open ground at this place; and it only requires, like potatoes, and other delicate productions of warm climates, not to be planted out while there is rifk of froft.

For remarks and additional obſervations.

grain and graſs ſeeds. Barley being a ſeed that very readily ſprouts, and is uſually ſown in warm weather, will perhaps gain leſs by this practice, than beans, peaſe, oats, and other ſpring corn; and as for winter corn, the experiment would be prepoſterous.

Reaping and Mode of Preſerving Corn.

There is perhaps no county in the kingdom where the farmers are ſo handy and expert in reaping and managing their corns in rainy weather. The oats and barley are uſually cut for 5 s. per Scots acre, and put in ſhocks for 1s. more. The ſtubble is cut extremely ſhort, and no corn is left to encourage gleaners and other pilferers. Beſides the uſual complement of farm ſervants, an additional number are engaged for the harveſt, or the whole may be contracted for at a certain rate per acre. Even in the moſt humid ſeaſons it is extremely rare to find any corn loſt, or much damaged; for the farmers are conſtantly turning and curing it, ſo as to prevent its rotting, even when the rains continue ſo ſevere for many weeks, as to render it impoſſible to take in the corn. When thoroughly dried, it is put up in ſtacks, containing each from 10 to 20 quarters. One of theſe is thrown into the barn, and threſhed out as occaſion may require *. Clean oats growing on clay and ſoil free from weeds, may be threſhed, and the ſtraw truſſed up for 10d. per quarter. But oats on foul and graſſy ſoils are dearer. The uſual practice, however, is, to employ the farm ſervants in winter mornings to threſh from 5 to 8; when they rub down their horſes, and go to out-door work.

Threſhing—Appraiſing.

Threſhing Machines.

The uſeful invention of a threſhing machine has already been introduced into the county, and is found of ſuperior utility. The principle upon which this mill performs, is by two cylinders

* The *Birley-men*, or appraiſers, are ſo expert in their valuation of corn in the ſhock, that on a field of 50 acres, they will eſtimate the produce within a few buſhels. They caſt and threſh every 20th or 40th ſheaf, which gives them the average of the whole.——On the ſame principle, an attentive farmer, when he ſtacks his corn, ought to note the number of ſheafs, and prove them in a ſimilar mode.

By theſe means he can exactly know the amount of grain contained in every ſtack, and prevent the poſſibility of impoſition.

For remarks and additional obſervations.

cylinders or rollers turning quickly, and ſo placed, as to let all the ſtraw paſs through, and ſtrip it from the grain. One of theſe machines to work with two horſes, may be erected for L. 30 or L. 40 *. It requires the attendance of three men, and will threſh 3 quarters of oats per hour ſo clean, that not one grain of corn remains upon the ſtalk. It enables a farmer to ſupply an unexpected demand, and to prevent the continual depradations to which every farmer is expoſed, when a number of labourers have conſtant acceſs to his barn.

Multures. Multures or ſervitudes to particular milns are in general aboliſhed; and with a few exceptions, every farmer takes his grain to the miller who ſerves him beſt. In ſome parts of the county, however, a contrary practice ſtill prevails. The uſual price for drying and grinding, is 6d. per quarter of oats. Drying, ſteeping, and malting barley, 2s. And wheat is milled for 2s. per quarter.

Hay. With reſpect to the culture and management of hay, notwithſtanding the great quantities raiſed in all parts of the county, the whole ſyſtem is ſtill deficient. Inſtead of ſowing 12 lb. weight per acre of the beſt red clover, 6 lb. of white or Dutch, and 4 lb. of yellow clover, with ſome plantain and other meadow graſſes; it is uſual to ſow no more than 6 or 7 lb. of red clover, along with 1 or 2 buſhels of ill choſen rye-graſs, the greateſt part of which is only an annual plant; although there be perennial rye-graſs of ſuperior quality; and all kinds of rye-graſs are conſidered as a ſcourging crop.

It often happens, indeed, that the ſeed-merchants impoſe a weed called gooſe-graſs on the farmers, and thus the fields are poiſoned and impoveriſhed. The clover is ſeldom ſown equal, but only with one caſt of ſeed to a ridge, and the furrows being frequently wet; it is not uſual to find a ſtrong and regular crop of clover among ordinary tenants.

Graſs

* It may alſo be worked by water, when there is a proper fall, or power at hand.

For remarks and additional obſervations.

Graſs meant to be preſerved for hay is almoſt conſtantly allowed to ſtand ſo long that the ſeeds are formed and the juices dried. This exhauſts the land, deprives the hay of nutriment, and throws the hay harveſt ſo late, that the autumnal rains commonly take place before it be concluded. The conſequences are, great expence in the working, turning, and coiling, and drying it after a ſucceſſion of ſhowers, till the whole juice and ſubſtance is exhauſted; and at laſt, it is frequently ſtacked in a ſtate fit for nothing but litter.

The uſual prices are 4d. per ſtone for ſown-graſs-hay in the rick, and 6d. for old hay. Notwithſtanding theſe remarks, 200 or 300 ſtone per acre, is not an unuſual crop.

Much improvement might alſo be made for the purpoſes of paſture by proper attention to cultivate the moſt valuable meadow graſſes, ſuch as, timothy, feſcue, plantain, and many others ſuited to the different ſoils. It is even not improbable that the Guinea graſs, although the native of a very warm country, might be brought to aſſimilate with this ſoil and climate. At preſent, the ſeeds and roots of the worſt kinds of graſs and weeds, are ſo predominant throughout the county, that they choak the more valuable ſorts when ſown. This evil can hardly be eradicated till drills, fallows, and green crops, become an eſtabliſhed part of the ſyſtem; and rotation of huſbandry in every farm *. Neither has it been poſſible, for any farmer in the county, to extirpate ſprits and ruſhes. When once rooted in the land, they are ſo continually nouriſhed by the moiſture of the climate, as well as the congenial nature of the ſoil, and their fibres are underſtood to be of ſo unperiſhable a texture; that after repeated drainings

Paſture.

* The Romans were in uſe to fallow every alternate year, and reckoned *terra reſtibilis*, or ground which could bear crops every year extremely uncommon, and chiefly confined to the rich territory of Campania. On the other hand the Chineſe never allow any land to remain in fallow or in paſture. See Voyages d'un Philoſophe, par Le Poivre. How would a Chineſe be confounded, ſays this author, if he beheld our waſtes, and downs and commons; our ill-dreſſed ridges, uſeleſs fallows, and bare fields!

For remarks and additional obſervations.

ings, and fallowings, they have ſprung in full vigour as ſoon as the ground returned to graſs *.

The paſture in this county, however, is growing richer and better every day. White clover grows ſpontaneouſly. The ground has a natural tendency to the production of graſs; and there is little doubt of its rivalling the beſt cloſes of Cheſhire or of Yorkſhire, as ſoon as the land is dry; the cattle reſtrained from poaching it in Winter; and the practice of top-dreſſing paſture fields with dung, ſea-weed, lime and compoſt generally introduced. At preſent, graſs lands let, in the more cultivated parts, from 15 to 30s. per acre. On the bare unimproved clay ſoils, from 5 to 10s. while the hills and moors remain in their primitive ſterility; and probably, do not average more than 1s. or 1s. 6d. per acre.

State of Tillage.

The actual ſtate of tillage or mode of working the land, forms the next object of attention. The ridges ſtill continue in many places, very high and broad; the furrows being often 20, 30, and 40 feet aſunder. In order to correct the evils of high ridges, without incurring the detriment of burying the good ſoil, and expoſing an unfertile one; an ingenious gentleman of great landed property †, propoſes a method founded on the ſimple principle of reducing the loweſt part to a level. With this view, he throws off the top ſoil with a ſpade from about 6 feet at the end of a ridge, extending the whole breath acroſs the ridge. He then proceeds to throw the top ſoil, from the next 6 feet upon the ſurface ſo levelled; and advances with this ſort of trenching till the whole field is reduced, keeping the productive ſoil at top, and making the proceſs perform the purpoſe of a regular trenching, equal in reſpect of pulveriſing to 4 or 5 ploughings, and effected for 40s. or

* The antient georgical writers, particularly Columella, Pliny, and Palladius, all concur in repreſenting ruſhes and other plants of a ſimilar nature, as indications of a fertile ſoil.——Col. lib. ii. cap. 11. Plin. Nat. Hiſt. lib. 18. cap. 6. Pal. lib. 1. tit. 5.

† Mr Ferguſon of Pitfour, Member for Aberdeenſhire.

For remarks and additional obſervations.

or 50s. per acre. A more ſimple, cheap, and efficacious operation, can hardly be imagined; and no county can poſſibly ſtand more in need of ſuch a practice than the one in queſtion.

Indeed, it long has been a doubt, whether the ſyſtem of working land by ſpading and trenching, ſo as to bring every field to a more pulverized ſtate by the labour of man, to the excluſion of animals, is not one of the greateſt improvements which can occur in any country. Without preſuming to pronounce upon a point ſo often agitated, it is obvious, that the land by ſuch a proceſs is completely cleaned, freed from ſtones, levelled, and pulverized. That the produce of garden ſtuffs, green crops, grain, and graſs, is thus rendered far ſuperior to the ordinary mode by tillage; that beſides the advantage of employing the human ſpecies in place of the brute creation, the expence is little different. For example, to plough or fallow a field five times, with two horſes and a driver, coſts in Ayrſhire between 30s. and 40s. per acre. To half trench an acre, with one ſpading and a ſhoveling, will coſt about the ſame money; and a double trenching, with two ſpadings and two ſhovelings, in ordinary ſoil does not exceed 50s. or L. 3 per acre. Trenching.

The return from ſuch management is truly ſurpriſing.—Acres ſo worked have been known to yield above 60 bolls of potatoes each; and a farmer near Grougar and Kilmarnock, a few years ago, on land prepared with double trenching, raiſed a crop of wheat, for which he received L. 19 per acre.

A ſtill larger produce has frequently been raiſed on deep rich land, prepared with double trenching, and planted with the round hard-headed Scotch cabbage, and rows of beans between the intervals. But theſe inſtances cannot occur unleſs when the ground is well manured, and great attention beſtowed on procuring ſeed of the beſt quality, and plants in full vigour; as there is probably no part of farming in which more loſs acrues from indolence and ignorance, than in the careleſs choice of ſeed, and ſelection of plants.

For remarks and additional obſervations.

Ploughing.

But to return to ploughing.—Every rational farmer in this county, is ſenſible, at laſt, of the advantages derived from ſtraight furrows,—the ridges juſt ſloping ſufficiently to direct the water to the furrows, and not more than 12 feet wide. By this proportion, the field is laid entirely dry; the ridge may be ſown at two caſtings, reaped with two ſickles a-breaſt, and mowed with one ſcythe at two turns.

In this county, as in ſeveral others, the modes of ploughing are various, and in many caſes exceptionable.—In light eaſy ſoils, devoid of ſtones, like different parts of Norfolk, the art of ploughing is ſo ſimple, that it may be performed almoſt in any way, and effected by a plough of any common conſtruction. But, when the light, broad bottomed Norfolk plough, is uſed in the ſtiff ſtoney ſoils of Ayrſhire, the work is moſt imperfectly performed. The object in this county is to make a furrow from 4 to 6 inches deep, according to the nature of the ſoil. In order to lay that furrow neatly up, ſhouldering to the next, it is neceſſary that the flake or furrow be at leaſt one third wider than its depth. If it were only as broad as deep, it would be exactly a ſquare; and the furrow, turned over, would juſt fill up the ſpace left by the preceding flake.

The art of ploughing, perhaps, requires a nicer eye, ſteadier hands, and more attention—than any other occupation; and yet, without fixed principles or rules of any kind, the moſt ignorant perſons are truſted with a plough; although the difference of one man's ploughing and another's ſhall make the odds of 2 or 3 quarters produce per acre, on the ſame land: For it is obvious, that land unequally and irregularly ploughed, with flat, ſhallow, broad flakes, laid over on their backs, never can produce ſo well as when the furrows are taken deeper, narrower, and ſhouldered up againſt each other. By which means, there are more numerous intervals proper to receive the ſeed; and it is alſo better covered with the ſoil, protected from the bleaching rains and ſcorching heats, and enabled ſooner to fulfil the purpoſes of vegetation.

We are, however, extremely inattentive to clean the lands

For remarks and additional obſervations.

from root-weeds, couch-graſs, or quickens; and to deſtroy the multitude of annuals which continually ſpring in ſo wet a ſoil. Neither do we ſufficiently pulverize the land by harrows, brakes, and rollers; without which, the tender germs and ſeeds can find no proper nidus to call forth their vegetating powers.—By attending to theſe particulars, and clearing the field of all ſuperfluous moiſture, by the judicious formation of water furrows to take off the rains and ſprings; a good ploughman can eaſily compenſate for any additional wages his maſter can beſtow upon him: Inſomuch, that it would be better for a farmer to give a ſkilful Berwick or Eaſt-Lothian, or Clackmananſhire ploughman, double wages, rather than allow the land to be ploughed gratis in the old Ayrſhire form.

The more ordinary farmers ſtill continue the old Scotch plough; which, for breaking up coarſe land, and working ſtrong ſtony ſoils, is probably the beſt of all; but it is extremely heavy, and requires four horſes. In lighter and well cultivated ſoils, a ſmaller plough is uſed, and works eaſily with two horſes, and without a driver. This mode, it is preſumed will very ſoon become general in the county. The Ayrſhire ploughs, however, appear all too narrow in the bottom; by which it is more difficult to keep a ſtraight direction, and to ſhoulder up the ridge, than with a plough broader at bottom, and bluff at the mouldboard, thereby rendered ſteady in its progreſs, although not ſo proper for ſtrong ſtoney lands. Double mouldboards are uſed for drills and green crops; but the wheel ploughs do not prevail in any part of Ayrſhire *. Several attempts have been made to introduce caſt metal ploughs; but they appear much heavier, and in no reſpect ſuperior to thoſe of wood well ſhod with iron in the ordinary mode.

There is another point of equal conſequence in this county to which as yet no adequate attention has been ſhown.— Draining.

* A two horſe plough, of Mr Small's conſtruction, with an iron head, coſts two guineas; with a wooden head 30s. caſt-metal ploughs 40s.

For remarks and additional obſervations.

The tenacious nature of the ſoil in many places, and the moiſture of the climate, expoſe it to conſtant inconveniencies from wetneſs. The extent of the evil has hitherto almoſt entirely precluded the application of a remedy. Covered ſtone drains are ſo expenſive, and in general ſo ineffectual, that they have juſtly fallen into diſrepute. To drain an acre of ground with ſtones and covered drains will coſt from L. 3 to L. 5 per acre; and after all, the ſlighteſt accident or impediment in any of the drains, will render them entirely uſeleſs.

Drains filled with bruſh-wood are extremely eligible for ſoft boggy lands, where there is a ſufficient declivity communicating with a main drain, to carry off the various ſtreamlets from the drains. They do not coſt more than 40s. or 50s. per acre, in the neighbourhood of bruſh-wood; but they ſeldom laſt beyond 14 or 15 years. And if the mouths of the drains are ever ſuffered to choak, they ceaſe to be of ſervice.

There is another kind of covered drains, leſs expenſive, and in certain ſoils more efficacious than the former. Firſt, a thick ſod is cut and laid aſide, then a trench is made gently ſhelving, and deep enough to be beyond the reach of any plough. A narrower ſpade is then uſed to caſt a ſmaller trench at bottom, leaving a ſhoulder or epaulement of ſeveral inches on each ſide. The earth is then carefully removed, and the top ſod is turned with the ſward downwards, preſſing on the epaulement, and leaving the narrow ſpace below it empty for the water. The earth ſcooped from the bottom is then thrown upon the inverted ſod, and the whole is levelled with the ſurface. Neat as this mode may be for dreſſing pleaſure grounds and parks, it is found inadequate to the great purpoſes of draining on an extenſive ſcale. In a county ſuch as Ayrſhire, this can only be effected by properly ridging and furrowing the land; opening with a ſpade or plough a proper water furrow, wherever it is neceſſary; and in wet or ſpouty ſoils uſing open cuts or kettle-bottom drains, about 5 feet wide at top, gently ſhelving ſo as to leave the ſides green, and no deeper than is requiſite to make the water flow. Theſe kettle-

bottom

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bottom drains may be made from 4d to 6d per fall of ſix yards, and ought to be cleaned once or twice a year. They have been ſucceſsfully practiſed by Mr Blair of Blair in very wet parts of his eſtate.

Ditches and Fences.

The only kind of drain that hitherto has been generally eſtabliſhed, ariſes collaterally from the large deep ditches and fences which over-run Ayrſhire. When the ſyſtem of enclоſing was introduced, every one conceived that the deeper and wider he made his ditch, and the higher he conſtructed his mound, the more ſecure and efficient was his fence. In this courſe of reaſoning, it was forgotten that the mound acted as a barrier againſt the water on one ſide, and the ditch as a canal or dam upon the other, whenever there was not a proper level or outlet for the water. The width is uſually 5 or 6 feet, and the depth three feet. The thorns are planted on a level with the ſurface, and uſually with a ſcarcement or projection of 5 or 6 inches; on this the thorns reſt, and it ſerves as an under ſtratum to them when cleaned, or when earth is thrown up to cover them. A fence, of this ſort, coſts at the rate of 10d. or 1s. per fall or perch of 6 yards in length. On the top of it, is placed a palliſadoe of bruſhwood, coſting according to ſituation, from 2d. to 4d. per fall.

In Summer, this ditch or canal is dry, and ſo wide that the cattle can deſcend into the bottom, and deſtroy the thorns growing above the projecting earth or ſcarcement. In Winter, the quicks are uſually drowned with the ſtagnated water in the ditch, and although the Ayrſhire ſoil is generally favourable to theſe plants, ſo little attention is paid to them, that one may ride for many miles without ſeeing a hedge and ditch either properly conſtructed at bottom, cleaned above, cocked and palliſadoed at top, or ſwitched up like a penthouſe, which is the only mode of preſerving the fence, thick and vigorous from top to bottom.

Quicks are raiſed from hips and haws; and after ſtanding in the ſeed-bed, they are tranſplanted; and at three years old, are uſually ſold by the nurſery-men at 10s. per thouſand *.

Conſidering

* 34 quicks are ſufficient to plant a fall of 6 yards.

For remarks and additional obſervations.

Conſidering the enormous ſums expended on encloſures in Ayrſhire, during the laſt 40 years, it is wonderful how few are either properly conſtructed, or afterwards preſerved in condition, to perform the three effects required of them:—The draining of the ground; the confining and ſeparating of the ſtock; and affording warmth and ſhelter to the country. This laſt object is ſo material, that an author of great eminence, on political economy *, expreſly ſtates the ſignal benefits derived in Italy, from the warmth and ſhelter of planting and encloſures. If this remark applies with juſtice to the mild latitudes of Lombardy and Naples; how much more forcibly muſt it attach to the bleak regions of the north?

The beſt mode of attaining theſe objects is, to conſtruct a mound or embankment, about 3 or 4 feet wide at bottom, and from 2 or 3 feet high, faced up with ſod, in order that it may be preſerved in conſtant verdure; with a quickſet hedge and row of trees upon the top, defended by pailing or bruſh-wood while the fence is young, and having a ſmall ſhelving drain on each ſide of the embankment. The earth being all taken from the ſurface, and well pulverized, gives much more luxuriant vegetation to the quicks and trees, than can be expected when they are plunged into the ſide of a cold hard mound, often drenched with water, and placed in an unnatural horizontal poſture. It is, however, to be obſerved, that theſe fences are by no means proper in very ſandy ground, where the drought would kill the plants †.——A mound and fence of this deſcription, including thorns at 10s. per thouſand, and a ſufficient quantity of oak, aſh, elm, beach ‡, and larch, at the rate of one tree per fall, and one Huntington willow per fall,—may be made for little more than

* Filangieri.—Scienza della Legiſlazione.

† In that caſe, furze, planted on a high mound or turf dyke, will be found an eligible ſubſtitute.

‡ The beech is above all recommended, and it agrees ſo well with the thorn, that it may be mingled with it in the hedge.

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than an ordinary encloſure. It is particularly beautiful and convenient on the ſides of high roads, affording a perfect fence and ſome ſhelter; preſerving them dry without recurring to the pernicious cuſtom of deep ditches fronting the road, which endanger the neck of the traveller throughout every part of Ayrſhire.

Roads.

With reſpect to roads, few counties, on the whole, are ſo well accommodated. In all directions, where land or water gravel can be procured, the roads are formed of theſe materials. The turnpike roads are made and repaired by the produce of the tolls; and croſs roads by the ſtatute labour of the different pariſhes. The uſual breadth is conformably to the ſtatutory regulations; being never leſs than 24 feet wide for by-roads, and 34 feet for turnpike roads. The materials are uſually a foot deep at the ſides, and 15 inches in the centre. When the turnpike roads firſt began in this county, the rate of making them, by job-work, roſe from 10s. to 14s. per fall. Now, they are contracted for at 5s. or 6s. per fall; unleſs where the materials are at a great diſtance.

In places where gravel cannot be procured, the road is formed with pounded ſtones; but as they are ſeldom properly covered with earth, nothing can be more uneaſy than the travelling on theſe ſharp and rugged communications; eſpecially in this county, where there are neither broad wheels, nor heavy waggons to reduce theſe refractory materials. The ingenious Mr Bakewell thinks that roads, inſtead of riſing in the center, and ſhelving outwards, ſhould be made like the ſtreets of Naples, high at the ſide, and tending to a kennel or gutter in the middle.

After all, there is little doubt but the beſt ſyſtem of road-making is that practiſed by the Romans in the Appian and Flaminian ways, and afterwards much improved, and rendered general in France under Sully and Colbert. The ſyſtem eſtabliſhed by theſe great miniſters conſiſted of a broad pavement in the middle, on which carts and heavy carriages can always

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always draw a greater load than on the gravelly paths on each ſide, which ſerved for travellers in dry weather.

Amount of Weight drawn —Carts, and other Conveyances.

The fact is, that in the neighbourhood of Glaſgow, where the roads are neither ſmooth nor flat, but where they are either paved, or compoſed of very hard materials, from 20 to 30 cwt. is drawn upon a cart with one horſe, whereas, on the flat gravel roads around London, the moſt powerful teams of four horſes hardly ever draw more than 40 cwt. equal to 1000 wt. or half a ton per horſe.

In Ayrſhire the practice of working with waggons, teams, or drays, has never been eſtabliſhed. Even the yoking of two horſes in one cart is diſapproved of; on this principle, that a ſingle horſe in a cart avoids the ſtrains and jerks, which ſo frequently diſtreſs the willing ones, while the others ſave themſelves. Beſides, this mode requires much leſs ſkill and attention in the driver, who can eaſily take charge of two horſes, and two carts.

The wheels of theſe carts are uſually from 48 to 54 inches in diameter*. The axles are made of iron, although many carters now prefer wooden axles, as being lighter, and ſhaking the horſes leſs. On the ſame wheels, occaſionally can be placed bodies of long carts for the conveyance of hay and ſtraw. The weights drawn in this county are uſually no more than from 10 to 12 cwt. Although the carriers who travel from Ayr to Edinburgh ſeldom take leſs than a ton on every ſingle horſe cart; and the very ſuperior practice, in the neighbourhood of Glaſgow, already mentioned ſufficiently proves what may

* A pair of ſuch wheels, made of well ſeaſoned aſh, will coſt for wood 24s. 12 ſtone of iron 50s. the body L. 1. Or for a complete mounted ſingle horſe cart, L. 5.

The wheels of carts, round London and in many level parts of France, are ſeldom leſs than ſix feet in diameter. By theſe means, the centre of the axle is three feet from the ground, and the cart placed on that axle is neceſſarily raiſed nearly a foot higher. The objections to theſe very high wheels are, their weight and ſeverity of preſſure going down hill.

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may be effected. Great, however, is the amendment of the county in this reſpect.—About 40 years ago, the late Lord Cathcart being extremely deſirous of improving his eſtates, ordered a number of carts to be made, and given gratis to his tenants. But they were at that time ſo little accuſtomed to theſe machines, and the roads were ſo bad, that very few accepted of his Lordſhip's preſent.

Weighing Machines.

In order to enforce the moſt uſeful improvements in the article of conveyance, and to ſpecify the weights that horſes draw, every farmer ought to have a machine capable of weighing two tons, with a platform on which the cart runs; and is weighed in the moſt expeditious manner.—Theſe machines are made by Mr Hutchiſon at Dalkeith, on an ingenious conſtruction. They are ſo poiſed, by counteracting levers under the platform, as to weigh horſes, cattle, ſheep, &c. with great preciſion, and without being injured by the movement of the animal. Few inventions are ſo uſeful to thoſe who buy and ſell live ſtock: as it enables them to avoid all impoſitions and altercations with graziers or other dealers, and to know, with very great preciſion, the value and real condition of the animals they purchaſe *.

Planting.

In addition to the circumſtances above ſpecified, there is no operation which tends more to the beauty, comfort, and improvement of the country, than planting. In this particular, the landholders of Ayrſhire have not been inattentive.—Two centuries ago, there were very conſiderable foreſts in this county. At the time of the Reformation, a foreſt extended from the vicinity of Ayr to Barnwell, or the Kirk of the Foreſt, as it was then called, 10 miles eaſtward. This, and every other of any extent in the county, excepting Dalrymple-wood on the river Doon, belonging to the Earl of Caſſilis, has been long ſince deſtroyed. Inſomuch, that, 50 years ago, there hardly remained any timber or plantations in the

* A complete machine of this ſort, capable of weighing two tons, coſts about L. 20.

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county; excepting the natural woods of oak and birch on banks of the rivers Stinchar, Girvan, Doon, and Ayr, and clumps of aſh and ſycamore ſurrounding almoſt every farm-houſe in the northern diviſion called Cunningham; and many of thoſe in the central and ſouthern diſtricts, Coil and Carrick.

It is to be hoped, that a ſimilar misfortune to the country will not again occur; as Mr Forſyth's diſcovery, and application of a plaiſter, for preſerving and reſtoring trees, enables every one to obtain new ſtems, and a moſt vigorous vegetation, from any root that is not totally decayed *.—At preſent, the ſeat of every gentleman in the county is ſurrounded with a greater or ſmaller quantity of planting, proportioned to his inclinations, taſte, and means.

Thoſe who wiſh to beautify or ſhelter a country, rendered ſo bleak by the miſconduct of their progenitors, found it requiſite to plant clumps of one or more acres, and belts of different dimenſions, from 20 to 300 feet.

In many places hedge-rows have been introduced, and ſucceed extremely well. But, in a bleak and hyberborean climate, they muſt be very frequent, and under the cover of well advanced plantations, before they can yield any ſolid benefit to the country. Whenever they ſhall become an eſtabliſhed part of the general ſyſtem, beſides affording ſhelter to the fields, they will in 40 years render an eſtate worth double the value of the ſoil, by the timber growing on it, without including the great convenience and abſolute neceſſity of ſtakes, pailing, and bruſhwood, afforded from the coppices, and younger growth of the plantations.

In order to effect ſo deſirable a purpoſe, the beſt mode practiſed in this county is to ſow, on a well prepared piece of garden ground, the ſeed of aſh, elm, and ſycamore, beech-maſt, acorns, and cones of larches, pines and fir, according to

* See Mr Forſyth's pamphet on this ſubject.

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to the quantity of ground intended to be planted. The ordinary proportions requiſite to plant an acre are about 2000 deciduous trees, 1500 larches, and 1500 Scots firs. Round the boundary ſhould be planted cuttings of Huntington willow, which, in 4 years gives the ſhelter and appearance of an advanced plantation; and, in the end, yields a wood of great ſize, extremely light and tough, and almoſt as uſeful for country purpoſes as the aſh. If the ground be hard and moiſt, it is beſt to turn it previouſly with the plough, and then to plant the trees at 3 or four years old in the months of February or March. But on dry ſandy ſoils, the Scotch firs and larches ſhould be planted in November or December from the ſeed-bed at 2 years old. Acorns ſown or dibbled, thrive extremely well, unleſs when rabbits, mice, or hares deſtroy them.

Contractors in this county will engage to plant 5000 trees per acre at ſpecified ages, and to ſupply all deficiencies for 7 years at L 3 or L. 4, according to the ſoil and ſituation; the proprietor encloſing the ground, and affording ſome land for nurſery. But as moſt proprietors can do the ſame much cheaper by their own people, there are few examples of ſuch contracts having been made, to any extent in the county.

It is unfortunate, that in the early tendency to planting, the landholder ſhould have given ſo decided a preference to the bleak and diſmal Scotch fir. At its prime it never can be uſed with ſafety for rafters, beams, joiſts, or other durable operations in building; inſomuch, that the people of this county, rather chooſe to pay 16d. and 18d. per ſquare foot for Norway timber, than uſe the fir grown in Scotland of equal ſize, at 1s. per foot.

Large oak, aſh, and elm ſell for 1s. 6d. per ſquare foot, beech and ſycamore at 1s. Oak bark from L. 6. to L. 10 per ton.

With reſpect to larch, there is not yet a ſufficiency of it in the market, to aſcertain its price; but it is admitted to be

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worth 3d .or 4d. per foot more than Scotch fir, grows faſter, and is far more beautiful.

The grey willow, although it has the advantage of growing faſt and affording early ſhelter, is ſo inferior to the Huntington as to render the latter very generally preferred. Several improvers in this county have found great benefit from plantations of hoop and baſket willows. The cuttings are planted in the month of March, in rows 3 feet aſunder, and the plants 18 inches diſtant in the rows, on rich meadow land, previouſly trenched, and ridged up with drains, to carry off ſuperfluous water. In three years the ſhoots are ready for the market; and frequently ſell for L. 24 per acre, yielding a rent of L. 8 annually; from whence is to be deducted the expence of trenching, planting, and attendance, probably not exceeding L. 3 per acre.

An excellent kind of reed grows around the lakes and bogs in ſome parts of this county; and it is to be regretted that the cultivation of this uſeful plant has not been more encouraged. It affords the beſt of all thatch, capable of laſting without repair for twenty or thirty years; thereby preventing the conſumption of ſtraw, which requires to be almoſt annually replaced; and, inſtead of augmenting fodder for the ſtraw-yard, is thus waſted in thatching cottages, and purpoſes not ſo neceſſary, or for which other materials are to be preferred.

Soils and Manures.

We come now to the moſt important point connected with the management of land; the conſideration of thoſe qualities which occaſion ſterility or vegetation, and the applying of ſuch manures as tend to diminiſh the one, and to promote the other. Without entering into a long technical analyſis of the component particles which conſtitute ſoil, or the chemical proceſſes through which nature calls forth the principles of vegetation, by the mingling and fermenting of various ſalts, acids, alkalies, and other ſubſtances; we may, in general, ſtate the baſis of workable ſoils to conſiſt, either of argillaceous matter, or clay properly ſo called; or elſe of flinty earths

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earths, quartz, and ſilicious particles, which form the component parts of gravel and ſand *.

The various kinds of loams, moulds, moſſes, and virgin earths, are formed by the addition of animal or vegetable bodies; ſuch as dung, carrion, decayed wood, leaves, plants, peat, fixed and common air, ſediment of water, and other ſubſtances conducive to the purpoſes of vegetation †. Alkaline earths, or calcareous matter, acting on the mineral or vegetable acids, produce a great increaſe of fertility. On the other hand, the intermixtures of ores, ochres, copper, iron, and other metallic particles, or the waters impregnated with them, tend extremely to diminiſh the fertility of any ſoil; and in many inſtances prove completely fatal to the growth of plants.

* Dr Black ranges earthy ſubſtances under 5 claſſes.—
1ſt, Abſorbent, or alkaline earths.
2d, Clays.
3d, Flinty ſubſtances.
4th, Fuſible earths.
5th, Talcs, or flexible earth.

† The antient writers on huſbandry mention many noſtrums for determining the quality of ſoil.

A fat black earth is recommended by Virgil as the beſt for corn;—
" Nigra fere, et preſſo, pinguis ſub vomere terra,
" Et cui putre ſolum, (namque hoc imitamur arando)
" Optima frumentis." VIR. Geo. II.

In another place, the ſame author recommends a glutinous ſoil.

A ſalt or bitter taſte was admitted as a teſtimony of barrenneſs;—
" Salſa autem tellus, et quæ perhibetur amara,
" Frugibus infelix." VIR. Geo. II.

Columella ſays; " Pingue ſit; per ſe tamen id parum eſt, ſi dulcedine ca-
" ret." COL. lib. II. cap. II.

Pliny ſtates that the beſt ſoil is known by its ſmell;—" Illa erit optima
" quæ unguenta ſapiat." PLIN. Nat. Hiſt. lib. 17. cap. 5.

Although the antients were ignorant of chemical analyſis, yet their opinions on theſe points deſerve the attention of every farmer, and are accurately diſcuſſed by the Rev. Mr Dickſon, in his work on the Huſbandry of the Antients.

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plants. The famous copper mine of Angleſea, the waters of which deſtroy all vegetation, may be cited as an example.

It is well known to chymical obſervers, that not only the muriatic, nitrous, and vitriolic acids, are contained in many ſoils and ſtrata *; but likewiſe the ſorelline, and other vegetable acids. Theſe acids, and many other ſalts, remain either neutralized or combined in ſuch forms as are ready to be called forth, by the application of heat and mixture producing combinations which refer to, and are explained by the table of elective attractions †. Not only the ſingle, but alſo the double elective attractions operate with great force in the proceſſes of nature, in regard to ſoil, manures, and vegetation.

In many parts of America, where the ſoil is compoſed, not of ſand ſimply, nor argilla ſimply, but of theſe, mingled with rich animal and vegetable ſubſtances, full of animal ſalts and vegetable acids, forming deep moulds and loams; the application of gypſum, or Paris plaiſter, in the ſmall proportion of a few buſhels to an acre, ſeldom fails to call forth the productive powers of the land, and to enſure abundant crops ‡. But if the ſame quantity of gypſum be ſpread on mere ſand, quartz,

* Clay and vitriolic acid form alum. Calcareous earth and vitriolic acid form ſelenite. The pureſt clay or argillaceous earth is obtained by adding to a ſolution of alum, a proportion of magneſia. This decompoſes the earth of alum, which is precipitated in the pureſt form.

† Single elective attraction means, the diſuniting of one body from another by the adjunction of a third. Double elective attraction implies, that when two ſubſtances, which have an affinity together, are mixed with two others, theſe two ſhall be decompoſed, and each ſhall form a combination with one of the two ſubſtances added.

‡ The baſis of gypſum, is calcareous earth. It is a ſtoney concretion extremely ſoft, and does not effervеſce with acids. But when reduced into powder, and boiled for ſome time in a ſolution of common fixed alkali, it changes into a vitriolated tartar.

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quartz, till, or clay, unmingled with any animal or vegetable ſubſtance, its operation will be of no avail.

In like manner, when ſal-glauber, which is a neutral ſalt, produced by the mixture of the vitriolic acid with the foſſil alkali, is ſpread on ſoil, whoſe component parts contain particles, brought into action with that preparation, on the principle of chymical attraction; great fertility is the never failing conſequence.

Unfortunately, this analyzing mode of operation is repugnant to the habits of practical farmers; and it is only by the application of ſcientific men, and the attention of ſuch a board, as that which I have the honour of addreſſing, that the neceſſary inveſtigations can be ſpecified or promulgated. In default of ſuch aſſiſtance; under the apprehenſion, too, of being charged with theoretical deviations from the plain matter in diſcuſſion; and in expectation that ere long, by the exertions of ſo reſpectable an inſtitution, the public mind will be more fully matured for the reception of chymical deductions applied to agricultural purpoſes; I ſhall, in the mean while, confine myſelf to thoſe ordinary modes of fertilizing admitted into common practice. The ſpreading of ſand on clay, clay on ſand; earth on peat, or peat on earth, every farmer underſtands to be an improvement of the ſoil. But, in this county, with every variety of ſoil and opportunity for theſe proceſſes, there are few inſtances of ſuch ameliorations, to any extent.

Paring and Burning.

The paring and burning of moors and moſſes, formerly took place to a conſiderable degree. It tended to produce two good crops, or three; but was extremely pernicious, unleſs where the ſoil was very deep, or where the object was to conſume the ſoil, until you reached a better under-ſtratum.

Flooding and Watering of Ground.

Another cuſtom, very prevalent in this county, was, by means of ſluices, dams, or other contrivances, to throw bogs and lower grounds under water during the winter months. By theſe means, the land was greatly enriched with the productive

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ductive vegetable earth from the ſurface of the higher parts. The waters were let off in Spring, and the ground was then ploughed and ſown. But in conſequence of the great humidity and uſual deepneſs of the ſoil, the crops were very late; the produce was precarious, depending on the dryneſs of the ſeaſon; as a wet ſummer commonly lodged and ſpoiled the corn on ſuch lands. Whenever theſe grounds have been perfectly freed from wetneſs, ſprings, and ſurface-water, they have proved themſelves the beſt of all ſoils. But the leaſt inattention to theſe particulars, to the proper ridging of the land, opening of drains, and water furrows, expoſes them to numerous diſadvantages.

The plan of watering fields by little drains, and dams of a few inches wide, in this mode uſing ſtagnate water as a manure, ſo ſucceſsfully practiſed in other countries, and in England by Mr Bakewell at Dithley, &c. has never, as far as I know of, been attempted in Ayrſhire. Indeed, at firſt, ſome portion of the ludicrous would probably attach to an improver who, in a county ſuch as ours, ſhould in this manner attempt to water fields, before he had thought of draining them. Far be it from me, however, to doubt, but this is one of the moſt efficacious manures, which, under proper modes and circumſtances, can poſſibly be applied to land. In order to give it full effect, nothing more is requiſite than to ſecure a ſmall ſtreamlet, and to conduct it along the higheſt part of a field, from that feeder forming furrows with the plough, at moderate diſtances, then throwing in, ſmall dams of turf at proper intervals, ſo as to flood every part of the field, for the period neceſſary to enrich it *.

Marles.

In Carrick or the ſouthern diſtrict of the county, ſhell, clay, and ſtone marle are found in many places, and applied with advantage. One eſtate in Carrick of 900 or 1000 acres, which about

* In India, and other tropical climates, machines are conſtructed for conveying water to every well cultivated field.

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about 40 years ago was ſold for little more than L. 2000, and let for about L. 100 a year, has been ſo much improved by marle, as now to let for L. 600 or L. 700 a year.

Shell marle, containing a larger proportion of calcareous earth, is the ſtrongeſt and moſt ſpeedy in its operation. About 100 cart loads of it, on an acre of earthy or clay land, yields large crops, and continues its operation on the ſoil for many years. The clay marle containing a ſmaller quantity of calcareous matter, mixed with a larger portion of argillaceous ſubſtance, is more applicable to light ſoils, and requires to be ſpread, to the amount of 200 or 300 cart loads per acre.—The ſame obſervations nearly apply to ſtone marle. The expence in common caſes may amount to L. 2 or L. 3 per acre; and the uſual mode is to ſpread the marle on the ſward, and plough it in, with the lay crop.

Marle and lime are underſtood to operate as manures, exactly in proportion to the calcareous matter they reſpectively contain. Many kinds of marle do not contain more than one-twentieth, or even one-thirtieth part of their weight of calcareous earth. Half the quantity of lime would be infinitely preferable to ſuch marles *.

Lime, however, is the ſtaple manure of this county. It has been already ſtated that 100 bolls, or 400 Wincheſter buſhels, of ſlacked lime, are commonly ſpread upon the ſod: And if the ground remains for ſeveral years in graſs, on land of a good ſtrong ſtaple, whether loam or clay, it will make the difference of 4s or 5s. per acre on the paſture; raiſe an abundance of white clover even in the wildeſt moor, where no ſuch plant had been ſeen before. Lime.

* In order to aſcertain the quantity of calcareous matter in marle, Dr Black recommends to diſſolve it in acid, and then precipitate by an alkali. Or as a more ſimple proceſs, to put 200 grains of the marle in a florence flaſk, adding a little water; and after ſaturating with an acid, obſerving the loſs of weight. If it loſe 40 grains, there are one hundred grains of calcareous matter in the marle. The loſs of weight which it ſuffers being always about 40 per cent. of the whole, and whatever be the loſs of weight, we can by this mode judge of the quantity of calcareous matter contained.

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If the ground is ploughed, for 3 years, it will yield ſeveral quarters of grain per acre more than would have been produced without the lime.—On ſandy ground it is not the practice to uſe lime, although it evidently improves the paſture even on that ſoil; and on ſuch parts of the moors as are previouſly drained it produces the very beſt effects. But when thrown upon land in a deluged condition, little benefit can be derived from the application.

On the coaſt, the limeſtone is brought as ballaſt from Lerne, and other places in Ireland *. It coſts 3s. 6d. per ton of ſtones delivered at the harbour. It is ſold from the draw-kilns at 6d. per boll of ſlacked lime, equal to half a boll of ſhells. A ton of limeſtone will produce 8 or 9 bolls of ſlacked lime; and, in addition to the price of 6d. per boll, it frequently coſts as much to lead it, and lay it on the ground: So that farmers expend L. 5 per hundred bolls of lime, which is the uſual quantity ſpread upon an acre.

Many farmers maintain, that inſtead of adhering to this expenſive practice, of ſpreading ſo large a quantity of lime per acre on the ſward, it is better to ſpread the half upon a fallow. This is daily coming into uſe, when land is preparing for wheat or barley, to which 40 or 50 cart-loads of dung per acre are added when they can be ſpared. Failing dung, a compoſt made of lime and ſweepings of drains and ditches, is found to produce the moſt luxuriant crops of grain; and acts as an admirable top-dreſſing for hay and paſture lands.

It is aſſerted by ſome improvers, that the burning of the lime, and the cauſtic quality it thereby acquires, are not requiſite to call forth its ameliorating powers; being, as they ſay, equally efficient when merely pulverized, without burning and ſpread in powder. Dr Black, indeed, poſitively maintains, that lime is equally applicable in its mild, as in its cauſtic

* In ſome parts of Ireland, there is an ingenious contrivance for erecting ſalt pans over a draw-kiln, ſo as to perform the operations of each, with the ſame fire.

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cauſtic ſtate *; that it ſhould remain 12 months on the ſward before the ground be ploughed, by which it ſinks into the earth, is incorporated with the ſoil, and corrupts the vegetable matter, ſo forming a manure.

It is an opinion very prevalent in Ayrſhire, that although lime improves the land, and enables it to produce ſuperior crops of graſs and corn; yet that, if repeated, it exhauſts the ſoil, and would at laſt reduce it to a caput mortuum. It is obvious, that if a farmer, whether by lime or any other means, can bring his fields into high condition; either he or his landlord muſt be culpable indeed, if they be afterwards reduced to barrenneſs. But, perhaps, the operation of lime being to attract and bring into action the different acids contained in the ground, may leave the ſoil diminiſhed in its means of reproducing theſe ingredients; without which, when the operation of liming is repeated, the calcareous matter may remain inactive and without effect.

Peat or Moſs.

It is to be regretted, that ſo few endeavours have been made in this county, to render peat or moſs, productive as a manure. Every chemical perſon knows that peat or moſs contains a large proportion of vegetable matter; that the vegetable alkaline ſalts are obtained from it by burning; and that the application of alkaline matter may be uſed to call forth the ſorelline and other acids which abound in it. The few attempts which have been made in this reſpect, encourage us to perſiſt in more vigorous endeavours, and the extreme plenty and cheapneſs of the material, render the application of it as a manure one of the greateſt deſiderata in Scottiſh huſbandry.

Common Salt.

The learned and ingenious Biſhop of Landaff ſtates, that common ſea ſalt, as a manure, in ſmall quantities, tends to fertilize, whereas, in large proportions it effectually deſtroys vegetation. Perhaps in this latter mode of application, it

* See Dr Black's Lectures.

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might be uſeful to deſtroy the roots of quickens, ruſhes, and other pernicious weeds, which infeſt this county.

Soapers Waſte. Soapers waſte, which is the earthy part of kelp and barilla, mixed with the lime which manufacturers uſe to bring it to the cauſtic ſtate, and from which the alkaline and other ſalts have been ſeparated by ſolution, proves a valuable manure, and is in great requeſt among many Ayrſhire farmers, as well as horn ſhavings, for the purpoſe of ſpreading upon graſs.

Sea-weed. Sea-weed is much uſed upon the coaſt. It is ſometimes carried immediately from the water, and ploughed in, for barley or other crops. But is more frequently allowed to rot; and in that ſtate is ſpread at the rate of 70 or 80 ſingle-horſe carts per acre. It does not however ſeem to continue its effects above two ſucceeding crops, eſpecially in ſandy ſoils; although in clay lands it is more durable. When uſed for turnip, it is apt to burn and deſtroy the ſeed; inſomuch, that unleſs carefully managed, it will often occaſion a failure of the crop, on the ſame field where the part manured with dung, proves luxuriant. It is likewiſe obſerved to give an unpleaſant taſte to potatoes, and ſome other vegetables.

Dung. With reſpect to dung, any obſervations on its value or mode of action would be ſuperfluous. It only remains to expreſs regret, that ſo little pains are taken in this county to increaſe its quantity, and preſerve it in a proper ſtate. Inſtead of forming layers of alternate mould and dung, and turning it at proper intervals, the lower and more ignorant claſs of farmers, ſtill continue the barbarous practice of throwing it out from the ſtable or cow-houſe on a declivity, where its juices are exhauſted, or run off with the rain which drenches it. The benefits ariſing from feeding all the live ſtock in ſtables, ſheds or ſtraw-yards, as practiſed in the Netherlands, are however ſo well underſtood, at leaſt in theory, throughout this county, that they cannot fail ere long to be very generally eſtabliſhed.

The ploughing in, of vetches, tares, lupines, or other pulſe, when green, is alſo recommended as an excellent manure by the

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the beſt ruſtic writers; but if allowed to form the ſeed, they have at all times been held pernicious.

So much reſpecting the nature and management of land in Ayrſhire. The next object is to conſider the kinds and properties of thoſe animals which are maintained on its productions. Stock.

The prejudices long entertained in this country againſt the uſe of pork or bacon, prevented the inhabitants from paying due attention, to the breed of ſwine. But the merits of this uſeful animal are now recogniſed, and its fleſh riſes in eſtimation among all claſſes of the people. Although many farmers keep a few for their own uſe, yet they are ſeldom raiſed or fed in any conſiderable numbers, unleſs at gentlemens houſes, (where the ſmall, round, black, Chineſe kind, are generally preferred), or at diſtilleries, where the ſuperior ſize and weight of the large, white, Shropſhire hogs, render them more eligible for the market.

The aſs has alſo fallen under the diſpleaſure of the Ayrſhire people, ſo that there is hardly a quadruped of this deſcription to be ſeen.

An attempt was made ſome years ago, by the late Mr Oſwald, to introduce mules. With this view, he procured, at great expence, remarkable fine jack-aſſes from Spain, and bred a number of excellent, well-ſized mules, at his ſeat of Auchincruive. Mules.

Some of theſe were ſold in the county, but notwithſtanding their durability and hardineſs, there is ſcarcely one of them now. And the farmers all prefer horſes, which for draught and farming work, are perhaps, ſuperior in this county to any in the kingdom.

The Ayrſhire horſes are neither flat footed, gummy legged, clumſy animals, like the unwieldy breed, which ſupplies the drays of London; nor are they by any means, ſo ſlight and ſlimſy, as the working ſtock of Yorkſhire. On the contrary, they are ſhort and active on their legs, hard in the hoofs, large in the arms, very deep and powerful in the counter, ſtreight in the back, ſquare in the body, and broad acroſs the fillets. Horſes.

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fillers. Their predominant defects are, a ſhortneſs and coarſeneſs of the forehand, and a deficiency of that elegance of form and action, which only belong to particular deſcriptions of high-bred, or foreign horſes. Formerly, the black and grey colours uſed to prevail; but of late years, a decided preference has been given to the bays and browns, with black tails, legs, and manes. Theſe have been improved by ſtrong chapman ſtallions *, covering from different parts of England.

It is generally believed, that the valuable, hardy breed of ſtrong work horſes, ſo remarkable in this, and the adjoining county of Lanark, had been chiefly owing to ſome Flanders or Holſtein ſtallions, brought over laſt century by one of the Dukes Hamilton's. But it appears from the works of Fordun, Pitſcottie, Æneas Sylvius, Froiſſard, the Epiſtolæ Regum Scotorum, and other compoſitions on Scotch affairs, that great pains had been taken, at early periods, under ſeveral of the Scottiſh Kings, particularly during the reigns of King David Bruce, and all the James's, to bring, not only active breeds for the ſaddle from Hungary, Spain, and Barbary, but alſo to import ſtrong and uſeful kinds, from Flanders, Germany, and Denmark †.

Few

* Chapman ſtallions, are thoſe which cover at the different fairs and markets, for coach and ſaddle ſtock; being neither thorough bred, like racers, nor ſo coarſe as the dray, and waggon breed.

† Any one deſirous of knowing the ſtate of ſtock and agriculture in ancient times, may conſult the ſtatute of Alexander II. anno 1214, containing inſtructions regulating the ſtocking of farms and huſbandry. At that period, all the ploughing was performed by oxen.

‡ This may help to account for the value of the prevailing race in queſtion; as the ſtrong black breed of Leiceſterſhire, is underſtood to have originated from an introduction of Flanders horſes into that county, by a Lord Haſtings, ſeveral centuries ago. Every one acquainted with the hiſtory of animals, knows, that in five generations, any croſs breed, may be brought, to the properties of the original dam or ſire: In the ſame manner as the deſcendants of

For remarks and additional obſervations.

Few ſtallions in Ayrſhire cover for more than 10s. or 15s. but great attention is paid to movements, colour, ſtrength, and form. The graſs is ſo late in this county, that many farmers do not wiſh their mares to foal till near the end of May; eſpecially as their producing ſooner, interferes with the barley ſeed time, and prevents their being uſed at that buſy period. The foal is allowed to ſuck 5 or 6 months, during which time, the mare is only uſed at gentle work. Suckers at weaning time, ſell from L. 7 to L. 12; yearlings and two-year-olds from L. 12 to L. 20. And it is by no means uncommon to pay L. 30 and L. 40 for a work-horſe or ſtrong breeding mare. Ordinary farming work, however, is performed by horſes worth about L. 20; and multitudes of low priced, light carcaſſed horſes, are annually brought from Ireland, to the fairs at Ayr, Irvine, and Kilmarnock.

A few racing ſtallions of high pedigrees have covered in the county, and produced a breed extremely different from the farming ſtock I have endeavoured to deſcribe *.

It is to be obſerved, that all thorough bred horſes are derived from Barbs or Arabs, without any other mixture †. Theſe

of a mulatto, are brought to be perfectly white or completely black in the courſe of the ſame number of gradations. This fact explains the rapidity, with which any favourite breed of animals may be introduced into a country.

* In order as much as poſſible to improve the breed of horſes, already ſo excellent in the county, it has been my object, to procure the ſtrongeſt Flanders ſtallion, of a bay colour, and of that ſort which bring their legs well under them, and are ſpeedy in their movements. He weighs above 1200 weight, walks faſt, and trots at the rate of 13 miles in the hour, being able to draw 2 tons. A proper ſelection of the beſt breed of bay Flanders mares, would be a valuable acquiſition; but they are difficult to be procured. It has alſo appeared to me no leſs neceſſary, to introduce the ſtrongeſt thorough bred ſtallion that can be found, for the purpoſe of producing, with proper croſſes, horſes poſſeſſing vigour, power, and action, fit for cavalry, or carriages, or for the field.

† Even thoſe who cover under the denomination of chapman ſtallions, are commonly half or three quarters bred.

For remarks and additional obfervations.

Theſe, have been introduced and propagated with great expence and care, ſince the days of Charles the II. And as moſt of the fine ſtallions in the kingdom, are either entirely, or in part, of this Arab breed, it unavoidably tends to diffuſe throughout the general race of horſes, the properties and defects attached to this deſcription of animals. Now, although the Barbs and Arabs are ſuperior to others for ſpeed and endurance of exertion, yet they have many imperfections, which, unleſs corrected by croſſing them with other breeds, render them inapplicable to various important purpoſes.

They are in general unfit for draught, owing to the delicacy of their frame, and their phyſical deficiency of weight. Few thorough bred horſes weighing more than 800 lb. They are generally thin in the quarters, ſmall in the limbs, tender in the hoofs, and are apt to go near the ground, which, with their ſlender forehands, and incapacity of moving with the quick turns, evolutions, and converſions of the Turkiſh or Hungarian horſes, render them neither uſeful as cavalry, ſafe for the road, nor elegant in harneſs.

You will forgive me, Sir, for this digreſſion ſuggeſted by the prevailing tendency of reducing all kinds of horſes, too near the ſtandard of the racer. While, in my apprehenſion, the public utility would be more ſucceſsfully promoted, by propagating only the moſt powerful of the Arab race, ſo as to intermix the valuable qualities of that breed, with the weight, hardineſs and modes of action belonging to other kinds, and neceſſary for the different purpoſes in which horſes are employed *.

With

* The moſt active and beautiful parade horſes in Europe are the Neapolitan. And the horſes of Curdiſtan, are, in many reſpects, ſuperior to the Arab, being hardier, and of a firmer texture in the hoof, lifting their feet higher, leſs apt to ſtumble; of great ſpeed, and accuſtomed to a rocky country.

It may, perhaps, be thought fanciful to hint, that in the opinion of many nations, the fleſh of horſes is not leſs ſalutary and wholeſome, and equally well taſted as that of oxen. It is eaten by all the race of Tartars, and ſeveral other tribes of people, and if their example were to be adopted in other countries, the horſe would become, in every reſpect, an animal more uſeful, and as economical as the ox.

For remarks and additional obſervations.

Neat Cattle.

With reſpect to neat cattle, the neceſſity of doing much in little time, in order to take advantage of a favourable interval, to make up for the interruption of labour, occaſioned by bad ſeaſons, has led to the total diſuſe of oxen for the purpoſes of farming in this county; eſpecially, as their feet are ſeldom found to ſtand work on hard roads. It is, however, an admitted fact, that the cattle of India, Italy, Portugal, and many other parts of the world, perform all kinds of labour, and are conſtantly uſed both in farming and on the road, without ſuffering any inconvenience *.

So far are the oxen, even of this country, from being ſlow or aukward in their movements, when properly attended to, that the writer of theſe ſheets trained a pair of them which ploughed without a driver, and tilled about an Engliſh acre daily.

In treating of Ayrſhire cattle, however, we are only to conſider them as uſed for fattening or for dairies. Throughout the greateſt part of Carrick, or the ſouthern diſtrict of the county, the Galloway breed prevails. Theſe, by great pains and long attention, have been brought to high perfection, and, in many particulars, are preferable for fattening, to any breed in either kingdom. They are generally black or brindled, though ſome of them are white or dun, and the beſt breed of them are polled †. They are ſhort legged, rough haired, long bodied, deep in the cheſt, full in the carcaſe, and round acroſs the hips and ſirloin. They commonly weigh

* All the artillery in India is drawn by oxen. But they are finer in the limbs, harder in the hoofs, and leſs heavy in the carcaſe, than the breed of this kingdom, partaking, in a great meaſure, of the Beſon race deſcribed by Buffon and other naturaliſts.

† Several gentlemen have now raiſed the Galloway breed to a much larger ſize.

Beef commonly ſells from 3d. to 4d. per Engliſh pound, and tallow one third dearer.

For remarks and additional obſervations.

from 20 to 40 ſtone Engliſh *, are very hardy, eaſily fed, often produce one fourth of their weight in tallow, and grow fat where the large heavy breed of other counties would be ſtarved.

Great droves of them are annually ſent to England at three and four years old, and yield from 5l. to 10l. a-head; and their beef is univerſally admitted to be excellent.

They are ſuppoſed to be as ill adapted as the Lancaſhire and Leiceſterſhire breed, for the purpoſes of milk; inſomuch, that there is hardly a dairy in the parts of the country where they predominate. But many circumſtances lead me to conclude, that this deficiency ariſes from inattention to milk as an object, any farther than what is neceſſary to maintain the calf. For, among this breed, many cows are found which yield great quantities of milk, and from which, in dairy countries, would be propagated, kinds, poſſeſſing that quality. Whereas, in breeding countries, a cow is only valued in proportion, as ſhe appears adapted, to the purpoſes of fattening †.

In Cunningham, or the northern diviſion of the county, a breed of cattle has for more than a century been eſtabliſhed, remarkable for the quantity and quality of their milk in proportion to their ſize. They have long been denominated the Dunlop breed, from the ancient family of that name, or the pariſh where the breed was firſt brought to perfection, and where there ſtill continues a greater attention to milk cows and dairies than in any other part of Scotland.

The

* In order to prevent the danger ariſing from horned cattle in ſtuds and ſtraw yards, the beſt mode is to cut out the budding knob, or root of the horn, while the calf is very young.—This was ſuggeſted to me by Mr Robert Burns, whoſe general talents are no leſs conſpicuous, than the poetic powers, which have done ſo much honour to the county where he was born.

† The ſale of theſe cattle has, for many years, been of great extent; and a gentleman of this county, by continuing long to purchaſe large numbers for the Engliſh market, acquired a landed property worth from 5000l. to 6000l. a year.

For remarks and additional obſervations.

The cattle in this diſtrict appear originally to have been of the old Scotch low country kind. Formerly black or brown, with white or flecked faces, and white ſtreaks along their backs, were prevailing colours. But within theſe twenty years, brown and white mottled cattle are ſo generally preferred, as to bring a larger price than others of equal ſize and ſhape, if differently marked. It appears, however, that this mottled breed is of different origin from the former ſtock, and the rapidity with which they have been diffuſed over a great extent of country, to the almoſt entire excluſion of the preceding race, is a ſingular circumſtance in the hiſtory of breeding. Indeed, it is aſſerted by a gentleman of great ſkill and long experience *, that this breed was introduced into Ayrſhire by the preſent Earl of Marchmont, and afterwards reared at the ſeat of the Earl of Glaſgow, from whence they are ſaid to have ſpread over all the county.

This breed is ſhort in the leg, finely ſhaped in the head and neck, with ſmall horns, not wide, but tapering to the point. They are neither ſo thin coated as the Dutch, nor ſo thick and rough hided as the Lancaſhire cattle. They are deep in the body, but not ſo long, nor ſo full and ample, in the carcaſe and hind quarters as ſome other kinds. They uſually weigh from 20 to 40 Engliſh ſtone, and ſell from 7l. to 12l. according to their ſize, ſhape, and qualities. It is not uncommon for theſe ſmall cows to give from 24 to 34 Engliſh quarts of milk daily, during the ſummer months, while ſome of them will give as far as 40 quarts, and yield 8 or 9 Engliſh pounds of butter weekly. The breed is now ſo generally diffuſed, over Cunningham and Coil, that very few of other ſorts, are reared on any well regulated farm. The farmers reckon that a cow yielding 20 quarts of milk per day during the ſummer ſeaſon, will produce cheeſe and butter worth about 6l. per annum.

* Mr Bruce Campbell.

For remarks and additional obſervations.

Cheeſe.

The ſweetmilk cheeſe, as it is called, which is the kind generally manufactured in theſe parts of Ayrſhire, is made by curdling each days milk of the dairy ſeparately. After the curd is mixed with ſalt, and broken with the hand, or cut in ſhreds, it is preſſed extremely hard in a frame, under a ſtone, moving with a double ſcrew, and often weighing half a ton. The cloth is frequently changed, and in a few days the cheeſe is taken out of the frame and laid up to dry. It is of a mild and pleaſant taſte, and ſells at an average from 2 ½d. to 4d. per Engliſh pound, while butter ſells from 6d. to 7d. for the ſame weight.

It is remarked that the beſt of theſe milch cows are good feeders, and eaſily fattened, although their ſhapes in ſeveral points are different from thoſe approved by Connoiſſeurs. It appears, indeed, that the qualities of yielding large quantities of rich milk, and of fattening with facility, on a moderate portion of food, are by no means incompatible. And that the reaſon of thoſe deſiderata being ſeldom united in the ſame animal, ariſes rather from the different views with which ſtock is bred, and the inattention of farmers to the double objects in queſtion, than to any great difficulty, in correcting the ſhape of the beſt milch cattle, and rendering them equal in form and aptitude of fattening, to the moſt approved breeding ſtock *.

It is to be obſerved, that ſeveral gentlemen in the county, as well as myſelf, endeavoured, ſome years ago, to introduce the beſt breed of the wide horned Craven, Lancaſhire and Leiceſterſhire cattle. Many of the calves were diſperſed among the farmers both in Coil and Cunninghame. But ſo great is the prejudice againſt them, that though they were admitted to be very handſome, not one is now remaining in the county.

In

* Under this impreſſion I have collected ſome of the favourite kinds of Darlington or Teeſwater, and Yorkſhire, meaning to croſs them with the Ayrſhire ſtock, in order to unite the properties already mentioned.

For remarks and additional obſervations.

In former times a proportion of Dutch or Holderneſs cattle had been propagated, and when well fed, yielded large quantities of milk. But they were thin haired, lank in the quarters, and delicate in the conſtitution, which rendered them unfit for a ſoil and climate ſuch as Ayrſhire. They were, beſides, extremely difficult to fatten, yielded little tallow; and from the ſpareneſs of their ſhapes, incapable of carrying much fleſh upon the proper places.

Alderneys and Guernſeys have alſo been occaſionally introduced, in order to give a richneſs and colour to the milk and butter; which they do in a degree ſuperior to any other animal of the cow ſpecies.

Graziers are ſometimes tempted by the comparative lowneſs of price, to purchaſe Iriſh cattle, which are large, wide horned, and raw boned. But they are ſo difficult to fatten, that they commonly ſell L. 2 or L. 3 a-head, cheaper than Ayrſhire cattle, of the ſame ſize and weight.

Other farmers ſtock their paſture lands with a ſmall breed of Highland cattle, which, at 2 or 3 years old, may be bought from 20s. to L. 3 a-head. Theſe having been bred on hills, and barren heaths, improve moſt rapidly in the low country. And when fed a year or two on rich paſture, are eſteemed ſuperior for taſte and flavour to any meat that comes to market.

On the ſubject of animals, it only remains to offer ſome obſervations, reſpecting the kinds of ſheep in this county. On the dry lands along the coaſt, a ſmall white faced race has long exiſted. The little wool they have, is not altogether coarſe; but they are looſe made, ill ſhaped, and have no good quality to recommend them. There is, however, a ſort on the eſtate of Mr Kennedy of Denure, on the coaſt of Carrick, whoſe wool is very fine, and who partake of the properties of the Mochrum or coaſt-breed of Galloway. Sheep.

The eſtabliſhed Aborigines are bred in great numbers on the moors. They are reckoned by ſome the moſt hardy, active, and

For remarks and additional obſervations.

and reſtleſs animals of the ſheep tribe *. They are round, firm, and well-ſhaped; black-faced and black-legged, with large horns. Their wool is open, ſharp-pointed, and of the coarſeſt quality; ſeldom weighs more than 2 or 3 lb. per fleece; and not worth 6d. for an Engliſh pound. The weathers of this ſort, are uſually bought, at 3 years old, for L. 10 or L. 12 per ſcore, and will feed to double that value; weighing about 12 or 15 Engliſh pound per quarter; yielding tallow, equal to one fourth of their weight; and, when fed till 5 years old, afford the fineſt mutton in the kingdom †.

If it were poſſible, by any intermixture, to give theſe animals a leſs reſtleſs nature, and an ample fleece of finer wool, without impairing the hardineſs and other qualities which fit them ſo peculiarly for their bleak and barren ſituations, it would prove the greateſt benefit that could be conferred on moorland property. The heavy, coarſe, and long-wooled lazy breeds of Lincoln, Leiceſter, and Teeſwater, could hardly find ſubſiſtence under ſuch expoſure; and the fine-woolled race of Hereford would probably ceaſe to be diſtinguiſhed for their carding ſtaple, if drenched in thoſe cold moorland bogs and marſhes ‡.

To

* Others aſſert, that what is called the long or Cheviot breed, from the cloſeneſs of their fleeces, can as well, and, ſome ſay, can better, reſiſt the inclemency of the ſeaſons.

† Mutton ſells from 3d. to 4d. per Engliſh pound, and tallow one third dearer.

The moorland ſhepherds are extremely diligent and ſkillful, taking conſtant notice of their flocks, and attending to the diſorders which frequently afflict them. But, in the low parts of the county, great ignorance and inattention on this ſubject are united. Numbers of ſheep periſh under the rot and ſcab.

Farmers often loſe their cattle by the moor-ill, and murrain; and hundreds of horſes die every year by botts, greaſe, ſtrangles, and inflammations of the inteſtines ——It is ſtrange indeed, that ſo little attention ſhould be paid to the diſeaſes of animals in this county; that there ſhould neither be perſons ſkillful in the cure of them, nor books and publications circulated to direct the farmer how to act when ſuch diſaſters happen to his ſtock.

‡ The Hereford ſeem, in many of their features, to mark a deſcent from the

For remarks and additional obſervations.

To croſs them with the finer and more delicate race of Spain would ſeem too violent a tranſition; and the mountain-breeds, in other parts of this kingdom, are in few reſpects ſuperior to themſelves. The Cheviot ſheep, indeed, are finer woolled, but their fleeces are by no means equal in value to the Hereford or the Spaniſh; and they are, in general, of a long-ſhape, rather looſe texture, inferior in theſe important particulars to the breed we are deſcribing *.

The kind of ſheep which I brought from Colchis or Trebiſonde, ſome years ago, being from a cold bleak climate, hardy in their nature, and covered with the fineſt wool of the long combing kind, afforded great expectations of an admirable intermixture: But in this belief I found myſelf miſtaken.

It is extremely probable, that animals, like plants, may by degrees, be reconciled to climates, the moſt diſtant from their natural poſitions. And, as cherries were brought from Pontus, and peaches from Perſia, firſt to Italy, and afterwards, by ſlow gradations, to France and England; ſo, the fineſt ſheep of Spain, and the ſilken-fleeced breed of Angora or Ancyra, may in time aſſimilate with the coldeſt moors of Ayrſhire.

But, for the preſent, confining our ſuggeſtions to ſuch experiments as are within the reach of ordinary farmers; it appears, that the hardieſt and moſt active breed of ſheep, producing a valuable coat of wool, whether of the carding or the combing ſtaple, would be the moſt eligible means of adding to the value of the preſent moorland race.

With all their diſadvantages, it is ſtill a queſtion, Whether the moſt choſen kinds of Leiceſter, Lincoln, Teeſwater, or Northumberland,

the fine-woolled Spaniſh breed, which we know was brought into England, at early periods of our hiſtory.

* In October laſt, having occaſion to attend a ſale of ſeveral hundred ſheep of various kinds and countries, belonging to the Britiſh Wool Society, it appeared to me, that the handſomeſt ſheep expoſed was a moorland ram, bought for 12s.

For remarks and additional obſervations.

Northumberland, on a ſpecified ſurface, will produce an equal profit?

It is taken for granted, that the principles eſtabliſhed on this ſubject, by the ingenious Mr Bakewell, are correct; and that a ſheep, whoſe bones are ſmall, whoſe ſtomach is leſs capacious, in proportion to his ſize, and who from habit, diſpoſition, or conſtitution, has an aptitude to fatten on a more moderate proportion of food, is more valuable than one of oppoſite tendencies.—It ſtill remains to be conſidered, whether a moorland black-faced wether, weighing 15 lb. per quarter, beſides a quantity of tallow equal to one fourth of his whole weight, and worth 10s, of whom 5 or 6 may be fattened, to double that value, on an acre of land worth 20s. is not a more profitable bargain, than the beſt Leiceſter wether, at the ordinary price of 30s. Such a ſheep, commonly weighs about 30 lb. a quarter, produces a coarſe fleece, little tallow, and bad mutton. He is accuſtomed to feed at the rate of 3 or 4 upon an acre of land, let at 50s. or L. 3. He is unable and unwilling to ſeek his food at any diſtance, and is pampered from lambing-time, with hay, oats, and pounded oil-cakes, placed in moveable racks and mangers, under ſheds and penthouſes, for his accommodation. After all, he does not yield more than 40s. or at the utmoſt, 50s. in his fatteſt ſtate. It is alſo aſſerted, that this breed is ſubject to the rot, and other diſorders, which render them unfit to be kept to a proper age, on the ſtrong, wet paſtures of Ayrſhire. The practice in England being to kill, about 2 years old, all thoſe that are not meant for breeding ſtock.

Notwithſtanding theſe remarks, it has always appeared to me an eligible object of experiment, to introduce the beſt breeds of thoſe counties. Various gentlemen in former times had procured a very large race of long-legged ſheep from Teeſwater and other parts. Theſe, though ill-ſhaped, and requiring great attention, yielded from 12 to 24 Engliſh pounds of wool per fleece; the maximum of which is probably as great a quantity, as is produced at preſent

on

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on any ſheep in England. This race blending with the common claſſes of the country, ſupplied the farmers with the pets, or tame ſheep, which were regularly houſed and paſtured with the milch cows. But there was no regular ſtock, or conſiderable number of them to be found, in any part of Ayrſhire *.

In the year 1776, ſeveral gentlemen of the county, procured ſix ſcore of ewes, and the uſe of two rams, from Mr Culley in Northumberland, who charged us what ſeemed an extravagant price, and ſupplied us with an indifferent ſtock. The neighbouring gentlemen in general maintained, that the introduction of this breed would impair the quality of Ayrſhire mutton; the farmers aſſerted, they could not thrive on our wet land and rainy climate; while the manufacturers declared their wool too coarſe, to be deſerving of encouragement.

This breed, however, has increaſed in favour and in population. They yield in general two lambs from every breeding ewe; weigh about 20 Engliſh pounds per quarter, and ſell for 25s. or 30s. at two years old, when fat. Yield 8 or 9 lbs. of wool, worth 10d. per Engliſh lb. And are not only eaſily maintained on tolerable land, but ſo quiet, as to remain within the ſlighteſt fence; and ſo much eſteemed, that farmers willingly pay 10 or 12s annually, for grazing a breeding ewe of this deſcription. In addition to this kind, I have procured the beſt breed from Teeſwater, and a valuable ſtock from Mr Bakewell, beſides a Spaniſh ram, together with ſome Spaniſh and Hereford ewes, from the Britiſh Wool Society. In doing this, it is my object to combine, by different croſſes, the beſt properties of ſhape and carcaſe, with the greateſt hardineſs, and aptitude to fatten, as well as the beſt fleeces of carding and of combing wool. For undoubtedly, it is the du-

* The old Teeſwater breed is now ſo croſſed with the Leiceſterſhire, and other kinds, as to have loſt its diſtinctive properties. It uſed to yield a larger fleece than any ſheep in England, probably not even excepting the beſt breed of Lincolnſhire. It ſeems ſtrange, that, in eſtimating the value of this uſeful animal, ſuch excluſive attention ſhould, among the breeders, be now beſtowed on carcaſe, to the almoſt total diſregard of wool.

For remarks and additional obſervations.

ty of landholders, not only to promote, and to diffuſe as much as poſſible, every ſpecies of improvement, but to counteract the diſgraceful ſpirit of illiberal monopoly, which has hitherto confined the favourite breeds of uſeful, animals, within a narrow range.

Mode of introducing Improvement.

This diffuſive operation, however, can hardly be effected without the unremitting endeavours of a number of individuals, in their different diſtricts. Theſe require the aid and intervention of public, and aſſociated bodies of men, granting due encouragement and rewards to thoſe who dedicate their ſkill, and labour, to the amelioration of ſtock, although their object may have been merely perſonal emolument, undirected by any public principle.

It is obvious, that inſtead of one or two fine ſtallions, bulls, or rams, in a whole country, let out at exorbitant rates, every diſtrict, nay, every pariſh, ought to be ſupplied with theſe uſeful means of reproduction on the moſt moderate terms. With this object, numerous ſocieties of landholders and farmers, ought to be eſtabliſhed. They ſhould procure the beſt publications on ſubjects of agriculture; offering premiums for the fineſt ſtallions, bulls, and rams, produced within the pariſh; advertiſing annual ploughing matches, granting rewards to the moſt ſkilful, and purchaſing models, or at leaſt deſigns of uſeful implements of huſbandry on approved principles, for the inſtruction of all perſons connected with mechanic trades.

If theſe endeavours were encouraged, and extended by the freeholders at head-courts, and other county meetings, ſpecifying the objects to which, improvements ought in different diſtricts to be directed; they could not fail to be productive of permanent advantage, to the landed intereſt, and to the community at large.

Theſe remarks, however, have a more immediate reference to the general means that ought to be adopted, for diffuſing uſeful knowledge, and to the inſtitutions neceſſary for promoting, a regulated ſyſtem of experiment and improvement,

For remarks and additional obſervations.

ment, connected with the various branches of rural economy. In China, it is eſteemed the proudeſt diſtinction of the Emperor, that he is the firſt cultivator in his own dominions; and it is fortunate for this country, that the attention of the Sovereign, and of his Majeſty's government, are graciouſly beſtowed upon an object ſo deſerving of the Royal care *.

* Don Juan Enrique de Graeff, a Spaniſh author, in his Diſcurſos Mercuriales, improving on the ſuggeſtions of Reaumur, has urged the great national advantages that might be derived from eſtabliſhments formed for the purpoſe of conducting, a connected ſeries of inductions on the kinds, combinations, mixtures, and hiſtory of different uſeful animals.

Although no public inſtitution, of this deſcription exiſts in Great Britain, yet an individual, (Mr John Hunter) who, unfortunately for ſcience, is now no more, guided by the impulſe of a vigorous and enlightened mind, has extended the bounds of knowledge in this reſpect, with a ſucceſsful energy, deſerving the ſanction and encouragement of a great nation. Eſpecially, when it is conſidered, that nothing but permanent eſtabliſhments, and a prolonged courſe of well directed obſervations, can give full effect to the object in view.

Theſe ideas, are, in a great meaſure confirmed by the benefits which have reſulted from ſimiliar inſtitutions, connected with the vegetable kingdom. To the Royal and botanical gardens, the public is indebted for much important information. On the Preſident of the Royal Society, Sir Joſeph Banks, the beſt tribute of applauſe and admiration has been beſtowed. by all Europe, for the ſuperior exertions he has made, in this extenſive range.—From the labours of ſuch men, when directed to objects of cultivation, the moſt luminous diſcoveries, and uſeful improvements may rationally be expected.

It is well known, that the moſt beneficial introduction of plants and animals from one kingdom to another, has ariſen from inſtitutions and exertions, ſuch as thoſe to which I have alluded. It would be tedious to enumerate all the eſculent plants in Great Britain, which have been brought from other countries; mulberries, and ſilk-worms from the Eaſt, to the Morea, and afterwards to Italy and France; coffee trees, bread-fruit trees, various kinds of cotton ſhrubs, and other valuable productions, tranſplanted from one quarter of the globe to another. Neither is it neceſſary to ſpecify the collections of the Dutch Eaſt India Company, in their botanical eſtabliſhment, at the Cape of Good Hope; thoſe of Mr de Viſme, in his celebrated gardens at Liſbon; or the very intereſting experiments conducted by Dr Anderſon, under the government of Fort St. George; although they probably, are as conducive to the objects in queſtion, as any others on the globe.

For remarks and additional obfervations.

One fact is certain, that through negligence and inattention, we lofe the benefit of many productions, which might eafily be brought to aſſimilate with our foil and climate *.

It is alſo proved, that a multitude of plants, which the antients cultivated, for food and other purpoſes, have totally diſappeared from the regimen of modern nations. Among many others, we may mention ervum, ocymum, and in particular, cytiſus, which was held in ſuch repute among the Romans, for feeding every kind of ſtock †.

We

* As inſtances, we may venture to ſuggeſt the luxuriant graſs, or broad-leaved gramen of Madagaſcar, called Fatak, and the hardy kind of rice, which grows on the hills of Cochin-China, without any other water than accidental ſhowers.

† It is ſurpriſing that Cytiſus ſhould have fallen into diſuſe; for, it was not only reckoned the moſt profitable, but the hardieſt of plants, enduring bad ſoil, heat, or cold, froſt, or ſnow, without detriment.

From Pliny's account, it appears to have been originally brought from the Cyclade iſlands, and not to have been very common in Italy; but ſo productive, that the value of 2000 ſeſtertiæ or L. 64 was frequently raiſed upon a jugerum, which was little more than half a Scotch acre.

It may either ſays Pliny, be caſt into the ground with barley, or be ſown in ſpring like leeks, or its ſhoots may be planted out before winter, about a cubit in length, in furrows, one foot aſunder. (" Plantæ cubitales ſeruntur " ſcrobe pedali.")

It comes to perfection in three years, and begins to be cropped at the vernal equinox, when it ceaſes to flower; affording green feeding 8 months in the year, and afterwards may be uſed dry.—It is hoary in appearance, and is a ſhrub, with a narrow trefoil leaf. Columella, after deſcribing its many valuable qualities, for producing milk, fattening cattle, healing their complaints, and affording green forage 8 months in the year, adds. " Preterea, in quolibet " agro, quamvis macerrimo, celeriter comprehendit; omnem injuriam ſine no- " xa, patitur." Col. lib. 5. cap. 12.

It ſeems, however, like the Lote tree, or Lotometra and Nymphea frutex of Egypt, as well as other valuable plants, to be entirely loſt in modern practice.

The Romans were alſo in the uſe of feeding their cattle on maſt, acorns, lupines, leaves of oak, aſh, elm, beech, and poplar.

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Obſervations on Landlords and Tenants—Labourers—Conſumers—Manufacturers—and Innovators.

We now proceed, to the concluding article of this diſcuſſion; to the ſtate and condition of thoſe claſſes, affected by the cultivation of the country, in the different relations, which the natural order of things eſtabliſhes, between proprietors, occupiers, and labourers, with thoſe who conſume the produce of the ſoil.

In all tranſactions, between the landholders and tenants, there is a double and counteracting influence. The relation which they have, as proprietor and occupier of the ſame ground, unites them by the ſtrongeſt ties of intereſt, againſt the conſumer, from whom it is their mutual object to extort the higheſt price, for every article of produce. They are generally not leſs accordant againſt thoſe dangerous innovators, who, in the wantonneſs of undeſerved proſperity, are apt to ſpring forth among the mercantile and manufacturing claſſes; —maintaining doctrines ſubverſive of the eſtabliſhed orders of ſociety;—menacing the country with deſperate Agrarian ſyſtems, tending to deſtroy the ſacred rights of property, and every ſpecies of ſecurity;—and under falſe pretexts of equal diſtribution, ſounding the tocſin of anarchy and confuſion.

It muſt be confeſſed, however, that this obſervation concerning the conſtitutional ſentiments, of the farming intereſt, is liable to great exceptions. In the vicinity of ſome towns, where the notions of manufacturers predominate, the farmers have been ſo far perverted, as to form aſſociations, binding themſelves under ſevere penalties, never to offer any mark of civility, to any perſon in the character of a gentleman. The conſequences are, that they become booriſh and brutal to every individual of the human ſpecies, and ſavage to the brute creation. Theſe outrageous manners are conſiderably increaſed, by the harſhneſs and auſterity, which characteriſe different ſectaries, who abound in this county.

Whenever this degrading tendency prevails, it becomes the duty of all perſons, connected with property in land, to form counter-aſſociations, binding themſelves never to grant leaſes to perſons of ſuch a deſcription; and, at all events, till this malady

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malady ſubſides, to grant no leaſes, but from year to year, and to tenants at will.

In all engagements, between the landlord and his tenants, touching land, their intereſts, to a certain degree, are diſcordant. It is naturally the proprietor's object, to gain as much rent, and to lay out as little money on the farm as poſſible. On the other hand, the tenant has a direct intereſt, in throwing the whole burden of improvement upon the landlord; and in giving the ſmalleſt poſſible return.

It is beſides the conſtant object of the landlord, to prevent the land from being over-cropped, neglected, or exhauſted; while, at the end of every leaſe, the tenant has the ſtrongeſt temptation to crop the land as much as it can bear. He does this, not only for immediate profit, but in order to render the farm leſs valuable, and conſequently, to obtain a renewal of his leaſe on cheaper terms.

This ſufficiently refutes an opinion, entertained by ſome enlightened men, that a principle laid down by Dr Smith, that Government ought not to interfere, by its regulations and reſtrictions, in the concerns of individuals, applies to the tranſactions between tenants and proprietors. The landlord who acts on this idea, and neglects to inſert judicious covenants in his leaſes, will find his land exhauſted, and his eſtate impaired; while thoſe who fancy that the ſkill and information ariſing from the habits of ordinary farmers, render them either ſafe to be entruſted with unlimited powers of management, or likely to invent new modes of operation, are contradicted by the fact. For, in this country, improvements have in general been eſtabliſhed, not by the farmers, who can ill afford ſuch ſpeculations; but, as they ought to be, at the expence and hazard of the landholder.

On this principle, farmers ſhould not only be reſtrained from over-ploughing and miſmanagement, but the courſe and rotation ſhould be ſpecified; engaging them by covenant, to ſow graſs ſeeds, to drill beans, to fallow for turnips, vetches, kail, or colewort, rape, and cabbages; to hurdle ſheep on light land, to conſtruct ſtraw-yards, feed with oil-cakes, and erect ſheds

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ſheds or hovels for their out lying ſtock; above all, never to have more than one, or at the utmoſt two ſucceeding crops of corn on the ſame field, without an intervening green crop, or fallow; and enforcing theſe regulations, by a ſpecified increaſe of rent, in caſe of non-performance.—Adding, too, ſuch alterations and amendments, as the progreſſive improvements of the country may from time to time ſuggeſt.

Proportions between Rent and Produce.

In order as much as poſſible, to preſerve that cordiality, which ought ever to ſubſiſt between a landlord and his tenants, there ſhould undoubtedly be ſome admitted principle, on which their agreements are concluded. In this county, it is thought, that the whole produce of the farm ſhould be divided into three parts. Of theſe that one third ſhould be appropriated for rent, another for the expence of management, and the remainder for the profit and ſubſiſtence of the tenant and his family. Great inequality muſt unavoidably ariſe, from this proportion. For the tenant, occupying only 40 acres, will have but the means of bare ſubſiſtence; while, on the ſame calculation, the extenſive renter of 500 or 1000 acres, with adequate ſtock and management, may acquire a fortune.

The example of Ireland, however, where powerful renters, or middlemen, prevail, does not encourage ſuch a mode of cultivation. On the contrary, if inſtances may be adduced, where improvements have originated with great farmers, it will be ſtill more eaſy, to exhibit caſes, where whole counties have been depopulated, by ſuch a practice.

Perhaps the wiſeſt ſyſtem which human underſtanding can deviſe, after a complete diviſion and appropriation of commons, and intermingled rights, will be, to let every man rent or purchaſe, according to his means. Thus a diſtribution of property the moſt varied, from the petty tenant, and the ſmalleſt feuholder or copyholder, to the moſt extenſive renter, and the richeſt lord, will take place; as is the fact in Ayrſhire.

Character of Farmers.

The farmers in this county, are a ſagacious and obſerving race of men; and though wiſely unwilling to adopt, on light ſurmiſes, every plan that projectors may ſuggeſt, yet, there

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are few inſtances of their long refuſing to imitate ſuch modes and practices as experience teaches, are adapted to the country where they reſide.

Labourers.

The labouring claſs of men in this county, who gain their livelihood by hedging, ditching, mowing, threſhing, reaping, and other country work, are paid from 12d to 14d per day. They uſually endeavour to have a ſmall houſe and garden, which coſts them 20, 30, or 40 ſhillings, annually, beſides a cow's graſs, and ſufficient ground for their potatoes.

Job-work—Rate of Articles and Labour.

The habit of working by the job or piece is generally eſtabliſhed, for every kind of labour. Hedges and ditches are made from 10d or 1s per fall of ſix yards. Grain is threſhed from 10d to 1s per quarter; corn reaped and ſhocked for 5 or 6 ſhillings per acre; hay mowed for half a crown. Farm ſervants receive L. 5 wages for the half-year; and, if not fed in the family, are allowed 2 pecks of oat meal and ſixpence weekly for their maintainance. Women ſervants, for country work, L. 4 or L. 5 yearly.

Maſon's work is generally done by contract with the builder. Journeymen maſons receive 20d. or 2s. of daily wages, and carpenters are not leſs expenſive. The price of building a rood of rubble work, two feet thick, and all materials furniſhed, from 25s. to 30s. In conſequence of the numerous ſtone quarries, bricks are little uſed in the county, and houſes are ſeldom roofed with tile, which are neither ſo handſome as ſlate, nor ſo warm and comfortable as thatch *.

Great quantities of oats and oatmeal are conſtantly ſold to Paiſley, Glaſgow, and the manufacturing parts of Renfrewſhire and Lanarkſhire, and the quantities of grain and meal which

* Little attention is beſtowed on the art of making bricks. If the clay be not properly prepared, or if it be mixed with calcareous matter, they will certainly crumble and decay. The Romans made their bricks extremely thin, and burned them till they vitrified. Many aqueducts and other public buildings built of ſuch materials, remain at this day, in perfect preſervation, in different parts of Italy.

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which have been imported into the county from Ireland, during the laſt ten years, are expreſſed in a note at the bottom of this page*. The conſtant object of the landed intereſt has been

ACCOMPTS of Grain and Oatmeal, imported into Ayr, for 10 years preceding the 10th Oct. 1793, diſtinguiſhing each year.

Periods.		Barley.	Oats.	Oat meal	Peaſe.	Wheat.
		Qrs.	Qrs.	Qrs.	Qrs.	Qrs.
From 10th Oct. 1783 to 10th Oct.	1784	20	40		10	256¼
1784	1785		628	990		
1785	1786					
1786	1787	1150	212			
1787	1788					608
1788	1789					433
1789	1790					
1790	1791	264½	81	561		842
1791	1792					20½
1792	1793					
Totals.		1434½	961	1551	10	2160

Cuſtom-houſe, Nov, 1793.

ACCOMPTS of Grain and Oat-meal imported into Irvine and Saltcoaſts, for ten years preceding 10th Oct. 1793.

		Oat meal	Oats.	Barley.	Bear.	Wheat.
		Qrs.	Qrs.	Qrs.	Qrs.	Qrs.
From 10th Oct. 1783 to 10th Oct.	1784	75	1361			
1784	1785	1112	5340⅛			
1785	1786		818			
1786	1787	610	10691	2335		
1787	1788	118	2222			2374½
1788	1789					239⅛
1789	1790		724			
1790	1791	27	3838¼	637½		
1791	1792		2503⅛			
1792	1793					

N. B. In 1792, 48 quarters of wheat were imported; but it was afterwards exported. No other grain has been exported in the above period.

A great quantity of grain has been brought from Galloway of Britiſh growth, and ſome has been brought from Greenock, which was imported in that period.

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been to raiſe and continue the price of grain above its natural level; at leaſt, to prevent the competition of foreign rivals. For this purpoſe, applications have been made ſucceſsfully to Parliament by this and other counties, to prevent the importation of grain, unleſs when the prices exceed the rates expreſſed in the laſt corn bill.

Queſtion concerning circulation of Grain.

Without entering into any diſquiſition, concerning the long agitated queſtions of limited or unreſtrained circulation of grain, we may ſafely aver, that countries have uniformly proſpered, in proportion to the ſecurity and facility with which the means of ſubſiſtence have been bought and ſold. The removal of all reſtrictions of this nature, under Henry the IV. during the adminiſtration of Sully, firſt recovered France from the diſaſters of the league. On the other hand, the reſtraints impoſed on the free ſale of corn, under Colbert, tended as much to impoveriſh that kingdom, as all the extravagance of Louis the XIV.

Opening and Shutting of the Ports.

With reſpect to Ayrſhire, the continual juggling which takes place in ſtriking the fiars, in order to determine whether the ports ſhall be open or ſhut, involves the country in a multitude of inconveniencies. Frequently, before the price of grain exceeds the rate at which the Legiſlature admits of importation, merchants foreſeeing an approaching riſe and ſcarcity of corn, would bring ſufficient quantities to ſatisfy the demand, but find themſelves reſtrained, by the apprehenſion, that when their veſſels arrive, the ports may be ſhut, and their labour loſt. Thus the prices riſe, and the poor are diſtreſſed. Again, the ports by theſe means being opened, the merchants ſeize the opportunity, and dreading the quick ſhutting of the ports, bring ſuch a ſudden influx of foreign corn, as deſtroys the natural balance of the market, to the annoyance of the farmer. But when free export and import is allowed, theſe embarraſſments do not occur. The exorbitant demands of the landholder and farmer are reſtrained by the foreſight of the merchant, who, in his turn, is checked from overſtocking the market, by the certain loſs which would attend that meaſure.

In

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Propoſed eſtabliſhment of Granaries.

In addition to the unclogged importation of corn, nothing could be more conducive, to the accommodation of farmers, and intereſt of the labouring claſſes in this county, than the eſtabliſhment of public granaries or magazines, in ſome central place upon the coaſt, where corn might be regularly bought and ſold at the current prices. The profit to the undertakers, would conſiſt in their being able to take advantage, of the fall or riſe in the markets. The farmer would, at all times, be ſure of converting his produce into caſh when requiſite, without the delay and trouble of milling his corn, and driving upon chance to fluctuating markets, while the public would be more regularly ſupplied, by the preciſion with which ſuch an eſtabliſhment would enable corn merchants and others to correct the ſcarcity in any particular diſtrict, by a quick ſupply adapted to the demand.

But a ſtrong objection to ſuch an undertaking ariſes from the prejudice entertained in this, and I believe in all other countries, againſt every ſpecies of dealers and traffickers in grain. In all times and countries, under the denomination of meal-mongers, foreſtallers, monopoliſers and other ſimilar terms, have they been the objects of ſpublic execration. There is probably no point of political economy more clear to philoſophic and enlightened minds than the advantages which the public derive from that uſeful claſs of men. Their labours unavoidably tend to prevent the extravagant fluctuations in the price of grain, no leſs diſtreſsful to the tenantry than ruinous to the poor. Yet ſo deeply rooted is this prejudice among the lower claſſes in every community, that it would be unreaſonable to ſuppoſe the Ayrſhire populace exempted from an error, which at various times has occaſioned dearth and famine in every age and country.

Operation of Manufactures.

The operation which trade and manufactures have had on cultivation in this county, is well deſerving the attention of your Board. The harbours of Ayr, Irvine, and Saltcoats *,

* Thoſe ports have only from 9 to 12 feet water at ſpring tides.

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were too defective, to admit of trade, ſufficient to produce a direct influence on the character of Ayrſhire huſbandry; and there was no manufacture in the county, except of wretched articles for home conſumption *. But the powerful energies of Glaſgow, Paiſley, Greenock and Port Glaſgow † operated an *inſtauratio magna*, in this reſpect.

Glaſgow.

The opulence of Glaſgow firſt aroſe from its trade in tobacco, ſugar and other goods, the produce of America and the Weſt Indies. Theſe gave riſe to a great demand for articles manufactured in this country, with which the cargoes imported from the colonies were chiefly purchaſed. Thus the foreign trade of Glaſgow called forth a multitude of manufactures, which overſpread Renfrewſhire and part of Ayrſhire.

When the ſeparation of America from England put an end to the great profits ariſing from the tobacco trade, of which about 50,000 hogſheads, being one half of the total quantity exported from Virginia and Maryland, had centered in Greenock and Port-Glaſgow ‡; the merchants withdrew from a concern no longer profitable, and the habits of manufacture formerly eſtabliſhed in the country, enabled them to apply their capitals to the various branches of iron, glaſs, inkle, linen, woollen, gauze, and particularly of cotton, which, in a few years, they have extended to an extraordinary degree.

Paiſley—Gauze Manufactory.

About 40 years ago the town of Paiſley was a ſmall weaving place, containing about 4000 inhabitants, chiefly employed in working goods for the Glaſgow merchants and the American market. A gentleman of great merit and ingenuity in that place, deſirous of introducing the manufacture of gauze from Spitalfields, commiſſioned a few pounds of ſilk thread, proper

* The ſhoe and carpet manufactures of Kilmarnock only excepted.

† Theſe towns, are in the counties, immediately adjacent to Ayrſhire.

‡ Theſe are the harbours of Glaſgow, 18 or 20 miles diſtant from that city.

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proper for the purpoſe, from London. After various counteractions, to which all new trials or inventions are expoſed, he completely eſtabliſhed the ſilk gauze manufactory in that town, where it has flouriſhed with ſo much ſucceſs, that there are now about 25,000 people in the place. In a ſimilar manner, the manufacture of checks and oſnaburghs was introduced into Glaſgow, about the beginning of this century, by a weaver who had ſerved in Flanders and Germany, as a private ſoldier, during King William's wars, and on his return brought home the mode of working thoſe valuable cloths, which he practiſed with great ſucceſs, till they became a ſtaple article of Glaſgow manufacture *.

Originally, the patterns and deſigns of all fancy-works, modes, and faſhions, were compoſed at Paris, and iſſued out with an abſolute authority all over Europe. But the Paiſley manufacturers eſtabliſhed draughtſmen of their own, by whom their deſigns were compoſed; and the patterns, when executed, were ſent to London and Paris for approbation. By theſe means, the inventive principle of modes and faſhions, at leaſt in reſpect of gauze, was transferred from Paris to Paiſley.

The increaſing demand for theſe articles induced the merchants to extend their buſineſs; and ſilk looms were employed in every village on the northern and eaſtern parts of Ayrſhire.

The linen manufactory had always exiſted ſo far in this county, that every family raiſed flax ſufficient for their own conſumption; and the women were all habituated to ſpin flax upon a ſmall wheel, and to bleach and prepare the yarn, ſo made, for weaving. Linen Manufactory.

The linen cloth thus manufactured, was in general of an inferior quality; and a ſpinner could hardly earn more, with great aſſiduity, than 4d. a-day *. A number of ſmall bleachfields were eſtabliſhed throughout the country; but, inſtead of rivaling the linen manufacture of Perthſhire, or in the north

* See Ure's Hiſtory of Kilbride.

* Suppoſing her to ſpin 12 cuts, or one haſp, per day.

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north of Ireland, it was viſibly on the decline in every part of Ayrſhire *.

Woollen Manufacture.

The women, in all the labourers and farmers houſes, were likewiſe in the habit of ſpinning, on very large wheels, the coarſe country wool. They could not gain more by this kind of ſpinning than 4d. per day, and the work is more ſevere than the ſpinning of flax; as, in order to twiſt the woollen thread, they run out the rolls of carded wool to a great diſtance from the wheel, pacing backwards and forwards 20 or 30 miles in the courſe of a day's work †.

An

* Flax has in all ages been reckoned, as well as oats, a robbing crop. Virgil ſays,

" Urit enim, lini, campum ſeges,
" Urit avenæ. VIR. Geor. lib. 1.

Columella confirms this aſſertion.

In Ayrſhire, about 7 pecks of flaxſeed are uſually ſown upon a Scotch acre, and, when the land is well pulverized, and duly weeded, produces, at an average, 20 ſtone of 24lb. Engliſh weight, worth about 12s. per ſtone, 6d. per pound, or L. 12 per acre.—2d. per lb. is paid for ſcutching; 1d. for heckling or hatcheling; and when the flax ſpins into 48 cuts, per lb. it will coſt 16d. for ſpinning.——1 cut, is equal to 5 ſcore threads, or turns of the reel;—2 cuts, make one hear;—12 cuts, one hank, haſp, or ſlip;—4 hanks, or 48 cuts, one ſpindle.

Flax worth 1s. per lb. uſually ſpins from 36 to 48 cuts per pound. Tow, or hards, are ſold as low as 5d.---Flax capable of ſpinning to 7 ſpindles per lb. is worth 7s. Linen cloth for home conſumption, worked in what is called a 1400 reed, coſts about 7d. per yard for weaving, and is worth 2s. and 4d. or half a crown per yard.——Flax in this country, from ſome cauſe or other, ſeems to be by many degrees leſs vigorous and luxuriant, than that round Bruſſels, Cambray, and Valenciennes, from whence the fine lace, and cambrics are manufactured. It has however, generally been ſuppoſed that the Bruſſels and Valenciennes laces, were made from flax of the ſmalleſt ſtem and moſt ſlender texture.

† Wool coſts, for waſhing, teazing, carding, ſpinning, and greaſe, 2s. and 6d. per ſpindle. When worked into blankets, they are worth 1s. per yard, and coſt about 2½d. for weaving.

Home-made woollen cloth, 3 quarters wide, for labouring people, about 3s. per

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An attempt, on a ſmall ſcale, has lately been ſucceſsful at Maybole, in the centre of Carrick;—to card, twiſt, and rove woolen yarn by machinery, on principles ſimilar to thoſe applied in the cotton manufacture. And no place can be better adapted for a buſineſs of this deſcription.—Indeed, the improvements in machinery of every kind, within theſe few years, and the application of the inventive faculties of men, in this county, have operated on every object, connected with manufacture and with agriculture.

Other manufactures have been attempted at Cumnock, and ſome other villages, convenient for procuring quantities of moorland wool. But Kilmarnock was the only place, where manufactures in the woollen branch were fully eſtabliſhed; and there, the buſineſs being chiefly confined to carpets, little progreſs was made in the weaving of cloth.

Cotton Manufacture.

By far the moſt rapid influence, however, on the condition of this country has been produced by the cotton manufactory. The manufacturers of Glaſgow and Paiſley entered very largely into this branch, as ſoon as the invention of Arkwright's machinery was made public. After engaging every eligible ſituation in their own vicinity, they directed their attentions towards Ayrſhire. Cotton mills, on a great ſcale, were erected on the borders of the county, near Lochenoch, and Caſtle-Semple, and at Cattrine near Machlin, in the central part of Coil. Large houſes, almoſt in every village, were filled with ſpinning-jennies, and moved by horſes, where water could not be procured. The price of labour roſe in every quarter, and the demand for cotton workers was ſo great, that farmers could hardly engage men or women-ſervants, to remain at country work *.

The

per yard when dreſſed. Such cloth dyed blue, coſts for weaving, dying, dreſſing, about 10d. per yard.—The coarſeſt part of the wool is made into carpets, worth 3s. per yard.

* A good worker, in one of theſe cotton houſes, could earn from 2s. to 3s. daily; women from 1 to 2 ſhillings daily; and children from 1s. 6d. to 3s. weekly.

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The greateſt part of the cotton, worked in this manner, was furniſhed to the manufacturers, by the Glaſgow merchants, who took them bound to return the thread at certain rates, according to its quality and fineneſs. This circumſtance, renders it extremely difficult to eſtimate the annual amount of cotton thread prepared within the county: But, it is underſtood, that ſeveral thouſand people were employed in this branch, notwithſtanding the recency of its eſtabliſhment.

Tambour, and other work.

The operation of the manufacturing ſpirit, iſſuing from Glaſgow, as its central point, diverged over this county, in every poſſible direction, and was by no means confined to the branches already mentioned. A number of workers in tambour and figured works on gauzes, ſilks, and muſlins, eſtabliſhed little factories at Ayr, Irvine, and in other places, where they employed ſeveral hundred girls and children.

Iron Manufacture.

A great company from Glaſgow eſtabliſhed two blaſt farnaces at Muirkirk, on the eſtate of the Hon. Admiral Keith Stewart, in the moor-land parts of Ayrſhire *, with a view of making pig and bar iron on an extenſive ſcale; and they already employ many hundred workmen, to the great advantage of that bleak uncultivated country. Indeed, there are few parts of Great Britain ſo well adapted to the iron manufacture as Ayrſhire; having abundance of coal, lime, and ironſtone, in every diſtrict of the county. Poſſeſſing alſo the facility of importing, on reaſonable terms, the rich ores of Cumberland or Lancaſhire, to work with Ayrſhire materials, which are of a poorer quality.

The unſkillfulneſs of iron maſters, however, who remain ſtill ignorant of the right mode of expelling from their coal, or

* The improvements carried on by this gentleman, do great honour to himſelf, and will be attended with much benefit to the country.

The natives are expert in conſtructing what are called ſnap dykes, 5 or 6 feet in height, with large ſtones bound and locked, in an ingenious manner. Theſe, except in great ſtorms of ſnow, enable the young plantations to be defended from the ſheep. Thus ſhelter will be obtained.—Drains, and lime, are faſt changing the appearance of the paſtures; and, with green crops, and ſown graſs in the bottoms, will enable a much larger ſtock, to be maintained.

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or cokes, the ſulphureous particles, ſo prejudicial to iron; has occaſioned many eligible ſituations to be rejected, on this account. The enormous expence and uncertainty attending the preſent ſyſtem, on which this manufacture is conducted, together with the myſterious habits, and endeavours of thoſe concerned, to preſerve it in a few hands, has hitherto prevented it from becoming, as it ought, a ſource of opulence to this county.

Having been led for many years, occaſionally to beſtow attention, on the various chemical and practical operations, connected with the modes of ſmelting, and extracting iron from the ſtones and ore in which it is contained, and of reducing it into a malleable ſtate, and into ſteel; it always occurred to me, that there was a radical defect in the whole ſyſtem, which prevails in theſe kingdoms. Under this impreſſion, I laboured, through a multiplicity of experiments, to diſcover the proper mode, of reducing the metallic parts contained in iron-ſtone, and in iron-ore, into a malleable ſtate, or bar iron, in one furnace, by a ſingle proceſs, without recurring to the bungling and expenſive practice, of firſt ſmelting the metallic parts of iron-ſtone into pig, with all the ſubſequent and accumulated extravagance of bloomeries, chafferies, fineries, and air furnaces, before a bar of iron can be produced.

I have had the ſatisfaction to ſucceed in this endeavour, and have conſtructed a furnace which performs the purpoſe, mentioned, on ſuch eaſy terms, and on ſo moderate a ſcale, as will enable any landholder, who has a few thouſand tons of iron-ſtone on his eſtate, with an adequate ſupply of coal, to convert it into a malleable form, without hazarding the expence of blaſt furnaces, and other extravagant eſtabliſhments, ſeldom coſting leſs than L. 20,000 or L. 30,000 before a ſhilling of profit is received. But, as this diſcovery does not refer, to matters of agriculture, I ſhould not have alluded to it in this addreſs, had it not appeared materially connected with the general improvement of the county, under our conſideration.

For remarks and additional obſervations.
Kelp—Foſſil Alkali —Barilla.

There is another article in which the county might derive advantage. The quantities of ſea-weed, driven by every ſouth and weſt wind, on its extenſive ſhores, havebeen ſuffered to rot upon the ſand, unleſs a few carts, occaſionally lifted for manure, and a ſtill ſmaller proportion of the ſea weed growing upon rocks along the ſhore, which has been converted into kelp. The great demand for this article, ariſes from the foſſil alkali which it contains, ſo uſeful for the purpoſes of glaſs; eſſentially requiſite in the manufacture of hard ſoap, and alſo applicable to various proceſſes in bleaching yarn. As the foſſil alkali is obtained from the different plants called wrack, ſea-weed, or alga marina, and from no other plant, excepting the barilla, which grows on the ſhores of Spain and Sicily, its value has been conſtantly increaſing, with the manufactures, in which it has been employed. A ton of Barilla ſells from L. 20 to L. 30; and a ton of common kelp from L. 4 to L. 5. and ſometimes much higher.

The mode of manufacturing kelp upon the ſhores of Ayrſhire, and indeed on all the coaſt of Scotland, is barbarous in the extreme. An open kiln, or maſs of ſtones, is placed upon the ground, about 14 feet long, 3 feet wide, and a foot or two in height. The ſea-weed being previouſly cut and dried, is thrown into this kiln. The bottom is laid with ſand and gravel, which impairs the kelp, and diminiſhes its value. The ſea-weed, in the centre of the kiln, may be ſufficiently heated to bring it into fuſion, but that nearer the outſide is chilled by the external air; and the whole, even in the beſt ſummer

* Foſſil alkali, is the baſis of ſea ſalt, combinedwith muriatic acid, but no practical mode has yet been deviſed, for extracting the alkali on advantageous terms.

The vegetable alkali, or potaſh, though very valuable, is by no means applicable to all the purpoſes in which the foſſil alkali is employed.

Above 2500 tons of foſſil and vegetable alkali are ſaid to be annually imported into Great Britain, and including kelp manufactured in Scotland, amounts to L. 7 or 800,000, per annum.

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ſummer weather, is never brought properly into one equal maſs of fuſion. In this mode it is hardly practicable to make more than half a ton per day, in one kiln. The weed, which, by the power of fire, has undergone the different proceſſes, of evaporation and incineration, is brought at laſt into a melting ſtate. It is then violently ſtirred with rakes and ſhovels; and when cooled remains a brown or blueiſh concrete ſubſtance, hard as a rock, pungent to the taſte, and liable to attract moiſture from the atmoſphere. But imperfect as this operation is, it cannot take place at all, neither in rain, nor in wind, nor in froſt. So that the proceſs, requiring a long courſe of fine weather, for drying and burning of the wrack, can only be attempted during a few months, and, in bad ſeaſons, only during a few weeks in ſummer.

In order to obviate theſe difficulties, I have contrived a kiln or furnace, which, with an apparatus ſufficiently oeconomical and ſimple, dries, burns, and reduces into perfect fuſion, the ſea-weed in all weathers, and renders it a maſs of kelp, pure and equal in its parts, and capable of being thrown in a mould or frame. Thus every ſample is a true ſpecimen of the whole, and contains no other refuſe, than the earthy or heterogeneous parts belonging to the weed. Theſe, by repeated experiments, amount to about 50 per cent, and the other half is taken up in ſolution, when the maſs is pounded and mixed with a ſufficient quantity of water. The refuſe is mere inſipid uſeleſs earth. The 50 per cent, taken up in ſolution by the water, contains all the ſaline and alkaline particles of every kind contained in the kelp. Of theſe, a great proportion are compoſed of common ſalt; others of ſal-glauber; ſome of hepar ſulphuris, while the remainder is pure alkaline ſalt. Theſe, by an expenſive and elaborate proceſs, may be perfectly diſtinguiſhed, according to the priority in their form and ſyſtem of cryſtalliſation, which enables them to be completely ſeparated.

Experiments, which I have frequently repeated, prove, that Barilla contains nearly the ſame proportion of refuſe, but the

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ſalts extracted from it by ſolution, poſſeſs a much greater proportion of alkali, as the common ſalt, Glauber ſalt, and hepar ſulphuris, do not predominate in that preparation *.

As this proceſs may be of material conſequence to the great and ill conducted manufacture of kelp, in the Highlands of Scotland, eſpecially now, that the duty on coals carried coaſt-ways has been taken off, I ſhall chearfully communicate the particulars of this plan, to any perſon recommended by your board †.

Opinions concerning Manufactures—Operation of them.

The gentlemen in this, as in other parts of Scotland, under the influence of old feudal prejudices, had originally been extremely hoſtile to all manufacturing and mercantile tranſactions. But the enormous increaſe of rents, occaſioned by manufactures, and the riſe on all articles of ſubſiſtence, had conquered theſe hoſtilities; and of late years they had very generally afforded unqualified favour and protection, to the propoſers of new eſtabliſhments, in the way of manufacture. Two material circumſtances, however, have occurred to damp their zeal in theſe engagements.

In the firſt place, it is neceſſary to conſider every country, and every branch of public operation, under the different gradations of an advancing, ſtationary, and declining ſtate. During the former of theſe periods, the augmentation of manufactures, operates with moſt ſalutary impulſe, on every branch of agricultural improvement, and of public proſperity. During the

* The baſis of common ſalt, is foſſil alkali combined with muriatic acid. The baſis of ſal-glauber, is foſſil alkali combined with vitriolic acid. The hepar ſulphuris is compoſed of alkali combined with ſulphur; and ſulphur conſiſts of vitriolic acid and the inflammable principle, ſuch as is produced by burning wood or charcoal.

† The abolition of duties on coals carried coaſtways, has conferred a greater benefit on thoſe parts of Scotland which were intereſted in that meaſure, than any bill paſſed theſe many years. It is to be hoped, that the Right Hon. Mover, through whoſe exertions that bill was carried into effect, will add to his own fame, and to the advantage of his country, by moving the abolition, or commutation, of all duties and reſtrictions on the uſe of rock-ſalt, and on the manufacture of that uſeful article.

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the ſecond, they may be conſidered as in a kind of neutral ſtate; but in the laſt, or declining period, they become a ſerious burden, and diſtreſs, on every order of the community. This is verified, by hard experience, in ſome provinces of England, where every propoſal of a new manufacture is conſidered as a grievance and injury committed againſt the proprietory intereſt.

Diſadvantages attending Manufactures

Although Ayrſhire, and the Lowlands, on the weſt of Scotland, have for many years experienced a rapid and progreſſional improvement; yet every caſual check to circulation, every accidental overſtrain, or injury to credit, from whatever cauſe ariſing, has conſtantly ſubjected the country to the diſtreſsful ſcene of numberleſs manufacturers grumbling, unemployed, and deſtitute.

In the preſent inſtance, ſpeculations in cotton, muſlin, iron, glaſs, and other articles, had been ſtretched to an extravagant degree. The quantity of ſpare money, and growing opulence of the country, occaſioned an extreme facility of credit. The banks were led to grant caſh accounts, or to diſcount bills almoſt without reſtriction. The conſequences were, that every man engaged in profitable ſpeculation, no ſooner gained a ſum, than, inſtead of conſidering it as a capital, to yield an eſtabliſhed income, he expended it, with as much more as he could borrow or procure, in extending his adventures, truſting always to the growing increaſe of advantage. Thus, a man who had gained L. 20,000 by twiſting cotton yarn, with Arkwright's machinery, would build another mill of double power, and expend L 20,000 beſides the profit he had made. By theſe means, inſtead of becoming more eaſy and comfortable in his circumſtances, every new ſucceſs involved him in additional adventures and conſequent embaraſsment.

While general proſperity pervaded every branch of buſineſs, the exceſs of enterpriſe, and daily failures which occurred, were only conſidered as indications of individual extravagance, or accidental misfortune. But the firſt public event, occaſioning a pauſe among the ſpeculators, which happened

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to be a declaration of hoſtilities on the part of France, acted like the injection of cold water into a ſteam engine; condenſed the unſubſtantial vapour, and the wholefabric came tumbling down.

Conduct of the Banks —ſtate of Credit.

The chartered banks of Scotland, in imitation of the bank of England, finding that the minor operators had trenched on their advantages; and obſerving alſo, that the competition had involved them in a credulous, and hazardous exceſs of circulation; acting with a precipitancy, only equalled by their preceding relaxation, inſtantly recalled the credits they had ſo largely granted. Thus a country, which, a few months before, enjoyed the heyday of proſperity, was ſuddenly cramped and palſied in every operation. Traders, manufacturers, miners, graziers, farmers, and landholders, all of whom had overſtrained their ſpeculations, found like Alnaſcar, that their baſket full of brittle contents was broken. The conſequences were, that a clamour was attempted to be raiſed againſt the moſt juſt, neceſſary, and unavoidable war, in which this country ever was engaged; at a moment too, when the conſequences of hoſtility could not poſſibly have materially affected any individual. Againſt this poſition, it is preſumed that no one will contend, except thoſe who would rather hazard, civil ſtriſe or invaſion at home, than hoſtility abroad. Sober and reflecting men, however, recollect, that many of thoſe ſpeculators, who have failed for ſeveral hundred thouſand pounds, were never worth as many pence at any period of their exiſtence. That the ſtoppage which occurred ſome years ago, in the cotton manufactury originated in the ſame cauſes, and as far as it extended, proved equally ſevere, although the country then enjoyed profound and general peace. Above all, that in the year 1772, the contagious diſtemper of overſtrained adventure, ſimilar to that which has come to a criſis in 1793, involved the country in general diſaſter, although the kingdom had not then been engaged in war for a period of 13 years.

Theſe facts, undoubtedly, expoſe the unſound principle, which

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which has governed this country, reſpecting debts and circulation. The creditor is betrayed into pernicious confidence, by ſevere enactments againſt the perſon of the debtor, who in his turn, is allured by the ruinous facility with which credit is obtained, by habits of extravagance, or ill-founded hopes of irregular advantage. In former times, the moſt rational improvement was checked by a total want of credit, even to the moſt reſponſible perſons. At preſent, the country is periodically convulſed, by ſhocks, failures, and ſtagnations, ariſing from a defective and diſordered ſyſtem. Indeed, the acts in force, on the ſubject of debts and debtors, would tempt one to ſuppoſe, that a writ and a bumbailiff were conſidered as ſpecifics for every evil which creditors, or the country at large can ſuſtain from ſuch tranſactions *.

Dangerous Principles prevailing among Manufacturers.

But there is another point of view, in which the manufacturing part of the community are ſtill more liable to imputation. It is by this claſs, that every doctrine of ſubverſion has been cheriſhed; and it is only from the ſame ſource that the eſtabliſhed orders ſeem to dread any diſturbance. When perſons of this deſcription, joined by others of diſtempered minds, inſult ſociety with permanent ſittings, bulletins, ſecret committees, ſections, municipalities, conventions, and tocſins, to which, had they proved ſucceſsful, the Guillotine, in due ſeaſon, would have been added, it is time for the ſounder part of the community to form a phalanx round the Throne, in defence of the conſtitution. For it is to be hoped, that the ſubverters

* Some purſe-proud perſons talking of their wealth, were anſwered by a Glaſgow merchant,—who humouroufly boaſted, that he owed more than all of them were worth. This ſeems to be the prevailing ſentiment, which governs the mercantile, manufacturing, and, I may add, the agricultural, proceedings of the country.—The example of France might have taught us, that whenever the diſburſements exceed the receipts, whether in a public or private capacity, the conſequences muſt be ruinous. Perhaps it might be more for our permanent intereſts, rather to imitate the practice of Holland, where every man's exertions are proportioned to his means; and where no man can preſerve his character, and be in debt.

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verters in this country will not, like the murderers in France, find a ſet of daſtards, ready to ſhrink from their atrocities, or tamely ſubmit to robbery and ſlaughter. In this country we may flatter ourſelves, that if matters ever come to extremity, every good ſubject will be found, in the words of Shakeſpeare, " at leaſt with harneſs on his back !".

The reſult from this deduction is, that whatever benefits eventually may have accrued, to the cultivation of Ayrſhire, from the ſtimulus of manufacture; ſtill it is a dangerous inſtrument of improvement; while the plough and the ſpade have never threatened any peril to the country.

So far, however, from wiſhing to diſjoin theſe intereſts, that it ever has been my deſire to ſee them moving hand in hand. At this very moment, in conjunction with other proprietors, being engaged in every poſſible exertion to eſtabliſh a harbour at the Troon, on this coaſt, and a canal from thence to Kilmarnock. And I truſt, ere long, another ſhall take place from Irvine to Paiſley, ſo as to give every advantage to the circulation of manufacture and produce in the county.

Concluding Obſervations—Character of the People.

It only remains for me to offer ſome concluding obſervations on the character and habits of the different claſſes, into which the inhabitants of Ayrſhire are divided.

From the facts already ſtated, it muſt appear that they are neither deficient in activity, nor in enterprife, and that little more is wanting than to direct thoſe valuable tendencies to proper purpoſes. The indolence of former times, and feudal prejudices among the upper orders, which formed lines of demarkation and repulſion between them, have fortunately been modulated into more active and more eaſy habits. Improvements in dreſs, living, and conveniencies of life, have increaſed beyond all credibility. But the manners and morals of the different ranks, have by no means ameliorated, in the ſame proportion. On the contrary, the civil cordial manners of the former generation are wearing faſt away, and in their place is ſubſtituting a regardleſs, brutal, and democratic harſh-

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neſs of demeanor. The former race, it is true, waſted their time in ſauntering diverſions, in ſmiths ſhops, and change-houſes. But a ſtrong ſpirit of religion, and deep impreſſions of morality, not unmingled with ſome portion of auſterity, preſerved the general character more free from crimes, and groſs enormities, than the people of any country in Europe, perhaps, thoſe of Switzerland alone excepted.

A variety of circumſtances have concurred to efface theſe impreſſions. The trade of ſmuggling, which, to a great extent long prevailed on this coaſt, naturally introduced a looſeneſs of practice and opinions. Hence, aroſe the pernicious cuſtom of drinking ſpirits, ſo generally prevailing, as almoſt entirely to have excluded the conſumption of ale and beer. Theſe evils were extended and confirmed by the diſtilleries, which though checked in their progreſs by recent regulations, are ſtill deſtructive to the health and diſpoſitions of the people. Another ſource of immorality and perverſion of principle, ariſes from the frauds and perjury, too frequently occaſioned by the mode in which the buſineſs of the cuſtoms and exciſe is conducted.

To theſe, are added a great increaſe of dealings and tranſactions, in every line of life *. The levelling manners ſo prevalent among manufacturers; the frequenting of fairs and markets; the numberleſs jobbings, ſales and bargains, all tend to ſubſtitute a turn for ſpeculation, in place of the ſober, ſteady principles of order and economy, which Doctor Adam Smith, in his excellent treatiſe on Moral Sentiments, expreſsly ſtates as conſtituting the eſſential ingredient, or rather the diſtinctive character of virtue, attaching to the lower claſſes of the people. From whence that great authority avers, they never can deviate, without ruin to their families, becoming a diſgrace and burden on the country, or falling a prey to the moſt diſſolute and vicious courſes.

* This increaſe of tranſactions, and its natural conſequence litigation, is ſo great that 40 cauſes are often adviſed in a week, before the Sheriff Court; and there are not leſs, than 700 or 800 cauſes tried in a year, before that tribunal.

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Education.

To correct theſe evils will require a better and more ſyſtematic plan of education than hitherto has been adopted. The people of this country have ever been diſtinguiſhed for a laudable deſire to procure inſtruction; inſomuch, that the pooreſt perſons will frequently ſtarve themſelves to educate their children.

It is undoubtedly incumbent on the public to grant ſuch means of education to individuals, as may enable them to become uſeful members of ſociety. It is the immediate duty of the landholders in every pariſh to ſee, not only that the poor are properly maintained, but that the children be inſtructed in principles of ſound religion and morality; that they be trained to induſtry, and afforded means of uſeful information, adapted to their capacities and ſituation *.

Schoolmaſters.

Unfortunately in this country, as in other diſtricts of the kingdom, the proviſions for the ſchoolmaſters are by no means adequate. Men of capacity and talents can hardly be expected to waſte their lives, in the laborious taſk of teaching, for a ſmaller ſum than they could earn by handycraft. Beſides a houſe and garden, and the uſual ſalary, at preſent, not more than 6l. or 8l. yearly, ſometimes augmented by the trifling perquiſites of parochial offices, they ought to have an addition of emolument, by an increaſe of ſalary. No man ſhould be nominated but ſuch as is capable of making reports, ſurveys, eſtimates, keeping ſtatiſtical regiſters and records, and other operations, by which he might better his condition, and be uſeful to individuals and the public. It is frequently remarked too, in this part of the country, that they are extremely neglectful of the manners of the riſing generation, rather encouraging them in rough and booriſh incivilities, than in thoſe acts of reciprocal kindneſs and urbanity, which afford the

* On this principle the inhabitants of the United American States have diffuſed a maſs of knowledge through every diſtrict of their extenſive territories, which is faſt rendering them more ſkilful and enlightened than any other claſs of men.

For remarks and additional obſervations.

the beſt, and moſt pleaſing characteriſtic of any people. A perſevering attention, however, from the landholders and clergy, with a proper ſelection of ſchoolmaſters, and regular examinations of the progreſs, made by the ſcholars, would check the growth of theſe diſorders.

Clergy.

To the clergy of this county, the public is already much indebted, and may derive ſtill farther benefit from their exertions. The intelligence and underſtanding which diſtinguiſh the individuals of this deſervedly reſpected order, together with their profeſſional intercourſe, among all claſſes of their pariſhioners, render them peculiarly adapt d for the propagation of uſeful knowledge; not in matters of religion only, but touching temporal concerns, connected with the welfare of the community. The valuable Statiſtical reports, which you have received from the miniſters of every pariſh in this county, with the exception only of one at preſent vacant, evinces their ability to promote improvement, and the attention they have beſtowed on that intereſting object.

Landholders—Condition, Character, and Duties.

With reſpect to the upper claſſes of proprietors, or freeholders, and commiſſioners of ſupply, there are about 180 perſons of theſe deſcriptions *, (of whom 114 are voters) belonging to the county, with eſtates from 100l. or 200l. to 20,000l. *per annum* †. Several of theſe families have been of very ancient ſtanding; but the greateſt number of old families have, within the preſent century, been obliged to ſell their property, embarraſſed by the reigning ſpirit of conviviality, and ſpeculation, diſproportioned to their income ‡.

 Indeed,

* There are alſo 5 or 6 Peers families, of great property.

† The largeſt eſtates in the county are about 10,000l. per annum; but the holders of them have property in other counties, which make their income 20,000l. per annum.

‡ Many farmers have remained on the ſame lands for 300 or 400 years, and every right minded landlord gives of courſe the preference to old tenants. It is difficult, however, to obtain any conſiderable riſe of rent, or to introduce a ſyſtem of improvement, but by means of new ones.

For remarks and additional obſervations.

Indeed, conſidering the expence, and inattention to affairs, connected with the ſituation of a country gentleman, and natural tendency of counting upon imaginary rentals, long before they become real ones; including too, the prevailing courſe of entertaining, drinking, hunting, electioneering, ſhow, equipage, and the concomitant attacks upon the purſe, and miſapplication of the time, it appears ſurpriſing that any property unentailed, ſhould remain above two generations in the ſame ſucceſſion; eſpecially, in this part of the iſland, where the gentry have not, as in England, the reſource of clearing from time to time, their pecuniary embarraſſments, by large ſales of timber from their woods, hedge rows, and plantations.

Without adopting any feudal predilection for birth and family, it ſurely ſeems deſirable, that courſes which have proved generally ruinous to the intereſt of proprietors, and in conſequence have been attended with ſuch ſerious checks to cultivation, and interruptions to proſperity, ſhould be corrected.

The country has a right to look to this claſs of men, not only for ſtability of character, urbanity of manners, and that ſentiment of honour and humanity, which conſtitutes the liberal features of a gentleman; but for the encouragement of all that is excellent in arts, embelliſhing or uſeful in the intercourſe and tranſactions of human life. In the preſent ſtate of things, men of high degree are only reſpected in proportion as they poſſeſs theſe qualities. When they happen to be marked by unpoliſhed manners, or diſgraceful conduct, they excite no other ſentiments than thoſe of indignation or contempt.

Unfortunately, the landed proprietors, in this, as in all other quarters of the kingdom, were formerly accuſtomed to conſider themſelves, in reſpect of their eſtates, as merely *Fruges conſumere nati*; and in general were inclined to think, that they had nothing more to do than draw their rents and ſpend them, unmindful of the obligations impoſed by the intimate relation which they hold with the proſperity and welfare of the country. But now a better ſpirit has gone forth among them;

and

For remarks and additional obſervations.

and undoubtedly, when ſuch ſtrong endeavours have been made, to decompoſe the principles and elements of which all civilized ſociety is compounded, it requires the beſt exertions of every well-intentioned individual, to prevent ſo miſchievous a proceſs from being carried into effect. Landholders, whatever their purſuits in life may be, are now generally conſcious, that they owe their firſt duties and attentions to their tenants and eſtates. It is juſt matter of reproach for any man to be ignorant or careleſs in his trade, more particularly when the right performance of that trade involves the welfare of the moſt uſeful claſs of men, and the means of ſubſiſtence on which the whole community depends.

Examples of England, Ireland, and the Highlands.

If it could be neceſſary to enforce ſo plain a truth, the landed intereſt of this county might receive abundant admonition from the examples of England, Ireland, and the Highlands of Scotland.

In the greateſt part of England, all the ties of intimacy and attachment between the landlord and the renter are entirely broken, to the detriment of both. In Ireland, at leaſt in many parts of it, owing to the evil ſyſtem under which the land is let; neglect of education, and other circumſtances, originating perhaps from inattention or miſconduct in the landholders, the actual occupiers of the ſoil are poor and wretched, and impoveriſh the moſt fertile parts of the three kingdoms; often endangering the lives of any perſons, who attempt to improve their country or themſelves. In the Highlands of Scotland a ſyſtem and order of ſociety did prevail, which, although unfriendly to the arts of cultivation, called forth ſome of the beſt principles, and warmeſt attachments of the human heart; uniting, by mutual claims of permanent regards, the different claſſes, *under ſuch ſtrong connections, and nice dependencies*, as nothing but the avarice, extravagance, and inattention, of the higher ranks could have diſſolved.

Perhaps the beſt bleſſings, which your Board can poſſibly beſtow upon the country, will ariſe from reſtoring to their proper order, thoſe neceſſary relations, which never can be inverted without

For remarks and additional obſervations.

without detriment and danger. As the Diplomatic Body were rendered eminently uſeful in France *, by collecting important political information in other ſtates, for the uſe of that kingdom; ſo it is to be hoped that the Britiſh Government, by means of your Board, will procure for us, a maſs of knowledge, on the general ſubjects of improvement, unequalled, in any other age, or country.

At all events, the public truſts to your eſtabliſhment, for diffuſing every uſeful fact, and aſcertaining every ſolid principle that ought to regulate the management of land and its productions. At the ſame time, the energy with which your career has opened, affords well grounded expectation, that you will perſevere, under the impreſſion, ſo happily deſcribed by a claſſical author [redacted], who thought nothing done, while any thing remained to be performed.

Nil actum reputans, ſi quid ſupereſſet agendum.

* See particularly the valuable work called, "Memoires concernant les "Impoſitions et Droits en Europe."

FINIS.

STATISTICAL TABLE of the Valuation and Contents of AYRSHIRE.

AYRSHIRE contains the Diſtricts of CARRICK, COIL, and CUNINGHAME. Its Extent is 90 Miles by 20 or 25: And its Contents are;—Carrick, 201,603 Scotch acres, equal to 253,440 English acres;—Coil, 192,440 Scotch, or 241,920 English acres;—Cuninghame, 130,837 Scotch, or 164,480 English acres.—Total acres in Ayrſhire, 526,603 Scotch, or 662,005 English.

	Pariſhes.	Valued Rent, Scotch. L. s. d.	Real Rent, Sterling. L.	Number of Souls.	Number of Proprietors.	Number of Farmers.	Number of Paupers.	Number of Horſes.	Number of Cows.	Number of Sheep.	Extent.	Population in 1755.	Collections for Poor. L.	Length in Miles.	Breadth in Miles.	Extent in Scotch Acres.	General Obſervations.
CARRICK contains 9 Pariſhes.	Maybole	9440 9 7		3750								2058		12	7		Soil various. Much light and improveable land.
	Straiton	4387 1 10	3000	934	7	31			2100	20,000		1123	30	13	5		Chiefly paſture. Wild moors. Sow 800 quarters of grain. One farm of 6000 acres rented at L. 50.
	Kirkmichael	3829 4 8	About 3000	956	6		20					710	30			10,000	Chiefly paſture. About 1400 acres under tillage. Land lets from 5s to 15s per acre. Few horſes, few ſheep, chiefly cattle.
	Girvan	4480 2 9	3200	1725	10	78	36		1700	5000		1193	41	9	6		Two thirds hilly paſture. Low parts arable. Along the ſhore abundance of coal and lime.
	Daily	3265 10 6	3300	1607	8			150	1450	5000		839		6	or 2 6	17,000	Soil various. Great part arable. Large tracts of moſs. Plenty of coal, lime, and marle.
	Bar	1493 5 0		750		45			2000	25,000		858					Dry hilly paſture. Some parts arable. Full of lime.
	Colmonel	6989 10 5	3000	1100	17	116	24	231	2900	12,000		1814	20	14	6		Number of ploughs, 106. Hilly paſture; the bottoms arable.
	Kirkoſwald	1565 18 3	4000	1335	8	102	21	300				1168		6		11,000	Fine land along the ſhore, capable of great improvement.
	Ballantrae	3551 10 10	2000	770				200	3000	12,000		1049		10		10 M. ſq.	About 12000 arable acres. Only 800 are now in tillage. Extends ten miles along the ſhore.
COIL contains 21 Pariſhes.	Monkton including Prieſtwick	1836 10 0	2500	717	7 beſides 36 feuars of Prieſtwick	30	12	92	120	250		1163	22	4	2½	3500	Greateſt part arable, excepting ſand hills on the ſhore. Population in 1755 including Newton on Ayr, now ſeparate.
	Craigie including Barnweil	3918 8 1	4000	700	10		12	240	738			551	20			5500	All arable. Full of coal and lime. Few ſheep.
	Riccarton	3924 8 8	4327	1300	8		13	207	848	69		745	24	6	2	4736	All arable, except 138 acres. 60 ploughs, 131 carts. Coal and lime. Soil, deep clay. Farms from 60 to 130 acres.
	Auchinleck	3462 15 4		775	13	72		210	1000	12,000		887		13	2		Great part arable. Clay ſoil. Large tracts of heath. Coal and lime.
	Galſton	5630 13 4	6000	1577	50	100				ſeveral thouſands		1013	40	13	5		Above 7000 arable acres. Remainder high and mooriſh. No beggars. Occaſional aid to old and ſick perſons. Two ſocieties for relief of members unable to work. 35 acres of flax; 7 corn mills.
	Symonton	2012 16 6	3000	610	16	25	12	120	500	200		359	27	4	1½	2500	All arable; clay ſoil; a mill, a mechanic. [illegible] Church and houſes annually [illegible] L. [illegible]
	Coilton	[illegible] 16 2	2000	669	[illegible]	[illegible]	10	115	750	1240		527	50	7	2	7080	Clay ſoil, ſilly bottom.
	Tarbolton	6239 16 4			19	130		365	1800	500		1365					Chiefly clay ſoil; greateſt part arable; ſome heath.
	Muirkirk	2259 0 10	1400	1100	14			75		14,000		745		11	5		All mooriſh. Full of coal, lime, and ironſtone.
	Old Cumnock	3784 0 9	3000	1032	6		23	220	1000	2000		1335		10	2	10,000	Cold ſoil. Coal and lime. 150 carts. Social ſociety for members unable to work.
	New Cumnock	6026 0 0	3500	1200	10	20	few	400	1000	20,000		1497	26	12	8	50,000	High and mooriſh. Greateſt part not arable.
	Ochiltree, including valuat. of	7815 6 0		1150	10		20					1210	35	6	5		Moſtly arable; only a grazing farm not arable.
	Stair			518	6	36		180	710	300		369		6	2		Soil ſtiff clay; greateſt part arable and incloſed. In the year 1756, when incloſing began, the people deſtroyed all the fences.
	Dalmellington	1795 19 1	1700	681	4		27	50	800	8000		739		8	3		Wild and mooriſh.
	Mauchline	5410 0 0	3500	1800		73	30	240	1080	few		1169	50	7	4		Surface flat; ſoil clay and arable. A ſociety for relief of thoſe who cannot work.
	Sorne	5232 0 0										1494					
	Dundonald, incl. Corſbie Fullarton	6344 10 9	6500	1317	16	about 50	7	355	1830	1100		983	36	9	7	about 10,000	Soil various; much rich land; part hilly, on the ſhore ſandy. 1600 Engliſh acres in rabbit warren. Coal, freeſtone, no lime.
	Dalrymple	1979 8 2		380	5	40	7					439	11	6	2		Soil not deep; arable and improveable along the river Doon.
	St. Quivox	2900 0 0	3500	1450	8	30	20	132	750	few		499				3500	All arable. 104 carts.
	Ayr		3700	4100	60							2964	150 [illegible]	4	2	5000	Land all arable; hoſpital for 60 perſons; 10 ſchools, 150 ſcholars; 70 debtors; 73 criminals; 40 vagrants in 1790. A barred harbour.
	Newton on Ayr			1689			18						50			350	Many vagrants. 30 alehouſes.
CUNINGHAME contains 16 Pariſhes	Dreghorne	3168 14 10		830	20							887		9	3		All arable. Average rent of land 15s per acre.
	Kilmaurs	7349 9 1	5000	1147	32	53		150	1464	few		1094				4500	All rich arable land.
	Dunlop	3613 14 6	3000	779	55	68		177	about 1000	few		736				5163	Fine paſture land. Sell cheeſe to the value of L. 4000 yearly. All arable, except about 830 acres.
	Loudoun	5695 14 4		2308	Counteſs of Loudoun a [illegible]	50				1600		1494	50	9	7	10,000	Three fourths arable, ſoil moiſt. 250 carts; 5 draw kilns. Much coal. John Earl of Loudoun planted one million of trees.
	Kilbirnie	2905 0 0		700								657					One third hill and moor, remainder good land.
	Stevenſton	1206 0 0	1100	2425	7	20	12	135	700	few		1412				3300	On the ſhore, the land ſandy. A large rabbit warren. Fine Coal.
	Kilwinning	6168 6 4	6000	2360	9 [illegible]	132	36					2541	89	9	8		Rich land, all arable.
	Stewarton	8113 12 10	7000	3000	128							2819	40			about 10,000	90 Ploughs. Of the proprietors 122 are portioners or feuars.
	Kilmarnock, including val. of	12929 4 8	5400	[illegible]	24	80	80	350	2000	a few hundreds		4403	100			6000	Alehouſes 50. 3000 People manufacture goods worth L. 50,000 annually. Soil a ſtrong clay; all arable.
	Fenwick											1113					Partly clay. Partly moor and moſs.
	Beith	6115 14 2	about 5000	2872	105							2064	45	5	4		All arable. Sell cheeſe to the amount of L. 4000 per annum. Coal and Lime. About the year 1760, ſold linen yarn, worth L. 16,000 annually. 3 Charitable aſſociations.
	Irvine	1988 12 0		4500								4025		5	2		A ſmall ſhallow harbour. Several charitable aſſociations. The inhabitants are diligent and affluent, without manufactures.
	Kilbride	3346 0 0	2530	1276	19	40	7	155	620	2000		885		6	3		All hilly. Quantities of flax raiſed, uſually ſown after potatoes. 7000 Yards of cloth annually ſold, worth about 1s and 3d per yard.
	Dalry	6805 7 5	6350	2000	90 [illegible]			300	1900	1300		1498	60			about 12,000	About one third not arable, remainder good land, capable of great improvement. Coal and lime in every part of the pariſh.
	Ardroſſan including Saltcoats	2840 10 8		1518	8	31	12					1297		9	2		Part of Saltcoats. Small but capable of great improvement. Great quantities of coals ſhipped for Ireland. Nine tenths arable, but chiefly in paſture.
	Largs	3801 10 2		1139								1164		9	2		Little cultivated. Extends along the Clyde.

VALUATION of the County certified by John Boſwell, Eſq. Clerk, L. 191,605 : 0 : 7 Scotch. Real Rent ſuppoſed to be between L. 150,000 and L. 160,000 Sterling, annually. Population in 1755, 59,229 ſouls. Ditto in 1791, taking Sorne, Fenwick, and Tarbolton, as in 1755, 73,892

It is to be hoped that the Clergymen of the different Pariſhes will have the goodneſs to ſupply the means of correcting and completing the columns in the Table; the writer of them having addreſſed them reſpectively for the deficient information.

Note.—A MAP of Ayrſhire is preparing by Mr AINSLIE, and will be delivered when completed.