

**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.**

**Contributors**

Great Britain. Board of Agriculture.  
Fullarton, Colonel 1754-1808.

**Publication/Creation**

Edinburgh : J. Paterson, 1793.

**Persistent URL**

<https://wellcomecollection.org/works/qanjqwaj>

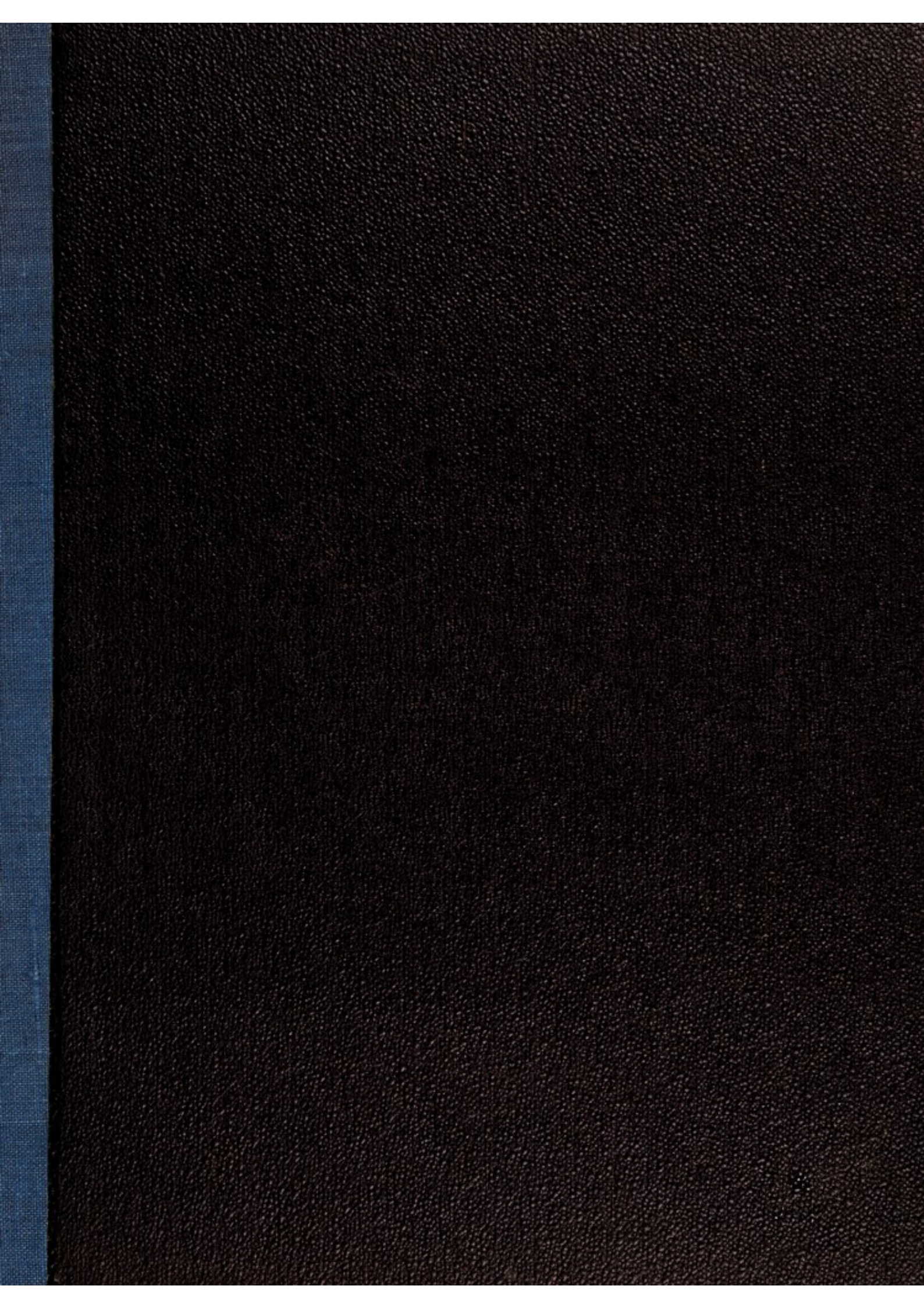
**License and attribution**

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
<https://wellcomecollection.org>




709/C

MR

10/6

~~4/15~~





Digitized by the Internet Archive  
in 2017 with funding from  
Wellcome Library

<https://archive.org/details/b28756733>

GENERAL VIEW

OF THE

A G R I C U L T U R E

OF THE COUNTY OF

*A Y R,*

WITH OBSERVATIONS ON THE MEANS OF ITS IMPROVEMENT.

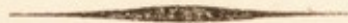
*William*

BY COL. FULLARTON,

OF FULLARTON.

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

*A*



EDINBURGH:

PRINTED BY JOHN PATERSON.

M,DCC,XCIII.

GENERAL VIEW

OF THE

GRAND UNION



## A D V E R T I S E M E N T.

**T**HE 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. Inasmuch, 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 ~~and~~ 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.

In

For remarks and additional observations.

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 ~~be~~ surpris'd to observe such a multitude of  
agricultural

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 grafs,—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  $\text{cwt}$ .—The ground was scoured with a succession of oats after oats, as long as they would pay for feed 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

For remarks and additional  
observations.

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

Many of these leases were granted for three or four 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 feedtime; and thus the roots of natural grass were cut on all the clay lands, or drowned with water standing in the cattle's 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.

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 woollen stuffs to cloath the family. These, as well as the linen were usually worked by some weaver in the neighbourhood, and supplied the drefs of both sexes. The stalks of hemp were substituted in the place of candles ; and, even in situations adjoining to a coallery, 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.

For remarks and additional observations.

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; infomuch, 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 grafs, 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.

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 seed-time 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.



For remarks and additional observations.

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 feu 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 Potgefferus.

† 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 occurred to me, that if landholders chuse to grant feus, in perpetuity

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-

fayed

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 country.

For remarks and additional observations.

fayed 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 profiting 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,

For remarks and additional observations.

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 truly beneficial. In a very short time, good turnpike roads were completed in every direction; wheel-carriages were gradually introduced; coaleries 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.

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 maintains,

Obstacles to Improvement.

For remarks and additional observations.

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: Inasmuch, 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 censebant, satius esse minus ferere et melius arare."—And Virgil says,

—————"Laudato ingentia rura

"Exiguum colito."

of other counties, laid no other limitations upon his tenants than such as were adapted to places, where the land was already dressed and drained, 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, <sup>^New System introduced.</sup> 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.

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 grafs, till it recovered from the exhausting course of evil management already stated. About 100 bolls of flacked 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-grafs, 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  $\frac{1}{4}$  Winchester bushels, costing, at the draw kill, from 3d. to 5d. and 6d. per boll.

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



For remarks and additional observations.

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.

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.

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 flaking sheep on turnips as a preparative for barley and grass-seeds, is found an eligible system\*. Potatoes,  
and

Value of the Land—  
Produce—Kinds of  
Grain.

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 fementim facturus eris, ibi oves delectato, et frondem usque ad pabula matura.” CAT. Cap. 30.—And Pliny says, “ Sunt qui optime stercoreari putent, sub Dio, retibus inclusa pecorum mansione.” PLIN. Nat. Hist. lib. 18.

For remarks and additional observations.

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 intervening 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

For remarks and additional observations.

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.

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.

Rotation of Crops.

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

Potatoes.

D

round

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

For remarks and additional observations.

round red and the round 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 unwholesome, 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.

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 country. These were originally raised on a bleak farm in Berwickshire called Blainsley, cleaned with great care, and sold for feed 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.

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

D 2

ter

\* 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.

Weight of Grain.

For remarks and additional observations.

ter of oats, yielding 21 pecks of meal, is exactly worth  $1\frac{1}{4}$  quarter, yielding only 14 pecks of meal. This I took the liberty of suggesting to a member of the Privy Council, when the late corn bill was in agitation; and accompanied the statement with many observations on the subject, from an ingenious friend of mine, very deeply conversant in the corn trade. The good sense, however, of the Ayrshire farmers has at last adjusted this business, as well as could have been accomplished by the wisest legislative regulation. And now, bargains of grain are usually taken at a specified average weight, namely, at 36 lib. per bushel of oats, or 18 pecks of meal per quarter. When the grain weighs less, 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 essay their oats, they will find them seldom equal to this average; and the oats from Ireland, imported into Ayr, Irvine, and Saltcoats, are commonly sold 1s. or 1s. 6d. per quarter cheaper than Ayrshire oats\*.

Chipping and Steeping  
Seed.

In a climate such as this, when feedtime and harvest are constantly too late, several weeks might be gained by chipping or steeping the seed in moisture, and then covering it up under cloths or sacks 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 seed before it be sown, and of obtaining several weeks in its time of ripening. This mode is very generally practised in several parts of Russia †; and I have known it with advantage applied to some kinds of grain

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

† In Russia the Guinea or Indian corn is raised by this mode, and might, I doubt not, be brought to sufficient perfection in this climate, to act at least as a green crop, affording the finest of all green feeding for cattle. I have raised it to its full size 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 risk of frost.

For remarks and additional observations.

grain and grass-seeds. Barley being a feed 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.

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.

Reaping and Mode of Preserving Corn.

Threshing—Appraising.

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

Threshing Machines.

\* The *Birly-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 deprivations to which every farmer is exposed, when a number of labourers have constant access to his barn.

Multures.

Multures or servitudes to particular mills 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 ryegrass, the greatest part of which is only an annual plant; although there be perennial ryegrass of superior quality; and all kinds of ryegrass are considered as a scouring 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.

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 drain-  
ings

\* 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 breadth 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.

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.

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 accrues from indolence and ignorance, than in the careless choice of seed, and selection of plants.

E

But

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  
from

from root-weeds, couch-grafs, or quickens; and to destroy the multitude of annuals which continually spring in fo wet a foil. Neither do we fufficiently pulverize the land by harrows, brakes, and rollers; without which, the tender germs and feeds can find no proper nidus to call forth their vegetating powers.—By attending to thefe particulars, and clearing the field of all fuperfluous moifture, by the judicious formation of water furrows to take off the rains and fprings; a good ploughman can eafily compenfate for any additional wages his mafter can beftow upon him: Infomuch, that it would be better for a farmer to give a fkilful Berwick or Eaft-Lothian, or Clackmananfhire ploughman, double wages, rather than allow the land to be ploughed gratis in the old Ayrshire form.

The more ordinary farmers ftill continue the old Scotch plough; which, for breaking up coarfe land, and working ftrong ftony foils, is probably the beft of all; but it is extremely heavy, and requires four horfes. In lighter and well cultivated foils, a fmall plough is ufed, and works eafily with two horfes, and without a driver. This mode, it is prefumed will very foon 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 ftraight direktion, and to foulder up the ridge, than with a plough broader at bottom, and bluff at the mouldboard, thereby rendered fteady in its progrefs, although not fo proper for ftrong ftony lands. Double mouldboards are ufed for drills and green crops; but the wheel ploughs do not prevail in any part of Ayrshire\*. Several attempts have been made to introduce caft metal ploughs; but they appear much heavier, and in no refpect fuperior to thofe of wood well fhod with iron in the ordinary mode.

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

Draining.

E 2

The

\* A two horfe plough, of Mr Small's conftruction, with an iron head, cofts two-guineas; with a wooden head 30s. caft-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

For remarks and additional observations.

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.

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 enclosing 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.

Ditches and Fences.

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 \*, expressly 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 brushwood 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.

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.

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

Roads.

For remarks and additional observations.

Amount of Weight drawn  
— Carts, and other Con-  
veyances.

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

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.

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.

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\*.

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 Caithness, has been long since destroyed. Inasmuch, that, 50 years ago, there hardly remained any timber or plantations in the

F county;

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

For remarks and additional observations.

Weighing Machines.

Planting.

For remarks and additional observations.

county; excepting the natural woods of oak and birch on banks of the rivers Stinchar, Girvan, Doon, and Ayr, and clumps of ash and fycamore surrounding almost every farmhouse 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 hyerborean 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 fycamore, beech-mast, acorns, and cones of larches, pines and fir, according  
to

\* See Mr Forsyth's pamphlet on this subject.

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

For remarks and additional observations.

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 stony earths

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.



For remarks and additional observations.

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 forelline, 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 effervesce 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.

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.

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.

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

Paring and Burning.

Flooding and Watering  
of Ground.

For remarks and additional observations.

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 Dishley, &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.

For remarks and additional observations.

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.

G

If

\* 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.

For remarks and additional observations.

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.

caustic state \*; that it should remain 12 months on the fward 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 grafs 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.

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 forelline 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.

Peat or Moss.

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

Common Salt.

\* See Dr Black's Lectures.

For remarks and additional observations.

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; infomuch, 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

the best rustic writers; but if allowed to form the feed, 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.

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.

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 flimsy, 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, straight in the back, square in the body, and broad across the fillets.

Stock.

Mules.

Horses.



For remarks and additional observations.

fillets. Their predominant defects are, a shortness and coarseness of the forehead, 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 of Hamilton. But it appears from the works of Fordun, Pitfcottie, 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

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 observations.

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 awkward 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

H from

\* 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; inasmuch, 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.

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 flock, 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.

H 2

The

\* 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 2½d. 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.

In former times a proportion of Dutch or Holdernefs 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.

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

Sheep.



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-wooled 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 flock.

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

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 Trebifonde, 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

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-

I ty

\* 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.

Mode of introducing Improvement.

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.

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,

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\*.

I 2

One

\* 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 similar 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 observations.

One fact is certain, that through negligence and inattention, we lose the benefit of many productions, which might easily be brought to assimilate with our soil and climate\*.

It is also proved, that a multitude of plants, which the ancients 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, *cytifus*, 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 gramin 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 *Cytifus* 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 *sestertia* 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 feruntur 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 noxa, patitur.*" *Col. lib. 5. cap. 12.*

It seems, however, like the *Lote* tree, or *Lotometra* and *Nymphaea 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.

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 pretences of equal distribution, founding 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

For remarks and additional observations.

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



For remarks and additional observations.

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

For remarks and additional observations.

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.

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.

Proportions between Rent and Product.

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 feeholder or copyholder, to the most extensive renter, and the richest lord, will take place ; as is the fact in Ayrshire.

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  
are

Character of Farmers.

For remarks and additional observations.

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 maintenance. 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.

For remarks and additional observations.

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

K 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	256 $\frac{1}{2}$
1784 1785		628	990		
1785 1786					
1786 1787	1150	212			
1787 1788					608
1788 1789					433
1789 1790					
1790 1791	264 $\frac{1}{2}$	81	561		842
1791 1792					20 $\frac{1}{2}$
1792 1793					
Totals.	1434 $\frac{1}{2}$	961	1551	10	2160

Custom-house, Nov, 1793.

ACCOMPTS of Grain and Oat-meal imported into Irvine and Saltcoats, 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	5340 $\frac{1}{2}$			
1785 1786		818			
1786 1787	610	10691	2335		
1787 1788	118	2222			2374 $\frac{1}{2}$
1788 1789					239 $\frac{1}{2}$
1789 1790		724			
1790 1791	27	3838 $\frac{1}{2}$	637 $\frac{1}{2}$		
1791 1792		2503 $\frac{1}{2}$			
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.

For remarks and additional observations.

Question concerning circulation of Grain.

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.

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

For remarks and additional observations.

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 public 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.

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\*,

Operation of Manufactures.

K 2

were

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

For remarks and additional observations.

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 *inflauratio 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 hogshheads, 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.

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 of naburghs was introduced into Glasgow, about the beginning of this century, by a weaver who had served in Flanders and Germany, as a private foldier, 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 businesses; 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.

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 bleach-fields were established throughout the country; but, instead of rivaling the linen manufacture of Perthshire, or in the  
north

Linen Manufactory.

See Ure's History of Kilbride.

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



For remarks and additional observations.

Woollen Manufacture.

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

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. I.

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, teasing, 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

For remarks and additional  
observations.

An attempt, on a small scale, has lately been successful at Maybole, in the centre of Carrick;—to card, twist, and rove woollen 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 country, 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.

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\*.

Cotton Manufacture.

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.

For remarks and additional observations.

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 furnaces 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.

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, chafferries, 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.

L

There

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, have been 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, combined with 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.

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 economical 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

For remarks and additional observations.

Opinions concerning Manufactures—Operation of them.

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 cheerfully communicate the particulars of this plan, to any person recommended by your board †.

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.

For remarks and additional observations.

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 proprietary interest.

Although Ayrshire, and the Lowlands, on the west of Scotland, have for many years experienced a rapid and progressive 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 embarrassment.

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

to.

Disadvantages attending  
Manufactures.



For remarks and additional  
observations.

Conduct of the Banks  
—State of Credit.

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 whole fabric came tumbling down.

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 strife 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 manufactory 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

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\*.

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 tocins, to which, had they proved successful, the Guillotine, in due season, would have been added, it is time for the founder part of the community to form a phalanx round the Throne, in defence of the constitution. For it is to be hoped, that the sub-

verters

Dangerous Principles  
prevailing among  
Manufacturers.

\* Some purse-proud persons talking of their wealth, were answered by a Glasgow merchant,—who humourously 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.

For remarks and additional  
observations.

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 enterprise, 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 conveniences 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 harshness

ness of demeanor. The former race, it is true, wasted their time in fauntering 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, ~~we~~<sup>we</sup> 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.

M

To

\* 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.

For remarks and additional  
observations.

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; infomuch, 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 handicraft. Besides a house and garden, and the usual salary, at present, not more than 6*l.* or 8*l.* 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

\* 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.

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 adapted 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.

Clergy.

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 1000l. or 2000l. 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 ‡.

Landholders—Condition, Character, and Duties.

M 2

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 surprizing 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

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.

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.

Examples of England, Ire-  
land, and the Highlands.

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 ~~an~~ *a* classical author, who thought nothing done, while any thing remained to be performed.

*a classical author*

*Nil actum reputans, si quid superesset agendum.*

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

F I N I S.

STATISTICAL TABLE of the Valuation and Contents of AYRSHIRE.

AYRSHIRE contains the Districts of CARRICK, COIL, and CUNNINGHAME. 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 241,120 English acres;—Cunninghame, 1,90,837 Scotch, or 164,880 English acres.—Total acres in Ayrshire, 546,603 Scotch, or 652,005 English.

Parishes	Acreage	L. s. d.	Number of Holdings	Number of Inhabitants	Number of Farms	Number of Cottages	Number of Farms	Number of Cottages	Number of Farms	Number of Cottages	Population in 1755	Population in 1795	Acreage in 1755	Acreage in 1795	General Observations
<b>CARRICK contains 9 Parishes.</b>															
Maybole	9440 9 7	1866	3150	7	33	20	2100	20000	208	30	13	7	5	10,000	Soil rich. Much light soil improved. Much
Stronachan	4387 1 10 3000	4387	934	6	20	1700	2000	1000	113	30	13	5	10,000	Chiefly pasture. With some. Some 6000 quarters of grain. One town of 6000 inhabitants at Stronachan.	
Kirkcubbin	3859 4 8 3000	3859	995	6	78	150	2000	1000	710	30	13	6	10,000	Chiefly pasture. About 1000 acres under tillage. Land here from 10 to 15 per acre. Few houses, few dairy farms. Much sheep. One town of 6000 inhabitants at Kirkcubbin. One town of 6000 inhabitants at Kirkcubbin.	
Green	4480 2 9 3200	4480	1735	10	36	150	2000	1000	1033	41	9	6	12,000	Chiefly pasture. Much sheep. Large tracts of moor. Many of oak, birch, and hazel.	
Daily	3265 10 6 3300	3265	1607	8	45	2000	25000	1000	858	50	14	6	12,000	Chiefly pasture. Some potatoes. Soil of fine.	
Bar	1493 5 0	1493	750	17	116	232	2000	15,000	1814	20	14	6	12,000	Chiefly pasture. Much sheep. Soil of fine.	
Chalmers	6989 10 5 3000	6989	1100	17	116	232	2000	15,000	1814	20	14	6	12,000	Chiefly pasture. Much sheep. Soil of fine.	
Kirkcubbin	4565 18 3 4000	4565	1335	8	202	300	2000	15,000	1108	10	6	6	12,000	Chiefly pasture. Much sheep. Soil of fine.	
Balfrance	3551 10 20 2000	3551	770	17	116	232	2000	15,000	1619	10	6	6	12,000	Chiefly pasture. Much sheep. Soil of fine.	
<b>COIL contains 21 Parishes.</b>															
Monkton including Bannockburn	1866 10 0 2500	1866	717	7	30	12	210	200	1165	22	4	2	3500	Chiefly pasture. Much sheep. Soil of fine.	
Rickarton	3924 8 8 4327	3924	1200	8	15	207	818	69	551	20	6	2	4736	Chiefly pasture. Much sheep. Soil of fine.	
Auchinleck	1402 4 4	1402	775	13	72	210	12000	1000	887	24	6	2	4736	Chiefly pasture. Much sheep. Soil of fine.	
Galloway	5630 13 4 6000	5630	1577	50	100	200	2000	1000	1013	40	13	5	2000	Chiefly pasture. Much sheep. Soil of fine.	
Symington	2012 16 6 3000	2012	610	16	25	120	200	1000	359	27	4	4	2000	Chiefly pasture. Much sheep. Soil of fine.	
Colinton	6020 10 4	6020	669	9	37	115	750	1100	517	50	7	2	2000	Chiefly pasture. Much sheep. Soil of fine.	
Tarbolton	6239 10 4	6239	1100	14	14	385	1800	500	1995	11	5	5	10,000	Chiefly pasture. Much sheep. Soil of fine.	
Mauchline	2359 0 10 1400	2359	1100	14	14	75	1000	2000	715	0	2	2	10,000	Chiefly pasture. Much sheep. Soil of fine.	
Old Cumnock	3784 0 0 3000	3784	1032	5	6	220	1000	2000	1335	0	2	2	10,000	Chiefly pasture. Much sheep. Soil of fine.	
New Cumnock	5006 0 0 3500	5006	1200	10	80	400	1000	2000	1497	25	12	8	20,000	Chiefly pasture. Much sheep. Soil of fine.	
Obdurate, including what of Strath	7815 6 0	7815	1150	10	10	180	710	300	1210	35	6	2	20,000	Chiefly pasture. Much sheep. Soil of fine.	
Dunbluncheon	1795 19 1 1700	1795	681	4	27	50	800	8000	739	8	3	3	20,000	Chiefly pasture. Much sheep. Soil of fine.	
Mauchline	5410 0 0 3800	5410	1800	4	73	210	1000	2000	1169	50	7	4	20,000	Chiefly pasture. Much sheep. Soil of fine.	
Some	5232 0 0	5232	1317	16	about 50	355	1850	1100	1494	36	9	7	10,000	Chiefly pasture. Much sheep. Soil of fine.	
Dunfrensh, incl. Dalrymple	9344 10 9 6500	9344	380	5	40	177	1000	2000	983	11	6	2	3500	Chiefly pasture. Much sheep. Soil of fine.	
Dalrymple	9779 8 2	9779	380	5	40	177	1000	2000	439	11	6	2	3500	Chiefly pasture. Much sheep. Soil of fine.	
St. Quivox	2900 0 0 3100	2900	1450	8	30	132	750	1000	499	4	4	2	5000	Chiefly pasture. Much sheep. Soil of fine.	
Ayr	4100	4100	4100	60	60	132	750	1000	2964	150 and 150	4	2	5000	Chiefly pasture. Much sheep. Soil of fine.	
Newton on Ayr	3700	3700	1069	60	60	132	750	1000	50	50	2	2	350	Chiefly pasture. Much sheep. Soil of fine.	
<b>CUNNINGHAME contains 16 Parishes.</b>															
Dreghone	3168 14 10	3168	830	20	53	1464	1000	887	1094	9	3	4100	All rich arable land.		
Kilmarnock	7149 9 1 5000	7149	1447	32	53	1464	1000	887	1094	9	3	4100	All rich arable land.		
Dunlop	5613 14 0 3000	5613	779	55	68	177	1000	887	795	40	8	5100	Chiefly pasture. Much sheep. Soil of fine.		
Loudoun	5905 14 4	5905	1308	50	50	177	1000	887	1494	90	7	19,000	Chiefly pasture. Much sheep. Soil of fine.		
Kilbirnie	2905 0 0	2905	700	7	20	135	700	1000	627	9	7	19,000	Chiefly pasture. Much sheep. Soil of fine.		
Severston	1200 0 0 1200	1200	2425	7	20	135	700	1000	1112	9	8	3300	Chiefly pasture. Much sheep. Soil of fine.		
Kilwinning	9108 0 4 1000	9108	2360	0	132	135	700	1000	3241	89	9	8	3300	Chiefly pasture. Much sheep. Soil of fine.	
Stewarton	8114 12 16 7000	8114	3000	118	80	320	2000	1000	2819	40	8	10,000	Chiefly pasture. Much sheep. Soil of fine.		
Kilmarnock, including what of Fenwick	12929 4 8 5400	12929	1776	24	80	320	2000	1000	4923	100	7	19,000	Chiefly pasture. Much sheep. Soil of fine.		
Berch	6115 14 2 5000	6115	2872	105	80	320	2000	1000	1113	100	7	19,000	Chiefly pasture. Much sheep. Soil of fine.		
Irvine	988 12 0	988	4500	19	40	155	650	2000	2064	45	5	4	10,000	Chiefly pasture. Much sheep. Soil of fine.	
Kilbride	3346 0 0 2150	3346	1276	19	40	155	650	2000	4025	5	2	2	10,000	Chiefly pasture. Much sheep. Soil of fine.	
Dalrymple	5805 7 5 6350	5805	2000	19	40	155	650	2000	815	6	3	2	10,000	Chiefly pasture. Much sheep. Soil of fine.	
Ardrossan including Saltcoats	1840 10 8	1840	1518	8	31	1900	1300	1000	1408	60	9	2	12,000	Chiefly pasture. Much sheep. Soil of fine.	
Largs	380 10 2	380	1139	8	12	1900	1300	1000	1997	9	2	2	12,000	Chiefly pasture. Much sheep. Soil of fine.	

Valuation of the County certified by John Botwell, 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, 59,029 souls. Ditto in 1795, 116,400.

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 writers of them having abstracted them respectively for the respective information.





Thompson

Major Antkowiak

1720-31



