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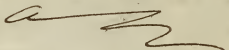
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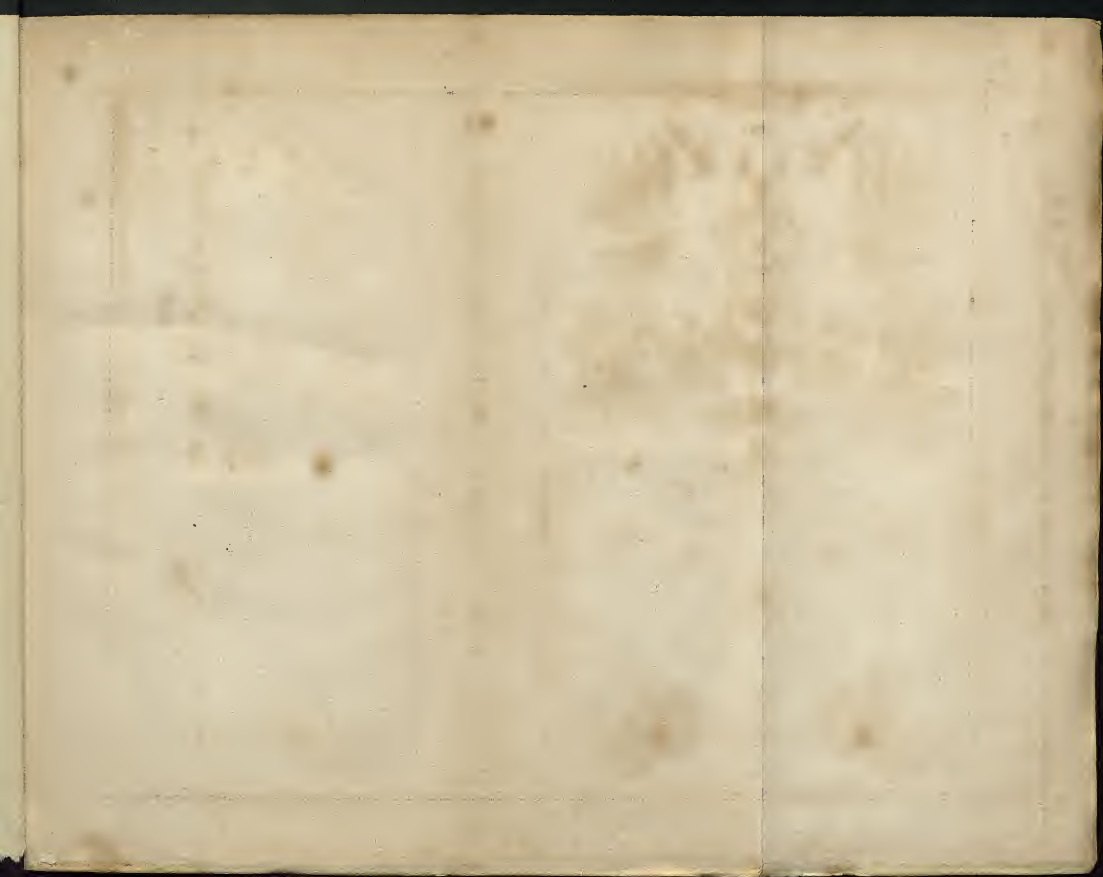
A

TREATISE

ON

PRACTICAL STORE-FARMING.









A TREATISE  
ON  
PRACTICAL STORE-FARMING,  
AS  
APPLICABLE TO THE MOUNTAINOUS REGION OF  
ETTERICK FOREST,  
AND THE PASTORAL DISTRICT OF SCOTLAND IN GENERAL.

BY THE HONOURABLE  
WILLIAM JOHN NAPIER, F.R.S. EDIN.  
POST-CAPTAIN IN THE ROYAL NAVY ;  
A VICE-PRESIDENT OF THE PASTORAL SOCIETY OF SELKIRKSHIRE,  
&c. &c.

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WITH ENGRAVINGS.

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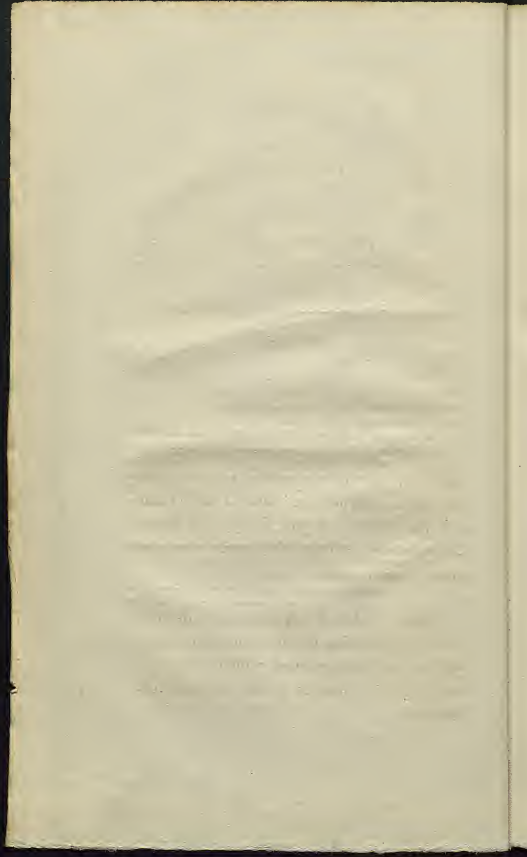
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TO  
THE MEMBERS  
OF THE  
PASTORAL SOCIETY OF SELKIRKSHIRE  
IN GENERAL.

*My Lords and Gentlemen,*

IN this time of universal depreciation in the value of your mountain-produce, any attempt at a general improvement, tending to enhance the value of your lands, and the security of your flocks, will doubtless command, at least, the favour of unprejudiced consideration.

During the last five years, I have devoted particular attention to some points connected with *internal management*, which seemed at once liable in practice to the strongest objections.

I commenced my operations free from all the prejudices which occasionally attach to early education; and which, being slighted, are too often matured and hallowed with the progress of rising experience; and as my allusions are general, I disclaim the slightest imputation of personality. The information I have been enabled to acquire from the writings of others, as well as from the correspondence of a most intelligent shepherd, ALEXANDER LAIDLAW of Bowerhope, has not only strengthened my preconceived opinions, but emboldened me to present them to your notice—not without the hopes of some practical benefit.

That such may be the result, is the earnest wish of,

My Lords and Gentlemen,

Your very obedient Servant,

W. J. NAPIER.

*Thirlestane, June 21, 1822.*

ON THE  
MANAGEMENT  
OF THE  
MOUNTAIN FARM,

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CHAP. I.

LOCAL OBSERVATIONS.

IN the GENERAL REPORT OF THE AGRICULTURAL STATE AND POLITICAL CIRCUMSTANCES OF SCOTLAND, drawn up for the consideration of the BOARD OF AGRICULTURE AND INTERNAL IMPROVEMENT, under the directions of the very enlightened and patriotic FOUNDER, THE RIGHT HONOURABLE SIR JOHN SINCLAIR, BART., it has been thought expedient to divide the ancient kingdom, as far as regards her agricultural state, into nine different districts; the second of which, the SOUTHERN OR PASTORAL DIVISION, includes the counties of PEEBLES OF TWEEDDALE, SELKIRK, DUMFRIES, KIRKCUDBRIGHT, and WIGTON.

“ In this district are the highest mountains south of the Forth ; and from the great proportion of hills, which abound in excellent pasture, and the comparatively small extent of arable land, more of the surface is adapted for live stock than for corn.”

In this division also is contained the MOUNTAINOUS DISTRICT OF ETTERICK FOREST, which may, perhaps, be confined to the parishes of ETTERICK, YARROW, and parts of ROBERTON, SELKIRK, and GALASHIELS. This SOUTHERN, or PASTORAL DISTRICT, with a great proportion of the FIRST, viz. the SOUTH-EAST LOWLANDS, OR ARABLE DISTRICT, in as far as relates to the elevated regions of LIDDISDALE, CHEVIOT, and LAMMERMUIR, is, with some few exceptions, similar in pasture, climate, and external appearance, to the region of ETTERICK FOREST. The surface of all these mountains is invariably clothed with a strong grassy herbage ; except where heathery patches, rocks, craigs, natural wood, and modern plantations, occasionally intervene. Wherever the grassy surface is impregnated with the greatest degree of moisture, there are the sheep found in general to grow largest ; bearing a heavier fleece of wool of a coarser description than such as is produced from those reared upon hills of a drier soil and finer pasture. This distinction may be exemplified by a comparison between the stock raised upon some particular farms in Etterick and Eskdale, with others reared upon the hills of Yarrow and of Tweed.

Whatever diversity may be found to exist in the quality of fleece and carcass from the effect of par-



ticular pasture, they are all alike capable of sustaining a very great severity of cold;—a circumstance of first-rate importance to the store-farmer, whose line of management does not appear to be dependent upon any fixed rule or general principle whatever, except on the particular occasions of *breeding, clipping, smearing, and selling.*

It would be highly unjust, *even to insinuate*, that no attempts had been made to improve the sheep, or ameliorate the pastures, in Etterick Forest. It is a well known fact, that, within these last thirty years, the black-faced sheep have been almost totally expelled, and succeeded by the more valuable breed from the Cheviots. This has been effected solely by the spirit and enterprise of the tenantry, without the slightest assistance from the landlord; which has, at the same time, doubled the amount of annual-rent: for had the black-faced breed been suffered to continue, no rise in *their* value, instigated even by the continuance of the war, would ever have afforded a return equal to that enjoyed by the mountain proprietor, even to the present moment. The number of tups also annually imported from the eastern border at a very great expense, is sufficient proof of the continued anxiety to improve the quality of the stock.

This important revolution in the annals of store-farming was attended at first, on the part of the farmer, with a positive expense, a certain risk, and, in some instances, with a decided loss. These considerations, perhaps, have not been duly appreciated by landed proprietors; nevertheless, there yet

remains on their parts a full opportunity, as well as the strongest necessity, for affording every encouragement to a class of men who have so much enhanced the comparative rate of their past comforts, as well as the value of their present possessions.

It may be argued, indeed, that the main-spring of action, in this case, on the part of the farmers, was a regard to their own private interest; and it is probable, as well as sufficiently natural, that self-consideration, at the time, was the prior and predominant principle in their minds; but it ought also to be remembered, that in *case of failure* in the great speculation, the loss fell upon *their* heads alone; whereas, success was attended with a two-fold and unexpected benefit to those who had risked nothing in the transaction whatever.

The lands thus depastured by a new and improving description of stock, are still, unfortunately, in a situation very far removed from that perfection which is necessary to do full justice to the exertion of the shepherd and the continued security of the flock. Surface drains have been very generally adopted or *tried*; but only, perhaps, in a few instances (considering the very great extent of country) have they been carried to a necessary, or even to a considerable extent, on particular individual farms. At the same time, a great deal of work of the sort has been done throughout the country. A march-dike between two farms is seen here and there; and now and then a circle, crescent, cross, or star, of dry-stone dike for artificial shelter; and

there may be also yet descried in some odd corner, a well-thinned stell of stunted firs. Of inclosures there are also some, dividing an extent of haugh, or low land by the water-sides, from the rising hill above. These are set apart for cultivation, grazing of cows, raising hay, and lambing a proportion of the ewes in spring. Upon some farms there may be also seen inclosures upon the hill itself; built, no doubt, for some good purpose at the first, but many of them now falling into a state of inexplicable decay. The accommodations for smearing and sorting the sheep, are, in many instances, ruinous and incommodious; the shepherds' houses miserable and mean within, and filthy without; and many of the farm-houses themselves in a situation little to be envied by the rustic of an English hamlet. In the lower parts of the forest, however, where cultivation is more blended with the hill farm, the inclosures are more numerous and better upheld; and it is but justice to say, that there are, not only in that quarter, but also in the higher parts, some farmsteadings of a very respectable appearance.

In treating of the "Cheviot Hills," in the above-mentioned "Report," they are said to "contain a large proportion of green sward, which, towards their base, is often very fine. The hills are mostly of a conical form, which affords shelter from almost every quarter. There is very little wood, or *artificial shelter of any kind*, and no arable land in the higher parts of the district. Many farms *do not produce hay sufficient for a week's consumption; some of them none at all*. The snow sometimes lies very

deep for several weeks, during which the flocks must be removed to the lower grounds, or hay brought for them from a considerable distance on horses' backs; for carts cannot be used over a great part of this district." So is it also in the Forest.

For supporting the stock in a long-continued storm, hay most undoubtedly has been frequently provided; but this is also at times so sparingly administered, and so long after the beginning of the storm, that the creatures themselves are often too enervated to relish a change of food, and, being unable to gather it from the surface of the ground, thus perish through hunger and neglect. Such is, unfortunately, more or less, the general outward feature and internal state of affairs in Eterick Forest, and, in all probability, the same, with little variety, through the whole *pastoral district*, properly so called. On the part of the farmers, there appears, indeed, to be too great a reliance on the continuance of favourable seasons; which, in plain language, can bear no other interpretation, than "that, after the usual exertion of the shepherd, the ultimate security of the flock is allowed to depend almost entirely upon chance." Lulled by a succession of mild and favourable winters, and rendered, perhaps, too heedless by the unexpected rise of prices during the war, they have become too forgetful of those frightful devastations which have successively laid waste the produce of the mountain; and in these times of general depreciation and dismay, there is scarcely to be found one possessed of capital, or of mental energy, sufficient

to awaken a spirit of vigorous improvement and reform.

Many there are, indeed, who maintain that farther improvement is impracticable ; while others, whose extensive speculations appear to admit on their parts that the powers of human ingenuity are not to be limited within such usual or narrow compass, have had their best efforts cramped, and a great proportion of that valuable time which *ought to have been* allotted to purposes of speculation or improvement upon a smaller scale, thus distracted from such beneficial purpose, by the weight and extent of engagements, injudiciously commenced, and persevered through with doubtful success. But it is to be feared, that a very great proportion of store-farmers are sturdily convinced in their own minds, however unwilling to confess it, that sufficient improvement has been effected already.

It is remarked in the " General Report of Scotland," that " the farmers in the pastoral district are more noted for their skill in buying and selling, and by their general character for probity, than their knowledge of farming, or uncommon exertions in the cultivation of the soil." And again in the Appendix : " In Selkirkshire, a few, from being shepherds, have risen, with a fair character, to rent farms of a considerable extent, and retain the simple homely manners, dress, and fare of their primeval occupation. But by far the most numerous consists of the sons of farmers, and of these *some are wonderfully tenacious of ancient prac-*

*tices*. Others venture on innovations with slow and timid steps, but grow bolder by the experience of their own and their neighbours' success; and several carry on improvements with a degree of spirit and skill which is not easily surpassed." This latter sentence is easily illustrated by referring to the change of stock, and the introduction of the new system of agriculture; so that wherever the plough has found entrance into the soil, every operation is carried on with a degree of economy and skill, equal, or, at any rate, little inferior, to the practice of the best cultivated districts, and infinitely superior, in these respects, to that of three-fourths of the more favoured agriculturists of England. (See Note I.)

If these observations are *at all* applicable to the *real state* of our "store farming," it is evident that much yet remains to be effected by the joint exertions of landlord and tenant. Their interests are ONE AND INDIVISIBLE. It appears that the tenants have introduced a superior description of stock; however hardy in themselves, yet not to be compared altogether in that respect to the black-faced breed, their predecessors; especially as *new dropped lambs*. With this change of breed little or no *change of management* has ensued; consequently the land cannot be farmed to the best possible advantage.

Without any willing exaggeration of the state of defects—without the slightest wish or idea of stigmatizing the practice, as continued by an upright and intelligent tenantry, all of whom have

succeeded to the customs, and many to the flocks, of their fathers; it is only the earnest wish of the author of this treatise to call upon them and their landlords, as far as lies in their united power, to endeavour, at this time of day, to hit upon a new and improved system; to lay down specific rules of management, drawn from the effect of experiment and well attested facts; and which, in the end, shall render the whole science of store-farming as certain in its operations, and as regular and beneficial in effect, as any other system which has ever yet been devised, for improving the condition, confirming the happiness, and establishing the prosperity of man.

In that truly great and national work before alluded to, the political and rural economy of Scotland is discussed in the most enlightened and impartial manner; especially the "system of agriculture," as pursued in the best cultivated districts. The present scientific and systematic rotation of crops, with the judicious management of *fallows*, which has succeeded to the ancient husbandry of *infield and outfield*, appears to have exalted the character of agriculture from a mere uncertain and experimental art to a most perfect and well-digested system; the theory of which rests no longer upon the doubtful speculations of ingenious men, but upon the development of *facts*, which have arisen from the institution of well-conducted experiment. Thus should it be also in the matter of STORE-FARMING.

It does not appear, however, that the subject has

ever yet been *fully* investigated in a professional or scientific manner, with the view of materially altering or improving the present system, either by rural economists, or the periodical writers of the day. There are many who have noticed, as well as several who have written largely upon the subject; but these have all tended rather to enforce principles already acknowledged, than to strike out any new or improved system of management; and considering, therefore, the present object and attempt, it is to be hoped that no apology is necessary for transcribing from such writers, wherever convenient matter of illustration may be found. Once for all, however, every acknowledgment is hereby offered to such as may find parts of their own works or original ideas embodied in the present undertaking.

Of these various works there is not one which contains so much useful information on the present practice of store-farming, as that by the late Mr. JOHN LITTLE, entitled, PRACTICAL OBSERVATIONS ON THE IMPROVEMENT AND MANAGEMENT OF MOUNTAIN SHEEP. In this work every detail of the mountain farm is discussed concisely and perspicuously; and it is only necessary to adopt many of his recommendations in order to effect the most important and valuable improvements. That of the very indefatigable and enlightened Highland proprietor, SIR GEORGE STUART MACKENZIE, OF COUL,—A TREATISE ON THE DISEASES AND MANAGEMENT OF SHEEP, as well as that of our very able and zealous ETTERICK SHEPHERD, MR. JAMES



HOGG, entitled, THE SHEPHERD'S GUIDE, although relating chiefly to the DISEASES OF SHEEP, are both of them works of the highest merit, utility, and importance. OBSERVATIONS ON LIVE STOCK, BY THE LATE MR. GEORGE CULLEY, to whom we can never be sufficiently indebted; AN ESSAY ON WOOL, BY THE LATE MR. JOHN LUCCOCK, WOOLSTAPLER IN LEEDS; OBSERVATIONS ON THE INFLUENCE OF SOIL AND CLIMATE UPON WOOL, BY MR. ROBERT BAKEWELL, WITH OCCASIONAL NOTES AND REMARKS, BY THE LATE LAMENTED LORD SOMERVILLE; and, AN ESSAY UPON CLOTHING WOOL, BY DR. PARRY OF BATH,—are all of them standard works of the greatest excellence, and ought to be found continually in the hands of every store-master. The TRANSACTIONS OF THE HIGHLAND SOCIETY—The CODE OF AGRICULTURE—and that great work, The GENERAL REPORT OF SCOTLAND, BY SIR JOHN SINCLAIR, full of endless information, form a very valuable, and even a necessary appendage to every man's library; but as the latter work, perhaps, has been but little perused among the mountains, we shall make a convenient extract by way of practical illustration.

In treating of INCLOSURES ON SHEEP-FARMS, it is remarked, that “the rude and mean ideas of those who approve of leaving all sheep-farms in the state of *mere open wastes*, hardly deserve attention in the present day. Those who wish to see extended to this valuable animal a proportion of care in any degree corresponding to its worth, must be sensible that the benefits arising from judicious inclosures

are of the greatest importance on sheep-farms, and are even indispensably necessary."

"Without inclosures, it must be a most arduous task to confine the rams, and to keep them separate from the ewes till the proper season arrive. Accordingly, even the rudest managers now stipulate to have a *tup park*, or inclosure for the rams. It is hardly less necessary to have *proper inclosures in which the lambs may be properly weaned*. And every sensible person sees the necessity of having an *hospital park*, or inclosure for such unfortunate or diseased sheep as are unable to provide for themselves in the common pastures or *flock-rake*. When the flock is to be collected and assorted, nothing can be more difficult and harassing to the farmer, than to conduct the various operations necessary on such occasions, if without the convenience of inclosures; and this difficulty is much increased when these operations have to be effected in bad weather, after much labour and delay in collecting the sheep."

"The strong, active, and healthy individuals of a sheep-flock, may possibly become tolerably fat on the common pasture. But those which it is the chief object of the farmer to fatten, such as the drafts or culls of his flocks, have little chance of becoming so, unless removed to superior pasture; and when obliged to be sold in low condition, their worth is very small. It is also an object of great importance, to be able to preserve and cherish the *weak ewes and lambs of the flock, during severe weather in April or May*. Yet all these important ob-

jects cannot be attained unless by the assistance of inclosures. Neither, without these, can the farmer ever attempt to obviate or prevent the baneful effects of fatal distempers, to improve the breed or character of his flock, or to maintain his sheep during hard weather, when they *are unable to dig through the frozen snow* for subsistence; or to *protect them from general destruction during snow-drifts or heavy storms, in a farm which is entirely open.*"

"For these obvious reasons, every sheep-farm that is capable of being so accommodated, *ought* to possess several inclosures or grass fields, well fenced with strong walls, constructed in the most effectual and approved style, and having the convenience of water. Some recommend that one of these fields, of considerable size, should contain rich old grass: another either irrigated land, or cultivated grasses, for early and rich pasture; and that, *in different places the farm ought also to possess effective shelter for the sheep in bad weather*, with good grass, well sheltered, for the sheep in the end of spring; also well arranged plantations, for effectually protecting the sheep from snow-drifts and heavy storms. Others reckon sheep-cots likewise necessary." \* \* \* \* \*

"Were such plans adopted, as far as circumstances would permit, and *surface-drains* (already carefully formed by the *most intelligent* farmers of sheep-walks) *more universally attended to*, many tracts, immense and *desolate* as they appear at present, would be converted into *safe, beautiful, and productive* sheep-farms."

Such is merely an extract from a valuable Sec-

tion in the "General Report" upon "Inclosures on Sheep-Farms;" and although we readily acknowledge, if every recommendation contained in the same were carried into full effect, that the farms themselves would be proportionally more improved; yet, from the great expense attending such extended operations, we wish rather to turn the public attention towards such ends as may be more easily accomplished, at any rate, by the joint exertion of landlord and tenant, and which shall also afford a sure return, more than equivalent to the value so applied.

It appears evident, at any rate, that the author of the above "section" is fully impressed with the *necessity* of reclaiming the sheep-farms from a "mere open waste," for promoting "effective shelter in *different* places of the farm," for providing "hay by irrigation" or otherwise, and "instituting inclosures" for various purposes as they may be most required. And here let it be recommended, that every inclosure which is to be made for the benefit of the hill-stock, should, if possible, be made upon the hill itself; and the haughs, or holms, preserved for purposes of cultivation, grazing cows, horses, occasional fat sheep, and cattle. The land thus inclosed and *hained for a time*, is not eventually lost from the hill, but open to free ingress and egress at stated times; and at any rate, the *whole produce* of such parks is always applicable to the service of the sheep. It may, therefore, be fully established as a maxim in "store-farming,"—*that every operation attendant upon the hill-sheep ought always to be performed upon the hill itself.*

## CHAP. II.

## STORMS.

“THE present system of sheep or store-farming, as it is called in the south of Scotland, does not appear to have taken place till about the end of the reign of James VI. about the year 1624. Before that period the mountainous south country districts are said to have been under a stock of black cattle, and some small straggling flocks of sheep, as was the case in the Highlands till of late years.” This, however, appears to be rather at variance with the date of the “thirteen drift days,” as noted by the Etterick Shepherd; and although we cannot ascertain this point with a perfect degree of precision, we may rest quite satisfied, that whatever might have been the nature of the stock, they were all left equally exposed to the open ravages of the tempest, even as is the case at the present day. In *pastoral language*, the “storm” does not only comprehend the mere active fury of the elements themselves, but the continuance of the snow upon the ground, from

one week or month to another ; although unruffled by the slightest breeze of wind ; and it is said also to be black or white, according to the nature of the fall, whether it be rain or snow. Knowing, as we do, that our sheep-walks are generally in a situation little better than "mere open wastes," we may readily conclude that the greatest improvement to be effected, will consist in providing "food and shelter" for the stock during the barren season and winter storms. But by way of practical illustration of the *neglect* of such provisions, let us see, in the first place, what says Mr. James Hogg, the Etterick Shepherd, whose writings and experience are already before the public, and whose authority no one has ever yet thought proper to contradict ; although there may be a few unwilling to acknowledge those material defects which he has not only here but elsewhere so successfully described.

In the very amusing little volumes of "Winter Evening Tales," it is truly remarked, that "storms constitute the various eras of the pastoral life. They are the red lines in the shepherd's manual,—the remembrancers of years and ages that are past,—the tablets of memory, by which the ages of his children, the times of his ancestors, and the rise and downfall of families, are invariably ascertained. Even the progress of improvement in Scots farming can be traced traditionally from these, and the rent of a farm or estate given with precision, before and after such and such a storm ; though the narrator be uncertain in what century the said notable

storm happened, "Mar's year," and the year the "Hielanders raide," are but secondary mementos to the *year nine* and the *year forty*;—these stand in bloody capitals in the annals of the pastoral life, as well as many more that shall be hereafter mentioned."

"The most dismal of all those upon record are the *thirteen drifty days*. This extraordinary storm, as far as I have been able to trace, must have occurred in the year 1620. The traditionary stories and pictures of desolation that remain of it are the most dire imaginable; and the mentioning of the "thirteen drifty days" to an old shepherd, in a stormy winter-night, never fails to impress his mind with a sort of religious awe, and often sets him on his knees before that Being who alone can avert such another calamity."

"It is said, that for thirteen days and nights, the snow drift never once abated; the ground was covered with frozen snow when it commenced, and, during all that time, the *sheep never once broke their fast*. The cold was intense to a degree never before remembered; and about the fifth and sixth days of the storm, the young sheep began to fall into a sleepy and torpid state, and all that were so affected in the evening died over night. The intensity of the frost wind often cut them off when in that state, quite instantaneously. About the ninth and tenth days, the shepherds began to build up huge *semicircular walls* of their dead, in order to afford some shelter for the remainder of the living; but they availed but little; for about the

same time they were seen frequently tearing at one another's wool with their teeth."

"When the storm abated on the fourteenth day from its commencement, there was, on many a high-lying farm, *not a living sheep to be seen*. Large misshapen walls of dead, surrounding a small prostrate flock, likewise all dead, and frozen stiff in their lairs, were all that remained to cheer the forlorn shepherd and his master, and though, on low-lying farms, where the snow was not so hard before, numbers of sheep weathered the storm, yet their constitutions received such a shock, that the greater part of them perished afterwards, and the final consequence was, that *about nine-tenths of all the sheep in the South of Scotland were destroyed*."

"In the extensive pastoral district of Eskdale Muir, which maintains upwards of 20,000 sheep, it is said that none were left alive, but forty young wedders on one farm, and five old ewes on another. The farm of Phawhope remained without stock and without a tenant for twenty years subsequent to the storm; at length, one very honest and liberal minded man ventured to take a lease of it at the annual rent of a *grey coat and a pair of hose*. It is now rented at L.500. An extensive glen in Tweedsmuir, belonging to Sir James Montgomery, became a common at that time, to which any man drove his flocks that pleased, and it continued so for nearly a century. On one of Sir Patrick Scott of Thirlestane's farms, (Bowerhope,) that keeps upwards of 900 sheep, *they all died but one black ewe*, from which the farmer had high hopes of preserv-



ing a breed ; but some unlucky dogs that were all laid idle for want of sheep to run at, fell upon this poor solitary remnant of a good stock, and chased her into Saint Mary's Loch, where she was drowned."

The foregoing account, although traditionary, is certainly deserving of considerable credit, as far as relates to the most important particulars ; as it has been observed, with the greatest truth, *even at the present day*, that over the whole " pastoral division there is very little artificial shelter to be found." The rise of rent that has subsequently taken place upon the farm of Phawhope, is a wonderful instance of the increased value of the mountain stock, as well as a striking example of the security in which a farmer can repose, in spite of previous disaster ; at the same time, in justice to the exertions of our friend, the present worthy proprietor, Captain Ballantine, we have much pleasure in stating, that two or three very thriving plantations now begin to make such appearance, as cannot fail, in case of " thirteen more drift days," of adding very materially to the general security of the flock.

This great storm, Mr. Hogg supposes to have taken place in the year 1620, and at that time *flourished* the said Patrick Scott, the author's immediate GREAT-GREAT-GREAT-GREAT-GRANDFATHER. What, then, has been the progress of improvement in the ART OF MANAGEMENT AND SECURITY, during the currency of SIX GENERATIONS, OR TWO HUNDRED YEARS COMPLETE ? Unfortunately, the melancholy

proofs of several succeeding storms yet to be recounted, afford the most obvious and explicit reply. And we shall also have an opportunity of comparing the state of Bowerhope, under the judicious management of the present shepherd, Alexander Laidlaw, (to whom we are much indebted throughout this little work,) with that of the days gone by, contrasted also with the practice on the contiguous farm of Crosscleuch, the result of which cannot fail to impress upon the mind of every unprejudiced person that very much may be done, with very little trouble and expense, towards adding to the permanent value and security of the flock.

It has been stated in the foregoing account, "that the shepherds found it necessary on the ninth and tenth days, to build huge *semicircular walls* of their dead, in order to *afford shelter* for the remainder of the living; at which time the sheep were seen constantly *tearing at one another with their teeth*;" through *hunger* of course. Now, does not this exertion on the part of the shepherds sufficiently demonstrate, that there existed a positive necessity of *doing something* to preserve the living from being ranked among the dead, and that the poor men were actually *wise behind hand*? and ought not such a calamity to have suggested the most ample means for securing the stock against the recurrence of such another instance of devastation? Is it necessary, or even excusable, that thousands of sheep should have thus perished merely in "thirteen days?" Is it either natural or

reasonable, that sheep should delight to tear the wool from each other's hips and broadsides, in preference to the mastication and digestion of a little well made hay? There are many instances of these creatures, when half starved and famished, thus peeling and denuding each other's carcasses as long as life existed, yet still there are to be found those who assert and publish that "storm feeding is attended with no practical or beneficial effect!!!" (Note II.)

Were any new means, or extraordinary exertions, now resorted to in the country, after the catastrophe of the "thirteen drift days," in order to avert the danger to be apprehended from the return of such another blast? Let us see what follows:

"The next memorable event of this nature," says Mr. Hogg, "is the *blast of March*, which happened on the 24th day of that month, in the year 16—, on a Monday's morning; and, although it lasted only *for one forenoon*, it was calculated to have destroyed *upwards of one thousand scores of sheep*, as well as a *number of shepherds!*"

This certainly makes a most interesting conclusion to the "thirteen drift days," in the same century; and, although it appears that the exact year has not been fully ascertained, yet there can be little doubt of the fact, not only from the circumstance of the day of the week, and that of the month, having been so carefully recorded; along with that fatal occurrence, the destruction of the shepherds, which in itself would be sufficient to

strike terror into ages yet to come ; but also from the similarity to such scenes as yet remain to be related, and which are indelibly impressed on the minds of living witnesses in abundance.

“The years 1709, 1740, and 1772, were all likewise notable years for severity, and for the losses sustained among the flocks. In the latter, the snow lay from the middle of December until the middle of April, and all the time hard frozen. Partial thaws always kept the farmer’s *hopes of relief* alive, and thus *prevented* him from removing his sheep to a lower situation, till at length they got so weak, that they *could not be removed at all*. There has not been such a *general loss* in the days of any man living, as in that year. It is by these years that all subsequent hard winters have been measured, and late by that of 1794 ; and when the balance turns out in favour of the calculator, there is always a degree of thankfulness expressed, as well as a composed submission to the awards of Divine Providence.”

The following intermediate description of the shepherd on these occasions, who may be said to “see God in clouds, and hear him in the wind,” is a beautiful illustration, not only of the character and feeling of this pious and enthusiastic class of men, but also of the eloquence and pathos with which Mr. Hogg, himself a shepherd born, can thus give utterance to the earliest impressions and the most noble associations of his mind.

“The daily feeling naturally impressed on the shepherd’s mind, that all his comforts are so en-

tirely in the hand of HIM that rules the elements, contributes not a little to that firm spirit of devotion for which the Scottish shepherd is so distinguished. I know of no scene so impressive as that of a family sequestered in a lone glen during the time of a winter storm; and where is there a glen in the kingdom that wants such a habitation? There they are left to the protection of heaven, and they know and feel it. Throughout all the wild vicissitudes of nature, they have no hope of assistance from man, but are conversant with the Almighty alone. Before retiring to rest, the shepherd uniformly goes out to examine the state of the weather, and makes his report to the little dependent group within. Nothing is to be seen but the conflict of the elements, nor heard, but the raving of the storm:—then they all kneel around him while he recommends them to the protection of heaven; and though their little hymns of praise can scarcely be heard, even by themselves, as they mix with the roar of the tempest, they never fail to rise from their devotions with their spirits cheered and their confidence renewed, and go to sleep with an exaltation of mind of which kings and conquerors have no share. Often have I been a sharer in such scenes; and never, even in my youngest years, without having my heart deeply impressed by the circumstances. There is a sublimity in the very idea. There we lived, as it were, inmates of the cloud and of the storm; but we stood in a relationship to the Ruler of these, that neither time nor eternity could ever cancel. Woe to him that would

weaken the bonds with which true Christianity connects us with heaven, and with each other!"

"But of all the storms," he now proceeds, "that ever Scotland witnessed, or *I hope* ever will again behold, there are none of them that can once be compared with the memorable 24th January, 1794, which fell with such peculiar violence on that division of the south of Scotland that lies between Crawford Muir and the border. In that bounds, there were SEVENTEEN SHEPHERDS PERISHED, and *upwards of thirty carried home insensible*, who afterwards recovered. But the number of sheep that were lost *far outwent any possibility of calculation*. One farmer alone, Mr. Thomas Beattie, *lost seventy-two scores* for his own share, and many others in the same quarter from *thirty to forty scores each*. Whole flocks were overwhelmed with the snow, and NO ONE EVER KNEW WHERE THEY WERE, till the snow was dissolved, *that they were all found dead*. I MYSELF," says Mr. Hogg, "*witnessed one particular instance of this, on the farm of Thickside, in Eskdale*. There were twelve scores of excellent ewes, all one age, that were *missing there all the time* the snow lay, which WAS ONLY A WEEK; and no traces of them could be found. When the snow went away, they were discovered ALL LYING DEAD, with their heads one way, as if a flock of sheep had all dropped dead coming from the washing. Many hundreds were *driven* into waters, burns, and lakes, by the violence of the storm, where they were buried or frozen up, and these the flood carried away, so that they were never seen or found by the owners

at all. (See Note III.) The following anecdote somewhat illustrates the confusion and devastation that it bred in the country: The greater part of the rivers on which the storm was most deadly run into the Solway Frith, on which there is a place called the "Beds of Esk," where the tide throws out and leaves whatsoever is carried into it by the rivers. When the flood, after the storm, subsided, there were found on that place, and the shores adjacent, eighteen hundred and forty sheep, nine black cattle, three horses, two men, one woman, forty-five dogs, and one hundred and eighty hares, besides a number of meaner animals."

In Etterick Forest, also, on this occasion, it is said that a very great proportion of the stock was destroyed; but the difficulty of obtaining information on these particulars, from the obdurate secrecy in which they are all enveloped, renders it quite impossible here to notify any particular examples.

From the memorable year of 1772-3, when the snow lay from the middle of December to the middle of April, and *hopes and partial thaws* prevented the farmers doing any thing for their sheep till they all died, down to the still more disastrous season of 1794—an elapsed time of 22 years, it is evident that the ART OF MANAGEMENT AND SECURITY had not advanced one single step. The facts above narrated were *partly seen* by the "Author of the Tales," and known generally through the country. There are many alive, also, who bore a melancholy part; and still it does not appear that any general improvement has arisen from the effect of such a

visitation. Shepherds and sheep-farmers are said to be remarkable for their foresight and weather-wisdom; and Mr. Hogg relates a striking instance of the sort on the part of one man, in the *blast of March*, who saved his flock by gathering them into a wood at a time when all others who witnessed the transaction rather derided the sensible old man for his trouble; and all of whom, in common with the rest of the country, lost theirs by their neglect. The fact is, that, generally speaking, they have little more sagacity on this subject, than that which falls to the share of any man of common sense who has lived for a season upon the same spot, and is in the habit of occasionally looking above his head. But as almost every farmer is in possession of a barometer, as well as many of the shepherds, it would be well were they to pay a little more deference to the indications of the instrument, and thus be prepared more readily to avert such another catastrophe of sheep and shepherds. (See page 64.) It may be difficult, perhaps, to convince the guardians of the flock, that their sagacity in prognosticating times and seasons is not quite so unlimited as they pretend. Willing, therefore, to allow every latitude they can desire, we may almost conclude, that, while thus gifted, they render themselves thrice culpable by such unutterable inattention and neglect. But the present object being rather to trace the consecutive calamities, and to note the progress of improvement wherever it may be found to exist,—to propose plans of amendment which



*have and may yet* be further subjected to the test of utility, we wish to avoid any remarks tending to irritate rather than encourage or advise those valuable members of society, for whose consideration, and, it is to be hoped, for whose practical benefit, the present observations have been entirely addressed; fully convinced as we are on our part, that all these disasters have arisen more from the GENERAL DEFECTIVE SYSTEM of management, than from any *wilful negligence* of their own.

The foregoing extracts from the work of Mr. Hogg, although not published by him for the mere and express professional purpose of scrupulously investigating one branch of a most interesting subject, are yet, upon our parts, worthy of the most serious consideration. In a book of popular tales, the author pours, with the greatest force, and with a degree of feeling which does honour to the Shepherd's heart, those visitations of the storm, in days and in ages past, which, upon the minds of the present generation, have left an impression never to be effaced. It matters not whether Mr. Hogg's poetic genius may have given too high a colouring to the violence of the tempest, or to the actual aggregate of loss. The thing is of trifling consideration in itself; but that *such* storms as he has noted from traditionary lore, are *not* the mere offspring of popular credulity, nor the fanciful productions of the poet's vein, we *must* undoubtedly admit, not only when many of our cotemporaries have witnessed almost equal occurrences,—not only when we calmly contemplate, with reverential awe, the mighty power of “HIM

who bringeth forth the clouds from the ends of the world, and sendeth forth lightnings with the rain, bringing the winds out of his treasures ;” but when we have an opportunity of seeing such facts, by the diligence of learned and ingenious men, consecutively arranged from the earliest ages to the present time, exhibiting a catalogue of those dire occurrences, those disastrous seasons, which have repeatedly laid waste the fairest portions of the earth, and almost any one of which, in violence and rigour, appears to have been fully calculated for working those instances of devastation which have thus been recorded by Mr. Hogg. (See Note IV.)

That these storms *did* occur at one time or another, and that the effects were most disastrous to the farmer, is quite sufficient for our present purpose. Mr. Hogg supposes the “thirteen drifty days” to have occurred, as far as he can trace, in the year 1620; and the “blast of March” on the 24th day of that month, in the year 16—; whereas Alexander Laidlaw, the shepherd of Bowerhope, in Yarrow, supposes “the thirteen drifty days” to have fallen in the month of March, 1674, and known by the appellation of the “thirteen drifty days of March;” and the “blast of March” to have happened on the 24th March, O. S. 1729. By the account in the notes, and for which we are supposed to be indebted to the investigation and arrangement of the very learned Professor Leslie of Edinburgh, it will be seen that the years 1621 and 1670 were both very severe; no mention being made either of the years 1620 or 1674. But this omis-

sion argues nothing against the probability of the fact, as related by either of our shepherds; as it is well known that these heavy blasts and drifts are, in general, extremely sudden, and often limited in extent; that even a small district of country is frequently overwhelmed, when the storm has not been felt generally throughout the division; and that even the whole division itself *might* be destroyed, when the storm was otherwise unknown across the extent of Continental Europe.

For the following account we are indebted to the habitual industry and observation of our "shepherd of Bowerhope," who, in a letter to the author, says: "Partly from *written* and partly from traditional records, I find, that from 1672 to the present time, 1822, a period of 150 years, there have been at least twenty-five BAD SEASONS, or *one* for every *sixth* year, without reckoning such as did not exhibit a considerable loss of sheep, or by *snow-mails*, (buying food in time of snow,) which cuts deep into the pocket of the farmer. Several of these seasons, particularly 1674, were attended with an *immense* loss of sheep. That season is still familiar to those conversant in *traditionary lore*, by the appellation of the *thirteen drifty days of March*, and I am well informed, that in this year the stock on several high-lying farms were ALL DESTROYED. Phaup, in Etterick-head, and some places in Eskdale Muir, were *laid entirely waste* for some seasons. The years 1715, 1729, 1740, 1745, 1772, 1799, 1816, were also *dismally severe*. In 1699, 1717, 1774, 1783, 1784, 1794, 1795, 1802, 1818,

there was a good deal of loss ; also in nine or ten other years, in all of which the loss of sheep was very considerable. But when the whole loss through these seasons is taken into account, it gives such a preponderating average, that the calm reflecting mind turns with *horror* from such a scene, to look around with indignation on the *blind fatality* of many of our store-masters, in not providing the means of averting, in a great measure, such dismal calamities. Now, to say what the real average loss has been through these years, is entirely impossible. I can find nothing that can be depended upon as limiting the losses to a certain number, that reaches farther back than 1772 ; but oral tradition agrees in this, that in 1674, 1716, 1717, 1729, and 1740, the losses were *very great*, and when we take into account the loss of wool, snow-mails, and consequent deterioration of the remaining stock, I do not think we shall exceed the truth, when we estimate the extra loss through *all these bad seasons*, at *one-fourth* of the whole ; and this, on a farm keeping 1000 sheep, is 250 ; and these, when valued at L.1 a-head, and divided by 5, the proportion that the good seasons bear to the bad, we shall have an average extra-loss out of the whole stock, from the year 1672 to 1822, of 5 sheep out of 100, and to the value, according to present times, of L.50 a-year."

By "extra-loss," we are meant to understand that proportion which exceeds the *usual average loss in ordinary winters* ; as the summer sales depend in a great measure upon the numbers and condition

of such as have escaped the ravages of the storm ; and the amount of this " extra-loss " is easily understood by intelligent shepherds from the comparative diminution in numbers of stock, presented at the different markets for sale, from the various farms in the country ; and with such understanding are we to treat the general losses hereafter to be mentioned. Without access to the private account of the farmer, it will be impossible to ascertain either the *usual ordinary loss* in common years, or the total aggregate loss throughout the *whole year* on which the extra-loss depends ; but as far as relates to the farm of Thirlestane, these important matters shall be disclosed, not only with the view of exposing the absurdity of such secrets, but also to bear witness to the value and importance of a general and well-defined system of improvement.

But to return to the letter ; our shepherd proceeds, " I have been indebted to Boston's Memoirs for some part, and, indeed, the most valuable part, of the information which has enabled me to fix some of the dates when those stormy seasons happened, particularly 1674. This season is still familiar by the name of the ' thirteen drift days of March.' I had considerable difficulty in fixing the exact year in which these dismal days took place ; some people telling me it was at an earlier, and others at a later period ; but an intelligent acquaintance of mine says, he was certainly informed that it was either in 1674, or three or four years later, and from a single remark in Boston's Memoirs, I am led to

conclude that this was really about the time in which it happened."

"Of this dismal season, most of our old people speak with a kind of horror; and when combined with the tremendous "blast in March, 1729," they used to reckon that, till the 24th March, old style, was past, security of farm-stock stood on a very precarious footing. Etterick-Head and Eskdale Muir, with Yarrow-Head and Meggat, seem to have suffered severely. In 1674, it is affirmed that on the farms of Sundhope, Over-Delorain, Phaup, Over-Cassock, with several other places, *whole hirsels* were lost; and a great many other places almost shared an equal fate. Over-Delorain, at this time, had two hirsels of *hogs* belonging to a person about Tweedside, and he having sent over to see how they were doing, and the messenger having asked the shepherd how many of them were alive: "Tell your master," says he, "that there are just as many alive *as the cat has tails.*" On the farm of Phaup, it is said, there were only thirteen sheep left alive; and for several years after this, the people lower down the Etterick took it to summer their eild sheep and cattle. So low an opinion, indeed, had they formed of it as a fixed winter pasture, that it was said a tack might be got of it for a *grey coat*. Indeed I have heard it said that it was actually let for a *grey coat and a pair of hose*. From an ancient tradition still very familiar to the active mind of William Laidlaw, shepherd at Mucra, it would appear that this was not the first time the farm of Phaup was in danger of being without a

winter stock. A person of the name of Beattie, the site of whose habitation, and even the well out of which he drank, are still shown with scrupulous exactness on Phaup-Shank, opposite the foot of the Range-Cleuch, had three score and ten sheep for wages as grass-keeper. One evening, after *half-sheltering* and *half-concealing* his sheep on a green gair in the middle of some rank heather, he went up the hill to make what discoveries he could; there he observed two men fast asleep, with their arms lying carelessly by them. Beattie, after hiding these in the burn hard by, went up to the top of the hill, and there shouted with all his might, *fie, lads, here we have them! fie, lads, here we have them!* The astonished borderers, rightly judging that their lives could only atone for their temerity if the country was raised upon them, begged Beattie to give over shouting, promising never to molest *him* nor *his* more. The crafty shepherd having gained his point, took them to his house, gave them victuals, and sent them away in peace; they having, in return for such unlooked-for kindness, promised that, if ever his stock was driven away, they would recover it at their own expense. I never could learn when this took place, but it must have been long before the earliest date in this letter."

"In 1674, it would appear that the shepherds about Phaup had been too much enslaved by the characteristic habit of *laziness*, with which our profession is too often branded; as it is said that the Broad-gair-hill sheep were mostly saved by the shepherd having occasionally put them across the water to

the Phaup side, where the heather was at that time very strong, although at present quite gone out; and might not the shepherd of Phaup have saved a part, at least, of his sheep by putting them to the same place? It is said, however, that he went, perhaps once a-day, to a certain spot where the sheep stood, and laid up part of the dead on the top of the dike, to make the shelter a little better for those which still lingered in a state of feeble imbecility. Indeed, this may be considered as no small task either, when folk wore no *snaw-boots*, as will afterwards appear; but what might then have been done with a *rick* or *two of hay*? The names of the tenants and herds in Phaup at that time I never could learn; but our forefathers by the grandmother's side were then in Pot-burn, and fled with their sheep to Bodsbeck on Moffat Water, before the drift came on, and *there also built stells for the living with the dead*, and at the breaking up of the storm, lost a *lang hundred* of their sheep, which were killed over Bodsbeck Linn. It appears that *snaw-boots*, the name and use of which are familiar to every one in this part of the country, were then but partially worn, if worn at all; for Bryden of Thirlestane, many years after this, when declaiming against the effeminacy of the age, said, "that now a-days folks coudna gang out in a pickle snaw wanting their Tima-hose\*", but when he was a young fallow, he stood thirteen drifty days on Thirlestane-

\* The Tima is a wild mountain stream running into the Eterick, a mile below the Kirk. Perhaps the natives there were the first to wear the "snaw-boots."



shank wi' but ae hoe on his leg." From this circumstance, I am led to conclude that the wind must have been about N.E. Some places about Etterick and Eskdale Muir, I am told, still go by the *then* very appropriate name of the *stinking stell*, one of which is said to be the hollow of the hill behind the dike-head at Thirlestane Fair-ground. (See Plan.) The story of the *black ewe* at Bowerhope I cannot assent to, having, from particular reasons, good grounds to think that the Bowerhope stock *did not die out* that year.

"A dreadful famine followed this dismal season, and I have been told again and again, that the cattle were bled every fortnight by rotation, to preserve the lives of their owners and their half starved families.

"In 1695 there was a great storm of snow; but I have not been able to learn that it did much damage.

"1699 was a very stormy season; a considerable loss of sheep, followed by a great scarcity of victuals, and a consequent dearth.

"1710 was also a very bad season, with much loss of sheep.

"1711. The distress, on account of the storm, was also very great. Little or no relief could be obtained, as the storm was so general, that places formerly resorted to were soon filled up. In both seasons the storm was severest about the end of January.

"1716. This season was the worst that had happened since 1674. About the month of January the distress was excessively great; many sheep died,

AND PEOPLE FORMERLY WEALTHY WERE BROUGHT TO RUIN by the loss of their sheep and cattle. It appears to have been occasioned by *partial thaws*, as, indeed, all the severest storms are."—*Boston's Memoirs*.

"1718. A very severe storm of snow, and many away with their sheep in Annandale. I do not hear of much death among the sheep."—*Ibid*.

"1729. Still known by the 24th March, O. S. This blast killed very many sheep, and, as the winter had been stormy, many also died of poverty. A great scarcity of victuals and fodder—much distress and sickness in the country, and frequent deaths."—*Ibid*. It appears, this year, that Lord Napier allowed a discount of rent for *two-thirds* of Crosscleuch, amounting to L.53 Scots, and half a mark for loss of sheep by the blast of the 24th March." The rent of Thirlestane, which was L.1100 Scots in 1715, rose to L.1166 Scots in 1724. There is also mention made that there was a discount of rent of L.16 Scots on Thirlestane on the same account. This may be seen from discharges for rent in the possession of Walter Bryden, Crosscleuch, granted by Lady Henrietta Scott.

"1734. Bowerhope wedder hogs were sold at Stagshaw this year at 3s. 2d.

"1740 was an excessive bad season, and MANY PERSONS WERE ENTIRELY RUINED by it: Among others, my grandfather, by the mother's side, who at that time possessed the farm of Berry Bush. It was also followed by a great scarcity of victuals, amounting to a famine. The family of which my father was a member, were children at that time,

and I have often heard them tell that they had no kind of food for many days, save nettles boiled with a little salt, and a kind of weed which grows among the potatoes in old gardens, provincially known by the name of *Myles*. The snow did not come on this year till about the beginning of February, and lay on the ground till wasted away with the sun about the beginning of April.

“ 1745-6 was also very stormy, and a great loss of sheep.

1750. At Over-Cassock roup this year, ewes and lambs were sold at 9s.

“ 1752 was remarkable for a great loss of sheep by the rot. Some places I have heard of lost *one-fifth* of their ewe stock by this means, and the same was general, besides such as died of poverty and other diseases.

“ 1760. Stock appears to be rising; Phaup wether hogs sold at 5s. and Etterick-house at 4s. 6d.; all *clad*, and which was the case for many years after.

“ 1762. The Phaup dinmonds were sold at St. Boswell's at 6s. 8d. a-head. This year there were eighty Polmoody ewes killed over the Grey-mare's Tail. Tam Linton, the herd, asserted to his dying day, that he went over along with them; one thing is certain, he was more fortunate than his flock, for he came home and told the news, but none of his sheep came out alive.

“ 1765. The Dalgleish ewes and lambs were sold at 6s. 8d., all *clad*, one to the score.

“ 1772. Was a remarkably bad season. The snow

was very deep and hard, and lay on the ground till melted by the heat of the sun late in the spring. There was a great loss of sheep this season, one half of some hirsels died, and was the worst since 1740.

“1774. There was a very severe storm of snow this year. All the sheep of this district were away in Annandale, or foddering; but I do not hear of very much loss, except by snow-mails.

“1783. Was a very stormy season; the snow was deep and hard, and many were away with their sheep.

“1784. This year the snow lay from the second week in December, 1783, till past the middle of March following; only the two first weeks of February being fresh weather. Ewes and lambs sold at 10s., and lambs at 3s.

“1794. On Saturday, January the 25th, the wind being north, happened the worst day in the memory of the oldest person now living. **THE BLAST LASTED ABOUT TWENTY HOURS, AND KILLED MANY MEN AND SHEEP.** Eldinhope lost the greatest number of any in this neighbourhood, amounting, it was said, to 100; Kirkstead, 16; Bowerhope, 30; Craig of Douglas, 30; and many others about these numbers. The loss was much greater about Eskdale Muir; Thickside lost 500, or about 30 per cent. The snow lay only nine or ten days, and the rest of the winter was very fine weather; but the shepherds cannot soon forget the 25th January, 1794.

“1795. Was a very stormy season, and remarkable for the great quantity of snow that fell. It lay from the middle of January to the middle of

March, and many were away with their sheep into Annandale. The loss of sheep was not very great, as the weather became fine after that.

“ In 1799 there was no stock composed *entirely* of the Cheviot breed higher up the river Yarrow than Bengier Burn. The farm of Sundhope in Yarrow, and Henderland in Meggat, had Cheviot hogs and gimmers that year, and Bowerhope had 120 three-year-old ewes of that breed. All the rest of the sheep about that part of the country, were of the black-faced, or forest breed. On the Berry Bush, there was a stock of Cheviots; Crosslee had hogs and gimmers, Tusha-Law might have a few, but the greater part were black-faced. All Etterick, I think, except these, had only the forest breed from Singlee upwards. Now, every person who speaks impartially, will allow that the forest breed are not near so easily killed with bad seasons as the Cheviot sheep are. This might be shown from many striking examples, if necessary; but all I mean by the observation, is to show that, had the country been all stocked now and formerly with Cheviot sheep, the losses would have been much greater. Although there had been from 1783 and forward, several very stormy seasons, yet none of them were so distressingly severe as 1799. The winter of this year had not been so completely hard as the spring, which was stormy, cold, and barren. I find by my Diary, 1799, May 11th, wind north-east. Sleet kills 12 or 14 lambs to-day; corn beginning to braird.

" 12th. Wind north-east, ground quite covered with snow.

" 13th, 14th, and 15th. Wind north-east, ground covered with snow, and the lambs dying of hunger.

" 24th. Wind north-west. A bright rainbow in the afternoon; the weather beginning to mend. 31st. Do.

"General remarks. It was near the latter end of this month before the winter frost was out of the mossy land; bear or bigg beginning to braird; no new gras till within these few days; snow still lying on the " heights." Sheep just beginning to mend. Sent away 14 dozen of lamb skins, 20 ewe and 19 hog skins. Sundhope had this year the greatest loss of any place I know of. Their herds told me that *one third* of their old sheep died, or about 33 per cent. of the whole stock. Their loss of lambs was about *two thirds*, or 66 per cent. The sheep which belonged to one of the herds all died except 16, which was a loss of *two thirds*, or 66 per cent, and of lambs he had almost none.

"Next to Sundhope was the farm of Bridge-end in Meggat. Mr. Walter Anderson has told me that his loss of old sheep amounted to 20 per cent. and of lambs to 50 per cent.

"Bowerhope  $7\frac{1}{2}$  per cent. of old sheep, and 40 per cent. of lambs. The general loss through the country may be estimated from 5 to 10 per cent. of old sheep, and 30 to 40 per cent. of lambs. Of the 120 Cheviot ewes we had upon Bowerhope, *one*

*third* only had lambs, and our black-faced gimmers were even better lambled than them.

“ The winter 1799-1800 was stormy, and many were away with their sheep into Annandale. The spring was middling good ; but, on account of the deteriorated state of the sheep from last bad spring, there was considerably more loss than usual, probably, in general, by 2 per cent. of old sheep, and 5 per cent. of lambs. It may here be stated, that I have passed over some stormy seasons, particularly from 1750 to 1760, because I knew nothing more about them than that they are said to have been bad.

“ Winter of 1800-1, good ; no extra loss.

“ In the winter of 1801-2, in January, was the completest snow-storm in the memory of the oldest inhabitant. There were no sheep left in this part of the country but a few invalids, which were supported upon fodder ; all the rest having been driven into Annandale for pasture, or the low-country for hay. A great deal of money was laid out this year in providing food for the sheep during the continuance of the storm. Crosscleuch, 20 per cent. reckoning according to the rent ; Bowerhope, about the same ; Blackhouse, 25 per cent., and others in proportion. The spring was good, and little more loss than usual.

“ 1802-3. Some bad days in lambing time, which killed lambs to the number of 4 or 5 per cent. (Note V.)

“ 1803-4. Good, and no extra loss.

“ 1804-5. Several people were away with their

stock into Annandale. Loss by partial snow-mails may be reckoned at 4 or 5 per cent. upon the rent; but little loss of sheep.

“ 1805-6. A very bad lambing-time; loss of lambs upon Chapelhope 20 per cent.; Bridge-end 16 per cent. Most of the country were now stocked with Cheviot sheep, except Bowerhope, Crosscleuch, and Riskinhope, with some of the Meggat farms, besides Blackhouse and Craig-o'-Douglas.

“ 1806-7. Very bad weather about the end of April; kills a great number of lambs. Chapelhope 33 per cent. General loss from 5 to 10 per cent.

“ We happened to keep back the rams this year, and not much loss. Blackhouse, in attempting to raise Cheviot wedder-hogs, for two or three years, about this time, lost nearly *one-third* of them, or from 30 to 33 per cent. annually.

“ 1807-8. There was a great blast of snow this year about Martinmas. We had upon Bowerhope forty sheep below the snow, and six killed; every farm had a few killed, and nearly about that number. Winter good; but excessive bad weather to the end of April. We had no loss of lambs, having kept the tups back nine days later than our neighbours. Bridge-end lost 30 per cent. of lambs; Chapelhope about 25 per cent.; and the generality of the country from 10 to 20 per cent.

“ 1808-9. Winter stormy; a great deal of sheep away in Annandale. Blackhouse hogs away 16 days, which cost L.8 per cent.

“ 1809-10, and 1810-11, were both good.



“ 1811-12. Very stormy towards the latter end of March and the beginning of April, and the sheep very lean. I think the loss of old sheep was about 3 or 4 per cent. and 15 per cent. of lambs.

“ 1812-13. There was another great blast of snow in lambing-time; loss of old sheep on Bowerhope 4 per cent., and of lambs  $12\frac{1}{2}$  per cent. Loss, in general, not far from this statement.

“ 1813-14. Stormy weather; partial loss by snow-mails from L.1 to L.5 per cent.

“ 1814-15. No extra loss.

“ 1815-16. This was by far the worst season since 1799, and even on high-lying farms the loss was greater, and several places had not lambs to make up the loss of old sheep. Bowerhope had now, and for four years before, a complete stock of Cheviot sheep; but as *we fed better with hay* than any of our neighbours, our loss was not so great. Bowerhope, of old sheep, 1 per cent.; of lambs,  $12\frac{1}{2}$  per cent.; Crosscleuch, old sheep, 8 per cent.; lambs, 50 per cent. Crosscleuch may be reckoned the average for a great part of Etterick parish, Yarrowhead, and Meggat.

“ 1816-17. Good, no extra loss.

“ 1817-18. This was a middling winter, but a very bad spring. Our loss was *three quarters* per cent. of old sheep, and lambs to 8 per cent. Crosscleuch was 5 per cent. for old sheep, and 50 per cent. for lambs; but Crosscleuch was above the average loss of the country.

“ The last three years have been good, and attended with no extra loss.

“ On reconsidering the subject, I am more confident in my belief, that the calculation does not overreach the truth, which reckons every sixth year a bad one ; as in Mr. Thomas Boston’s *Memoirs*, I find direct mention made of *seven stormy seasons*, from 1695 to 1730, a period of 35 years.

“ This is exactly *one stormy season* for *five middling ones*. In several of these seasons, also, we have accounts of great losses, so that when the death of sheep and lambs, loss of wool, and by snow-mails, with the consequent deteriorated state of the remaining stock, which ought to be taken into account, is all reckoned upon, I am almost morally certain, that L.50 a-year does not do more than cover the annual average extra-loss upon a farm containing 1000 head of sheep.

“ As these local accounts do not ordinarily enter into the pages of history, and as they tend to illustrate the degrees of happiness or misery of that class of men to which I belong, I thought they were at least worth while preserving ; and if they contribute in any way to your amusement in perusing them, all is well.

ALEXANDER LAIDLAW.”

*Bowerhope, Feb. 1822.*

The following losses which happened on a farm in the parish of Yarrow during seventeen years, may be depended upon as correct.

The holding on the ground, 63 score, or 1260 sheep.

Year.	Winter's Loss.	Summer's Lost.	Total.
1796	25	7	32
1797	15	10	25
1798	6	8	14
1799	317	15	332
1800	61	30	91
1801	17	10	27
1802	18	11	29
1803	20	7	27
1804	29	32	61
1805	30	10	40
1806	28	3	31
1807	43	9	52
1808	87	13	100
1809	88	4	92
1810	30	4	34
1811	16	8	24
1812	32	11	43

17)1054

Mean annual loss 62, or

20½ of old sheep or hogs per cent.; and all this, without reckoning the loss of lambs, which no doubt amounted to 20 per cent. at least, equal to about 7 per cent. old sheep, making in all 27 per cent. of annual loss, above one quarter in numbers of the value of the stock.

Had the year 1794 been included, when that farm suffered as much as in 1799,—the loss would have been considerably increased.

In casting our eyes occasionally over the surface of the country, as opportunities occur; we feel much pleasure in stating, that within these last three or four years, this farm appears to have been exces-

sively improved by draining; although there yet remains a lamentable deficiency of "artificial shelter." If the present tenant, a man justly celebrated for superior intelligence, generosity, and every amiable qualification, can be enabled to detect the allusion,—we trust he will be encouraged to persevere in an undertaking of such undoubted utility and importance.

Whatever degree of credit may be attached by some individuals to *traditionary storms*, it is to be hoped they will scarce pretend hastily to call in question the accuracy of such facts as we have been enabled to produce from the "Diary" of a shepherd, whose only object in collecting and preserving such interesting details, appears to have arisen entirely from the pleasure of gratifying a spirit of useful observation and inquiry. Reasoning by analogy, we have no doubt even of the traditionary losses; at the same time, we hold them as by no means necessary for enabling us to establish these simple propositions,—that, "after the usual exertion of the shepherd,—the ultimate security of the flock depends almost entirely upon chance;" and that "a very great proportion of these losses might have been easily averted, through the simple medium, or adoption of food and shelter."

In the winter of 1815-16, the storm fell with considerable violence upon the Thirlestane stock; and it was from a sudden and an unexpected observation of these melancholy facts, that the author of the present treatise was first induced to turn his

attention towards a subject replete with so much personal interest, as well as of such infinite importance to the public.

Although it is impossible to state the loss which actually occurred on the said farm upon that particular occasion, we have no difficulty of announcing to the world the devastation committed in the winters of 1817, 1818, and those of subsequent years. Out of 1023 sheep smeared at Thirlestane, at Martinmas, 1817, there remained to be clipped after Whitsunday, 1818, the number of 968, three of which were *peeled*, 55 having died during the winter;—and we believe the loss of lambs fell little short of 150. The storm was very general over the whole parish of Etterick, and as the greater proportion lies higher and equally exposed as Thirlestane, and as the parish is known to winter full 26,000 sheep, we may conclude by the rule of proportion, that the aggregate loss of sheep that winter amounted to 1400 at least, besides a consequent deficiency in quantity of wool, and a general deterioration of those that remained. And, calculating the loss of lambs by the same rule, or nearly so, from the supposed number of living sheep at Whitsunday, we shall have an amount of 3550, and reckoning the sheep at 20 shillings, and the lambs at 10 shillings, (as their prices were very high that year,) the parish of Etterick will have suffered a loss equal to L.3175, all out of the pockets of the farmers, and mostly for the want of the simple accommodation of “food and shelter.”

It is stated from Laidlaw's authority, that the last three winters, viz. of 1818-19, 1819-20, 1820-21, have been good, and attended with no *extra-loss*. Now, by referring to our smearing and clipping accounts, we find a loss corresponding to the winters of these several years, of 30, 19, 13, and the numbers smeared each year were 971, 994, 1062; averaging a loss of 2 per cent. of old sheep during these three good winters. The loss of lambs, indeed, was too trifling for consideration. The winter of 1818-19 was extremely mild, and we scarce remember even any snow,—a fortunate circumstance for the Thirlestane stock, as, by way of experiment, we had *bath'd* a proportion with a mixture of spirits of tar, tobacco-juice, and water, as is usual among some farms of the Cheviots,—instead of the less cleanly, but more common application of tar and butter.

It will be observed that the loss of that winter amounted to 30 out of 971, and which we apprehend to have arisen more from sickness induced by depasturing upon unwholesome grass, springing in mild weather, from a surface wet and *undrained*, in conjunction with a certain deficiency of both food and shelter, than from any deterioration of condition brought on by the partial change or omission of smearing; although it was evident, in frosty nights, that the "white sheep" were extremely liable to be frozen to their lairs. Since that time, a mixture of whale-oil and spirits of tar has been adopted, and which has continued to insure the most desirable effect. The loss of 55 good sheep, in the winter

of 1817-18, with 150 lambs, proved an additional incitement for undertaking some plan which might tend to abbreviate the catalogue of disaster in times to come; and, seeing that a soft or mollient description of grass, springing from a wet soil at an untimely season of the year, was productive of disease and death, and that cold and hunger were followed by equally bad effects, our first care was to lay on about 12,000 roods of drains upon the wettest proportion of the hill,—to inclose a park for winter hay, and to build a few circular stells here and there for “shelter in the storm.” These improvements were effected in the summer of 1818; and although they could not be supposed to operate, in all respects, with immediate effect, the loss next winter, 1818-19, having amounted to 30 sheep out of 971, yet the improvement of the pasture, and the apparent comfort and security afforded through the medium of artificial shelter, held out the greatest encouragement for persevering in a scheme so easily effected, and at such moderate expense.

The ensuing winter of 1819-20, was by no means so mild and favourable as its immediate predecessor, some heavy falls of snow having occurred, which lay long upon the ground, attended with occasional drift; and on one of which occurrences some few of the Thirlestane stock were recovered from the snow by the sagacity of the shepherd’s dog.

We find, now, under these less favourable circumstances of weather, the winter’s loss of sheep amounted to 19 out of 994, which, being compared with 30 out of 971, affords a balance in our favour of 12

sheep, equal to as many pounds Sterling, and affording a tolerably good return for an expense of something less than L.100 for park, drains, and stells, and which, with common care, will remain efficient for many years to come.

The winter of 1820-21, rather more mild than the last, effected a loss of 13 sheep out of 1062, which exhibits a profit of 7 upon last year, and 20 upon the *old system*, before any of the improvements had been carried into effect; affording a continued reduction of deaths upon a considerable augmentation of stock. These are plain facts, which speak loudly in favour of our improvements, and such as have encouraged us to proceed to an extent considerably beyond the present detail, and which it is our object to recommend to the practical attention of every store-master; fully satisfied, as we are, from our present experience, that the beneficial effects will more than compensate, on every emergence, for the trouble and expense he may have incurred.

And here let it be remembered, that these advantages have become self-evident during three winters of what is called "fine weather," and such as, according to "Laidlaw's Diary," have produced no "extra-loss!!" What, then, must be the value of these improvements in such years as 1799 and 1816? Considering two per cent. of old sheep to be the *common* average loss in good years, as exemplified above, and on the two last of which our operations had begun to act with tolerable effect; and calculating the general average *extra* loss throughout the



last 150 years, annually, at five per cent. or 50 sheep out of 1000; we have a right to conclude that the effect of our measures will be, to equalize the variability of the climate, and to neutralize the extra effects of boisterous seasons, leaving our *total* loss continually within the bounds of the present *common* loss, and thus occasion an annual saving among old sheep of five per cent.; and out of a flock of 1000, the round sum of L.50 a-year to the farmer.

Hitherto we have only accounted for the losses suffered during the "winter season," without any open or direct reference to the summer, farther than relates to such of the flock as have been cut off through weakness or disease, induced by mismanagement or neglect during the rigours of the previous winter; and it is to such neglect, considered either in reference to the treatment of the animal itself, or to the improvement of the pastures, that disease in almost every shape will find its origin and extent.

A hungry winter is the forerunner of poverty, leanness, and every deterioration; as wet land is also the immediate cause of almost every disease; consequently, from Whitsunday, 1817, to the next Martinmas, our books exhibit a loss of 14 old sheep, and, in subsequent summers, they account as follows:

From Whitsunday to Martinmas.	Sheep Clipped.	Summer Deaths.
1817	1042	14
1818	968	24
1819	941	6
1820	954	11
1821	1024	12

and the deaths for the *whole* years may be taken individually as follows :

Whitsunday.	Sheep clipped.	Total deaths.
From 1817 to 1818	1042	69
1818 — 1819	968	54
1819 — 1820	941	25
1820 — 1821	954	24
1821 — 1822	1024	28

Now, let us remember, that “ the winter of 1815-16 was by far the worst since 1799;” and we shall see hereafter, that “ there was a great loss of sheep upon Thirlestane, both old and young, because unfortunately all the hay had been consumed by cows and horses;” but the winter of 1816-17 appears to have been mild and favourable; there having been retained for stock and sold—from 690 breeding ewes and gimmers, no less than 680 lambs. Still, however, it appears, that the loss of old sheep during the summer of 1817, amounted to 14; and in the ensuing winter, as we have seen, 55 more, making an aggregate of 69. After this winter, or at the lambing time of 1818, there were 43 ewes and 56 gimmers *tup-eild*, all of which ewes, and the majority of which gimmers, ought to have produced lambs, had they been in tolerably decent condition. It is easy to be seen that these deaths, and this barrenness, proceeded materially from disease, induced by insalubrious wet pasture, in addition to the evils of hunger and starvation. In the summer of 1818, part of which was hot and sultry, with a loss of 24 sheep, the “ breakshuach,” or dysentery, made an inroad

upon the Thirlestane stock, as well as in other parts of the country, and which, says Mr. Hogg, "is very infectious among a flock fed in the soft grass." Here, indeed, is the disease traced immediately to the unwholesome state of the pasture, combined also, it is thought, in a great measure, with the influence of the atmosphere.

In the summer account, however, in spite of previous or intermediate improvement, we find the deaths of 1821 equal to those of 1817; and we shall quote the words of the Etterick Shepherd, however paradoxical it may appear, to prove that a proportion of these deaths, induced by the disease called "pining," has arisen out of the improved condition of the pasture. He says, "this distemper, though it somewhat resembles the rot, is the very reverse, and acts upon principles directly opposite; for as the rot is the consequence of too sudden a *fall* in condition on soft grassy grounds, this is occasioned by *too sudden a rise* in condition on coarse, heathery, and mossy soils." And again, "It always fixes on the best of the flock, but removing them to fine land, especially such as hath been recently limed, cures them immediately, and they never fail, in future, to become excellent sheep, and remarkably healthy."

In the "three good years, when there was no extra-loss," we have calculated from the winter's account an average of 2 per cent. for such years; but from the mean of the two whole years, 1817 and 1818, which were partly good and partly bad, we shall have an average loss of 614 out of 1005 sheep,

or about 6 per cent. for each whole year; and from the mean of the years 1819 and 1820, when the pastures had been much improved, and stock fed and sheltered, out of 947½ sheep, we find the loss to have been diminished to 24½, or less than 2½ per cent. Now, as 1817 was a good year, and 1818 a “mildling one,” we have a right to estimate them as considerably *below* the average of *bad* years, and as they demonstrate a loss of 6 per cent. we may reasonably conclude that the average destruction of sheep for many years past has not been less than that number; independent of the loss of lambs, by snow-mails, and general deterioration; and which, being reckoned equal in loss to 2 per cent. upon the stock, will give a full annual loss of 8 per cent. under the old management, but which, by a supply of food and shelter, and a judicious improvement of the whole sheep-walk, whereby almost all years will be brought to a closer bearing, the total average loss, one year with another, may easily be reduced to 2 or 3 per cent., leaving to the farmer at least a profit of 5 per cent. in numbers upon his flock, and which is found to answer to the mean of the years 1819 and 1820.

This calculation, which is in a great measure deduced from facts, bears a striking analogy to that of Laidlaw's, drawn from more distant sources, but combined and strengthened by numerous circumstances which come within the range of his general intelligence and observation.

But, by way of farther investigation of this interesting subject, we shall arrange and average the annual extra-losses according to the “Diary,” from

1799 to 1821, inclusive, a period of twenty-three years, converting the value of the snow-mails into sheep, and the result will be found to afford a remarkable coincidence with our other calculations, all of which, together, may be received as very satisfactory evidence, as to the amount of general extra-loss, although perhaps not readily detected by many of the sufferers, merely through the neglect of careful investigation.

Winters.	Extra loss of old sheep.	Extra loss of lambs.
1798 to 1799	$7\frac{1}{2}$ per cent.	35 per cent.
1799 — 1800	2	5
1800 — 1801	0	0
1801 — 1802	5	2
1802 — 1803	0	5
1803 — 1804	0	0
1804 — 1805	3	0
1805 — 1806	0	15
1806 — 1807	0	$7\frac{1}{2}$
1807 — 1808	1	15
1808 — 1809	2	2
1809 — 1810	0	0
1810 — 1811	0	0
1811 — 1812	$3\frac{1}{2}$	15
1812 — 1813	4	$12\frac{1}{2}$
1813 — 1814	1	1
1814 — 1815	0	0
1815 — 1816	7	40
1816 — 1817	0	0
1817 — 1818	2	10
1818 — 1819	0	0
1819 — 1820	0	0
1820 — 1821	0	0
<hr/> Years 23	<hr/> 25)38	<hr/> 25)165
	$1\frac{2}{3}$ per cent.	$3)7\frac{1}{2}$ per cent.
	$2\frac{1}{3}$	$2\frac{1}{3}$

Total extra loss = 4 sheep.

We here find, that the mean of twenty-three years gives an extra-loss of old sheep annually at  $1\frac{1}{2}$  per cent., and of lambs at 7 per cent., and, allowing 3 lambs to be equal in value to one sheep, we have  $2\frac{1}{2}$  to add to  $1\frac{1}{2}$ , which gives us the sum of 4 whole sheep per cent. as the "extra annual loss" along any given period of years. But, to this sum of four sheep, we have yet to add the value of wool lost through "peeling," or a partial loss of individual fleeces; which, with other minutiae, cannot be overrated at the mean of 1 per cent., which, being added to the larger sum, will give again an average "annual extra-loss" of 5 per cent. upon the numbers of the stock. The common annual loss, which appears to go for nothing, has already been stated at about 2 per cent., so that, in fact, the *total loss* upon a farm in this, and similar quarters of the country, may reasonably be stated at 7 per cent. annually upon the whole stock.

Having, we think, perfectly established this fact, we would apply it as a drawback, not quite universally or indiscriminately, to every farm in the division, several of them having made considerable progress in the march of improvement, but particularly to such as are found to continue in the state of "mere open waste," and where the spade of the drainer has scarce hitherto pierced the watery soil: At the same time, we may recollect, that the losses of the last twenty-three years enumerated in the "diary of our shepherd," bear reference to a period, during which some of the greatest improvements have been effected; none of which, in-

dependent of the change of stock, can be compared with a rigorous system of draining; persuaded, as we are, that the most virulent diseases among sheep may be traced almost entirely to an unwholesome or malignant description of grass, and that all these may be proportionally averted, by adopting the simple remedy which experience and common sense so forcibly point out. Premature deaths must, of course, occur among sheep, as well as throughout the other tribes of animal creation; but the amount of these may easily be reduced, by using that diligence and exertion for which man, as a rational being, was originally created and so eminently endued. We are, therefore, sufficiently sanguine to believe, that when our farms shall have been at length provided with every necessary accommodation, and the principal guidance of the stock committed only to men of observation, diligence, and activity, the estimate of "annual destruction" will fall considerably below the average of 3 per cent.

In reference to the losses upon Thirlestane in 1816 and 1818, we have every reason to believe, from such information as we have been enabled to acquire, that they did not exceed the proportion upon other farms in the neighbourhood; and, as we have already stated the deaths between Whitsunday 1821, and Whitsunday 1822, at 28, perhaps it may amuse our readers to be acquainted with the different kinds of disease which have thus been fatal; an accurate account of which is regularly kept by the shepherds, and which, when properly consi-

dered and applied, may afford the means of counteracting their effect, by adopting such preventives as the necessity of the case may seem to require.

Deaths from Whitsunday, 1821, to Whitsunday, 1822.

	Summer.	Winter.	Total.
Sickness, or braxy	2	8	10
Breakshuach	2	0	2
Pining	2	3	5
Louping-ill	0	1	1
Sturdy	1	0	1
Accidents	1	1	2
Poverty	2	0	2
In lambing	0	1	1
Unknown	2	2	4
Totals,	<u>12</u>	<u>16</u>	<u>28</u>

During this last winter, the sickness or braxy has been very fatal in many parts of this country, some farms having lost, it is said, even from five to eight score, principally hogs, and the "pining," as far as relates to Thirlestane, by the report of our shepherds, appears to be perfectly a new disease; and certain it is, that it has occurred principally upon one part of the ground, which has derived the greatest benefit from the drains. It may be remarked, that upon the part particularly alluded to, there appears to have arisen a great spring of natural florin, a strong proof of the improvement of the soil; but we can by no means admit that the disease has arisen from this most valuable herb; as it is to be found in greater abundance lower down the hill in the immediate



neighbourhood, on a particular range, which produces the very best sheep upon the farm, and where that disease has not hitherto had effect. (See Plan, Peat-syke-brows.)

The last winter, in general, from the mildness of the season, has been reckoned a favourable one, except as far as relates to the early loss of hogs, and upon some very high lying land, where the constant and repeated heavy blasts of snow and rain alternate, operated as a very severe trial upon the strength and constitutions of the flock. To any one acquainted with the "cloud-capt" mansion at the "Shepherd-cleuch," with the rising "heights" above, this will not appear extraordinary; and, upon the whole, the faithful guardian of the flock, that inmate of the clouds, reports the winter just gone by, upon *his* hirsel at least, as the very worst he has experienced since he came upon the ground in 1817; and still it appears that the *total* winter's loss has only amounted to 16 out of the "whole flock." The quantity of hay which has been consumed by that hirsel, and which did not last them properly through the winter, may be considered as not less than 2000 stone; and to such luxury, with the accommodation of considerable shelter, we ascribe the general prosperity of the sheep; at times when, under other circumstances, the losses might have been more extensive by many degrees: but as it appears by the account, that two sheep died of *poverty*, it may be necessary to state, that these were both *shot crocs*, and would have died any where.

By adding the total deaths, 28, to the number of sheep left to be clipped this spring, 1054, we shall have an amount of 1082, which *ought* to have been alive ; and which exhibits only a "total loss" of 2½ per cent. independent of any general deterioration or loss of wool, which appears as yet but trifling. Of lambs, the superabundance of twins has far exceeded the loss by *kebbs*, and blasts of hail and sleet. Upon the whole, it has been reckoned a most fortunate lambing-season ; although there did occur a few sudden sweeping blasts of hail, which caused considerable loss ; and at one or two places, as we have heard, so much so, that they could not make up their numbers. Our loss of lambs killed on such occasions amounted to 23, and we feel much indebted to the shelter of the "lambing-park" for the preservation of numbers, which, had they been upon their natural range about the "heights," would have been sacrificed inevitably to the blast. The number of twins belonging to the "upper hirsell," some of which were born in the "lambing-park," and others preserved in the "hay and tup-parks," amounted to 52 pairs ; and those of the "nether-hill," under similar circumstances, to 39, making a total of 91 pairs—a greater number than was ever known upon the ground before,—and a certain proof of the previous good condition of the ewes, resulting assuredly from the improvement of the pastures, and the practice of preventing a "falling off in the winter," by a liberal supply of hay.

Some of our cotemporaries may assert, that they have been as fortunate as ourselves without half the trouble, and none of the expense; and if such has actually been the case, we really suspect that, if in *similar local* circumstances, they can only be accounted as very few; but, as we have said before, we look to a "blast of March," (not that we have any desire to see one,) but to the chance of such a time, when our improvements shall afford us a real delivery from the storm.

In summing up the "extra-losses" from Laidlaw's account, we have come to a conclusion of  $1\frac{2}{3}$  per cent. of old sheep, and 7 per cent. of lambs; and converting the lambs into sheep, we have allowed as *three for one*. Now, perhaps, some of those who are disinclined to allow material defects, will also assert, that three lambs are not worth one sheep; neither do we suppose, that three young lambs are immediately to be put on a footing with a good ewe; but we must remember that these extra-losses must either eventually deduct from the annual sales, or reduce the holding upon the ground; and with this view of the case, we present our readers with the following prices by way of illustration.

*Price of Lambs and Draft Ewes of Thirlestane Stock.*

Years.	Top Lambs.	Second Do.	Pallies.	Price of Three.	Draft Ewes.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
1817	6 8	5 6	3 3	15 5	15 0
1818	14 0	13 0	9 0	36 0	24 6
1819	12 3	7 0	5 0	24 3	25 0
1820	11 6	9 9	8 0	29 3	21 4
1821	6 9	6 0	4 6	17 3	12 6
				5)122 2	98 4
			Mean	24 5	19 8

Now, it appears by the arrangement of the different lots of lambs, the mean price of three, as compared with the average price even of the *best* of the draft-ewes for the last five years, bears a difference in their favour of 4s. 9d. each; and although a person may argue, that if he loses three lambs, only one of which he intended to keep, he may purchase a similar one at a price far below the value of an old sheep; yet, we maintain, that it will be next to an impossibility for him to recruit his numbers by such means, as no one farmer of common prudence will sell the best of his "keeping-lambs" for the purpose of making up the stock of his less fortunate neighbour. Indeed, in such seasons, a good lot of ewe-lambs is not to be had; and were the loser even to be so fortunate as to get a few by any accidental means, he must still bear the loss of the other two. With the test of the prices, and the reasonableness of the argument, we conceive that our ideas or opinions are perfectly confirmed by a calculation of Laidlaw's, which appears in a subsequent letter. And, that the value of the "total average annual loss" has not been overrated at the proportion of 7 per cent. upon the whole stock, we shall only remind our readers of a common idea among farmers, which, as we have heard, allows *one* sheep per score as a common loss, and two per score, or 10 per cent. as an extraordinary one; and if these are accounted probable or correct, surely it cannot be argued that our calculations and improvements are either unnecessary or inadmissible.

Under these circumstances, it does appear extraordinary, that farmers have been at so little pains to correct or avert so great a calamity, as that to which, year after year, they are either satisfied or obliged to submit; and it can only be accounted for, under the idea, that when entering upon a lease, they conclude with their landlords, for a rent only according to the number of sheep *clipped*, making up their minds to the usual losses which take place after the previous *smearing* account; and hence, all these deaths operate as a drawback on the profits of the landlord, hallowed by the ignorance of the one, and the usual negligence of the other;—and this can be construed into nothing more or less than *farming upon mere chance*. Hence the necessity of a change of system, not only in point of *management*, but also in the manner of *paying rents*.

A farmer entering upon a lease of ten years upon the old plan, and making these necessary improvements without loss of time, might undoubtedly at the end of that term, retire with an additional sum of L. 500 in his pocket; and, were the landlord to make these improvements, either at his own expense or jointly with the tenant, and receiving a rent according to the produce, his receipts would be considerably increased.

As some of our readers may be inclined to suppose that our statement of losses is only traditional, visionary, or inaccurate, we gladly avail ourselves of the account, and very valuable observations of the Reverend Dr. Singers, as published in the “Transactions of the Highland Society;” and

it is remarkable how nearly his speculations in *losses* are confirmed by the calculations we have already exhibited, and which were certainly made without the slightest reference to what that very enlightened and reverend gentleman had previously published on the subject.

In treating of "Accidents from drifting snow," the Doctor proceeds; "These are most fatal when the frost is keen, the wind violent, and the snow light and mobile. The defenceless flocks move before the blast, into *some hollow place*, where they find some relief from the piercing storm. There, in a short time, they are *covered up deep with snow drift*; and if long confined under it, many of them die; the survivors being much reduced, and sometimes having lost part of their wool. Should this retreat be a rivulet course, as often happens, and a sudden thaw come on, the melted snow brings down a torrent of water on them, and *they all perish*. Smooth green hills, destitute of rocks, woods, or "other shelter," are most in danger from snow drifts. Of this description are most of the sheep farms in Eskdale Muir; and on the fatal storm on the 24th January, 1794, above 4000 sheep and some heifers were lost in that single parish. I have been told that Mr. Robert Hope, at Newton, in Crawford Muir, sold L. 50 worth of skins that year at eight-pence each. Many store-masters lost ten, twenty, thirty, or forty scores of sheep; and many shepherds also *lost their lives in quest* of their flocks. AN AMAZING FALL IN THE BAROMETER GAVE WARNING OF THAT PARTICULAR STORM. Tradition re-

cords, that the year 1674 was fatal to most of the sheep in the head of Eskdale, by snow drift, in the end of February and beginning of March. A long course of frost and snow was destructive in 1740: The year 1745 was of a similar description; the seasons were successively calamitous from 1751 to 1755: One third part of the stocks were lost by frost and snow in 1772. Then, after some favourable intervening seasons, followed the fatal storm in 1794. These facts have been accurately collected and recorded by the minister of Eskdale Muir, among many others of importance to his parish, partly in manuscript, and partly in his statistical account thereof; and his accuracy and integrity are well known."

And again, "when the blasts of winter have accumulated vast masses of driving snow, in a spiral form, near the top of some rising ground, or projecting rock; and the sheep have taken their station farther down, where they find a temporary shelter, the weight of the mass increasing above them, is at last precipitated down on the sheep, and they are *miserably crushed, buried up, and lost*. Such a shelter is always beheld by the attentive shepherd with a jealous eye. But in large farms; *destitute of all shelter, natural and artificial*, HOW CAN HE RELIEVE THEM? They cannot continue without food to walk incessantly among the snow; and if they lie down to rest themselves, without shelter, the cold is so intense as to freeze them to death; or if the shelter they find is of the dangerous kinds

mentioned, they are drifted up out of sight, or crushed with falling masses of snow."

"Thirteen sheep belonging to Mr. Gibson, at Polmood, in Moffat Water, were overwhelmed at once, and hurried down to a great distance, and most of them killed. This instance is only *one out of many*. The mass of snow that carried these down, was of such dimensions, as to have covered as many scores if they had happened to have been there, in its way."

In reply to the Doctor's question, How are the sheep to be relieved in large farms destitute of all shelter, natural and artificial? we reply, without the slightest hesitation, by the "Institution of a regular System of Stells, widely extended, and abundantly supplied with hay."

With regard to the *annual losses in sheep*, the reverend gentleman informs us, in the first place, "that Scotland contains from ten to eleven millions of sheep, of which, by the united effects of diseases and accidents, according to the testimony of the most intelligent persons, not less than *one-fourteenth* part of the stock, or *seven out of a hundred*, are annually destroyed. The loss of seven hundred and fifty thousand sheep annually on the Scottish walks, is enormous, which, at the moderate calculation of ten shillings each, appears to rise as high as three hundred and seventy-five thousand pounds a-year."

"In favourable years and sound pastures, with good management, the losses in sheep do not exceed five per cent. But to balance this, there



are tracts of sheep pasture, where the farmers *expect* to lose ten per cent. one year with another. The temptation held out by good seasons, misleads the injudicious to overstock. Then, on the approach of bad years, or destructive storms, the sheep are much reduced in number, and greatly more in value. On the whole, seven out of an hundred are allowed to be a *sufficiently moderate* average of general losses."

"It is a curious and interesting question, What proportion of these losses falls on the proprietor of the soil? The farmers are aware of losses, and they compute accordingly in their offers of rent; they compute only on the actual and real returns which a farm has made in a series of years, after the losses have been sunk or deducted. In this way the tenant must compute, as it would mislead him to adopt any other mode. But by this computation, the weight of the losses is sunk, not upon the tenant, but upon the soil. A stock is generally worth from four to seven years' rent, and therefore a loss of seven per cent. on the stock must amount to a heavy drawback in the rents; not less than twenty-eight, and rising to forty-nine per cent. And of this great loss, although the tenant may in some cases bear a proportion, yet for the most part, the largest share falls upon the owner of the soil, in the diminished rent that he draws. At the same time, the tenant also suffers, because he must *employ a larger capital than would be necessary to give him an equal return*, were he to be secured against losses in his stock; and he is

also obliged to be at much expense and trouble in guarding against accidents, and in keeping up the good condition and character of his flock. With regard to the consumers, on the return of such years as 1794 and 1799, they must submit to pay a higher price, till better seasons have increased the numbers again, and when these exceed the demand, the price falls, of course."

"It appears therefore of *importance to all classes* to have it ascertained whether it be possible to prevent a proportion of the losses among sheep? and, if so, *by what means it may be done.*"

"The mountain sheep are in general hardier than horses and cattle; they can also live longer without food, can dig through the deep snow, can lie down above the snow, or remain for a time under it, where it would be folly to expect that cattle or horses could exist; and, in bare pastures, under bad seasons, chiefly in spring, sheep can support themselves, when the hardiest cattle must have perished for want; sheep are therefore possessed of a constitution more hardy than that of horses or black cattle; and as few or no sheep are allowed to live so long, that they can be supposed to die of old age, it might be expected that the losses among them should be much less in proportion than those which take place among cattle and horses: but the fact lies on the contrary side. Immense numbers of sheep are lost by diseases and accidents to which horses and cattle are not exposed. Hardy as they are, their natural constitution cannot protect them against every peril:

and some sheep are small sized ; others are lean, or even rotten ; foul in the skin, degenerating in species and quality ; torn in the wool, and lost by wild beasts or birds, and by various distempers, all in consequence of *want of care and protection.*"

"The question now appears in this shape, viz. Can this care and protection be afforded to sheep ? And how far is it necessary and likely to succeed ?

"In answer to these questions, it may be observed, that careful and sensible managers are for the most part in possession of a healthy stock, that has a good character, and returns corresponding profits. At the same time, it would be absurd to expect that losses among sheep stocks should be wholly prevented by any means whatever. But if we are all in earnest to prevent losses, we must *begin at the foundation*, and then all concerned must contribute *their respective shares*. The land proprietor will not, or ought not, to leave this matter wholly to the tenant, nor the tenant to the shepherd, or if they do, matters must continue to go on in the same course as usual ; the sheep walks must witness many a heavy loss, which will be considered as matters of course, the cause of which must be charged upon the farm. But to prevent these losses as far as possible, *let the land proprietor do his part*, and bestow attention on the efforts of his people ; and his example must operate powerfully on others, while, by his judicious measures, he puts it more in their power to co-operate in this important undertaking."

"The great object to be kept in view, ought

to be, the "prevention of losses." Some distempers of sheep may be cured; and when that is practicable, the means ought to be employed. But medicine should rather be *the secondary object*; and the primary concern should be, to *prevent diseases and accidents*. It is evident that the eye of the store-master, and of his shepherds, must be of importance to promote this design; but it is not so obvious what part the land proprietor may act in this matter; yet *his part is really at the foundation*. Unless the land proprietor step forward in this business, so interesting to himself and to the public, the hands of the tenant must be very much fettered; and having little in his power, he has often as little inclination to set to work. But if the owner of the soil be at proper pains, he will seldom fail to improve his sheep walks; and by diminishing the risk of losses, he, of course, increases his rents."

"The number of diseases to which these creatures are exposed, and of fatal accidents by which they suffer, account too well for the heavy losses that store-masters, in the first instance, sustain; and that fall eventually on proprietors. One can hardly reflect on these matters without asking *whether proper measures have been adopted to lessen these losses?* The answer of this question *will not afford much satisfaction*, if the general management be taken into view. Yet there are pleasing exceptions from this remark; and the effects are encouraging to others. Proprietors there are, who are at pains to lay out their sheep-farms with care and judgment, and to use all convenient means to ren-

der them safe, which, of course, insures their value. But it cannot be denied, that too many of the sheep-walks of North Britain *exhibit no marks of skilful industry*, and appear *like mere deserts*, fitter for the wild goat, or for the deer and roe, to inhabit, than seek not for the fostering hand of man, than for sheep."

The Doctor observes further, "that proprietors will find it necessary to *put their own hand to the work*, to furnish the means to others, and to watch over the progress with attention. Proprietors have the *greatest* interest in this matter, out of all proportion. And it is a matter of pleasure to reflect, that, on a deliberate review of the whole, there is reason to be persuaded that many heavy losses in sheep may *be effectually prevented* by the use of means."

"To leave this matter to the tenants and their shepherds, is really to invert the natural order of things, the effects of which must be, to leave them as they are. The countenance and notice of the proprietors should be a stimulus to the tenant, and then it must follow, that the shepherd also will be attentive. This is a more natural order of things, than for the owner of the soil to leave the matter to a man who has only a *transient* interest,—while he, in his turn, devolves it on his servant, who has frequently no interest in the matter at all."

These valuable observations will, no doubt, be duly appreciated by landed proprietors, possessed of mountain farms; and when they contemplate that all these losses operate immediately in re-

ducing the amount of their rents,—and if it can be proved that they may either be totally, or even considerably diminished, by carrying into effect such measures as it is our present business to recommend,—surely they will not fail to give the subject such consideration as will lead eventually, or rather speedily, to the execution or completion of every design.

For further information on this subject, by the Rev. Dr. Singers, see vol. iii. of the Transactions of the Highland Society.

We have now had a brief but general view of the consecutive visitations of the storm, as occurring for the last two centuries over a limited extent in the “Pastoral Division;” and if any credit is to be attached to these descriptions, or, in other words, if there are little or no pains taken to “provide food and shelter during the time of hunger and the storm,” it must appear quite evident, as we have said before, that *the ultimate security of the flock depends almost entirely upon chance.* If the season is good, the sheep will continue to thrive, or not fall off much. If the winter is hard, some few may be lost; but if very severe and protracted through the lambing-time, (without even amounting to such an extent as already mentioned,) then will the loss be desperate indeed. Can any one, therefore, persist in such absurdity as to maintain that there exists no room for amendment; or that his property, by which he lives and pays his rent, should be left to such chance, without ever seeking to avert the danger that impends? If we answer, No; why, then,

do we continue, year after year, in the practices of old, dreading such seasons as every one knows have already occurred, and which, to our utter confusion, may at any time return? Why not endeavour to institute a system of management as regular and secure as the extent of our means, and the nature of the land and climate, will admit? Have whole flocks been destroyed, or a partial hirsel lost? Have the traditions of past years been considered, or such losses endured within the memory of man? Thousands there are alive who have witnessed such scenes, and farmers are well aware; but many landed proprietors, who know as little as they ever see of their estates, especially in these times of wanton, ungenerous, selfish, and parricidal desertion of the land, are as ignorant of these facts as if they had never actually occurred; notwithstanding which *rents must be paid*, if not always to the utter destruction of the tenant, at any rate to an inconvenience, perhaps never to be retrieved. If a man uses not exertion adequate to the necessities of the flock, it is questionable, indeed, how far he merits the liberality of his landlord; but if he only errs through ignorance, in common with all others, and has not, perhaps, within himself the means of amendment, the strongest case is immediately made out for that joint exertion which can alone insure security to the one, and a continuance of fair and equitable rent to the other.

Not only the thanks, indeed, but the gratitude, of every store-master, is justly due to Messrs. Hogg and Laidlaw, for their having thus collected, ar-

Men always  
prefer land  
unless —

ranged, and given to the world, a series of facts so nearly touching our precarious prosperity; the *mere contemplation* of which *ought* to be sufficient in our present state, to overwhelm us with terror when we look forward to the approach of the winter storm, and the *attentive consideration* of which, *must* tell us in plain terms to our faces, *that our system of management and security is utterly defective.* It is not sufficient for us *merely* to read and believe, and then join with Mr. Hogg “*in hopes* that Scotland may never witness the like again;” we must look boldly to ourselves, remembering that those dread seasons which have already so frequently occurred, *must in the general course of nature inevitably return*; and who would wish to afford a second instance of Mr. Thomas Beattie and his 72 scores?

And, after all, whence comes this formidable engine of terror and distress? And of what is this mighty element composed, before which our shepherds and our flocks must thus fall prostrate? Assuredly, the Great Creator of us all, “*who looketh to the ends of the earth, and seeth under the whole heavens, to make the weight for the winds*”—has endowed *us* also with art and reason, more than commensurate with our most perilous necessities. How does exist in everlasting storms the miserable savage of the arctic shores, or the scarce less savage of Siberia? What advantage have not we above them in climate, soil, and seasons? Is it not clear, if means are thus devised for the preservation of the human race at times and in seasons, with which our difficulties can bear no comparison,



that *we also* have it in our power to provide such means, as shall at once substantially preserve our shepherds and our flocks, far beyond the reach of the most desperate emergency? Let us, then, consider boldly the extent of our difficulties, behold them even in their most naked deformity,—urge every exertion,—let us encounter the violence of the storm with our utmost energies, and soon shall his terrors all recede, as the flitting of an evil spirit; and thus, and in no other way, will every difficulty and every obstacle to improvement, however frightful in appearance, yield prompt obedience to that undaunted power and perseverance of which our human natures have been made so capable,—remembering that, if our first efforts should prove fruitless, others may yet succeed.

It may be thought singular, that in the various quarterly reports from the counties of Roxburgh, Selkirk, and Dumfries, as published in the Farmer's Magazine, no mention appears to be made of these calamitous occurrences; a circumstance the more to be regretted, as they would long ere this have attracted the notice and consideration of those who, by their writings and exertion, have already conferred the greatest benefits upon the nation in general. Did the reporter reside in the *lower* part of the country? then was he shamefully ignorant of what was going on in the regions above him; and with what face, or with what ability, could he pretend to inform the public of passing events, so interesting to national wealth and personal prosperity? Was he ever connected with, or actually a

sufferer himself? In that case, like most others, it may be inferred, *he was afraid to mention his losses*, of all considerations and circumstances, the one best adapted to prevent every useful inquiry and every subsequent improvement.

The patient endurance, or rather the listless inactivity, produced in the mind of the farmer, by *hopes and partial thaws*, as exemplified particularly in the winter of 1772, affords frequent instances of the ruinous consequences of being unprovided with food and shelter during the continuance of a long protracted storm. Always *intending* to remove the stock to the lower parts of the country, where *hay* and turnips may be found, and seldom *performing* it till the creatures are too much debilitated to withstand fatigue; if many of them are not lost upon the journey, or during their absence from their own pastures, numbers are often sacrificed on their return; partly by the scarcity and sudden change of food, and very frequently by the *recurrence of another storm*. In this case, it is impossible to calculate to what extent the destruction may amount; to *fly* again, is impracticable, and the second state of that flock becomes worse than the first; the master also a considerable sum out of pocket, for which he has reaped no benefit, and all this trouble and expense incurred by the usual and systematic neglect, in not having provided food and shelter of his own. There are many seasons so fine, and even sometimes a continued succession of them so favourable to the stock in all respects, that with the greatest abundance of hay at command, per-

haps but a small proportion might be used: Thus naturally the farmer becomes careless and forgetful; ever hoping for the best, he calculates that the trouble, and perhaps some little expense, in making such provision, has thus been fruitless; and, consequently, in times to come, he lives in the same habitual neglect, till the sad recurrence of some luckless blast shall arouse his slumbering imagination to the truth: But, with regard to artificial shelter; when once provided, it will remain for ages; and no man yet ever witnessed a winter among the mountains, when there was not more than sufficient occasion for it. Of all experiments, therefore, which have been ever devised for the preservation of the mountain flock,—*flying* to a lower situation, or a better climate, in preference to foddering at home, appears to be one of the most dangerous and unprofitable expedients which have ever yet been adopted through the blunders of pressing necessity. It ought to be the constant object of every store-master, *so to appropriate* his means, that his farm shall be dependent upon *itself alone*, otherwise it becomes no longer *a farm*; and although it has been stated from the high authority of the “General Report” itself, that many farms “do not produce hay sufficient for a week’s consumption, and some of them *none at all*;” yet, allowing such to be the case, we are fairly entitled to inquire, what means have been used to obviate the difficulty or remedy the defect? To say that *hay* does not always grow where *grass* grows, may perhaps be consistent with the truth; but it ought also to be remember-

ed, that the finest arable district would never have produced one single boll of corn, had not *pains been taken* to cultivate it; and, by the same rule, whenever a renovated diligence and exertion shall have banished the present systematic inattention and neglect from the deepest recesses of our mountains; then will it clearly be ascertained, that hay can be raised in abundance, even in the most unfavourable situations.

But we shall quote the authority of the "Shepherd's Guide" upon this subject, wherein Mr. Hogg says, "On all farms that are subject to lying storms of hard snow, the farmer should be careful to raise plenty of hay. There is no farm on which, by irrigation or composts, a quantity of hay cannot be raised sufficient to meet every emergency. But, as it is not needed every year, it has been unaccountably neglected; though, in many of the inland districts of Scotland, they hold the health and lives of their sheep on very uncertain tenures, from this one circumstance; while a good stock of hay would, at all times, render any of them secure on that head. "I have known," says Mr. Hogg, "on such an occurrence, 50,000 sheep all driven from their respective homes, and crammed into the lower parts of Dumfries-shire at once; where, though the farmer was obliged to comply with exorbitant demands, on the part of such as let the ground, his sheep were often much hampered." Now, it is plain that this is a very disagreeable task, and attended with much difficulty and danger; but it is often the only alternative left to the farmer, beside that of losing

his stock. In the first place, the sheep are wasted by being driven so far through hard snows, commonly much circumscribed in their wonted range and meals while there, and always much harassed on their way home, after the thaw, when every little rivulet is flooded and gorged with snow and ice; in addition to all this, it very frequently happens, that he drives them away thirty or forty miles uselessly, there being nothing more common than a thaw immediately succeeding a great frost; and, when the frost is at a height, the farmer is most apt to flee with his flocks. The treatment they are obliged to undergo, during these jaunts, never fails to prey severely on their constitution. A certain author remarks of the Scots, that they have every kind of sense but common sense. Certainly the jest is applicable to many of our Highland sheep-farmers, who are so careful to improve their breeds, and yet neglect this one thing needful, *to have always a stock of hay for the sheep*; and if they do not need it, let it be given to the cattle or horses next year, and let the hay of that year's growth stand. This would always secure to the farmer the following advantages:—Possibly the ground might not remain locked up by the snow above a few days; in that case, it would preserve his sheep from a long and wasting jaunt. And even in the longest and most severe storms, there is always some meat to be had at home, which, with a foddering of hay evening and morning, and ease, keeps them commonly much better than those that are driven to the low coun-

tries. Besides, there is generally a recurrence of temperate and soft days, when the sheep can get their bellies full; and, when a thaw commences, they have nothing more ado than rise from their layers and fall to their meat, while others have many a weary mile to travel."

We presume, now, that the experience of Mr. Hogg, who "has known FIFTY THOUSAND SHEEP all driven from their respective homes, and crammed into the lower parts of Dumfries-shire," is fully sufficient to confirm every argument we have already adduced, in favour of the one system of *feeding at home*, and against the other of *flying with the stock*.

But, by way of further illustration, we may be excused for transcribing from the "Transactions of the Highland Society," the very forcible remarks of the Reverend Dr. Singers; a gentleman who, as we have seen, has dedicated much valuable time and experience for the benefit of the practical farmer, and the nation in general. He says, "when a partial thaw comes on, after a fall of snow, and is followed by hard frost, the sheep are all at once deprived entirely of their food. They could have dug into the snow while it was soft, and found substance at the bottom of it; but this cannot be done when half thawed, and afterwards crusted over by a frozen plate. If such a state of things continue above a day or two, the sheep must be supported in another manner, otherwise they fall greatly away, and become very unfit to contend with the severities of the remaining parts of winter

and spring. To retreat into a lower district, where they may find pasture, *is not always practicable*. Of what importance, therefore, does *a stack of good hay appear*, when the stock is in such a situation? A stone of good hay supports a score of sheep for a day, computing 24 lbs. avoirdupois to the stone; and they lose very little of their vigour or flesh."

"PROPRIETORS may consider the importance of such a provision; and if they desire to see the stack of hay, it is necessary to *give encouragement* to rear it, and to furnish a stimulus by their countenance and attention."

"I have known," says the Doctor, "farmers paying snow-mail, at the rate of L.10 per day, and their sheep, after all, *poorly subsisted*."

## CHAP. III.

## STELLS AND STORM-FEEDING.

IT may be considered as a remarkable circumstance in the annals of store-farming, that there should exist, even at the present day, so great a diversity of opinion upon the plain subject of "stells and storm-feeding." That farmers should differ as to the *best* method of carrying these objects into execution, is by no means extraordinary, considering that their opinions have generally been formed from the peculiar *local* circumstances in which they may have been placed, and without having investigated the matter farther than common-place necessity or a slight individual convenience seemed generally to require. But that there should actually be found others, who deny not only the *practicability*, but even the *utility*, of providing food and shelter for the mountain flock during the barren and tempestuous season of the year, is a circumstance perfectly decisive of the error and absurdity into which a man is liable to fall, from the



want of duly and impartially considering his subject, and applying it with care and perseverance to the test of practical experiment. (Note 6.) No person can be entitled, in common justice, to find fault with another, who cannot *immediately* be persuaded to renounce his old opinions; but, on the other hand, a considerable degree of attention is but justly due to any one who shall either propose new plans of improvement, supported by facts and simple argument, or who shall have illustrated by practice, the utility and advantages to be derived from the adoption of any such improvements. As it is difficult to find any two farmers who shall perfectly coincide on the superiority, in point of perfection, of any one set of stock that may be submitted to their consideration in comparison with another of similar value, so will it be equally difficult to find any two, who, in the management of their mountain-flocks, appear actuated by similar opinions, under all and similar circumstances. These differences may be ascertained in the exemplification of every day's practice, and in every day's familiar conversation.

Wherever no regular system has been laid down for the purpose of attaining a specific object, it is evident that the most contradictory and injudicious means will be adopted by many, in their endeavours to gain the same end; but comparative eminence and success can only attach to the most judicious and the most industrious. There is nothing of such vital importance to the stability of the store-farmer, as the successful management of

his flock. It enhances not only his *temporary* or *annual* interest, but his very *existence* through life as a farmer. There are, as we have seen, many instances of mismanagement on record, or deeply noted in the minds of individuals; but these, again, are too often ascribed to *misfortune*; and, although we have seen a precarious, and sometimes even a most substantial success, attendant upon a great proportion of our farmers, arising from a continued train of high prices, favourable seasons, or other fortuitous circumstances; yet may it clearly be proved, that although they may have been enabled to pay their rents, and to live comfortably in many instances, yet such great losses have frequently been sustained in severe winters and springs, that no amelioration of times or prices can restore the sufferers to their wonted comfort and independence. Under these circumstances, in *one* point of view, the farmer is silent; he is (according to the custom of the country) *afraid to mention his losses*. Without inducing *certain* ruin, a protracted winter, followed by a cold and barren spring, often entails a positive calamity upon both stock and farmer. The ewes are famished and reduced in condition; unable to rear their lambs, and deficient in weight of wool. Great numbers, consequently, both of ewes and lambs, fall victims of inclemency and hunger. The farmer, on his part, bereft of his customary supply, frequently becomes unable to pay his rent; thence, naturally dispirited, dissatisfied, and forlorn.

The very singular and self-complaisant expres-

sion resorted to by many sheep-farmers on the smart of a severe winter; that "*they are afraid to mention their losses,*" is one which exhibits a degree of thoughtless yet serious pusillanimity, arising entirely from a want of investigating with candour, the causes of such losses and the means of averting them. To the mind of the less cultivated shepherd, unconscious of the causes which operate in developing the various phenomena of nature, considered either in the thunder storm of summer, that rolls along the mountain, or the snow-storm of winter, that threatens with annihilation all animated nature,—to such a mind as his, at once religious and superstitious, the practical effects of such storms must be allowed to operate, in silent dread—in fearful taciturnity; but that the very respectable and well educated farmer should be led to account for his misfortunes in any other manner than by that which is deduced from clear and open investigation, appears to be an aberration from common sense and reason, altogether unjustifiable among men, otherwise remarkable for their education, prudence, and ability.

It may be said that such "fear" does not arise from superstition, but from a wish or inclination to forget a subject replete with so much care and so much calamity. Be it so; still the latter case is worse than the former. Superstition is innate in the human mind, and often proof against all the powers of reason or of education; but a man who willingly and anxiously shuts his eyes to the truth of effect, and who shudders at the contemplation of

disasters, the investigation of which can *alone* discover the preventive,—that man deserves, not to be commiserated for his misfortunes, but to be pitied and reproved for the misapplication of his intellects. The truth is, that when a proportion of the flock is lost, either by the slow and certain means of starvation, or by the overwhelming effects of drifted snow; or when the tender lambs are found strewed lifeless in strange confusion upon the hill; that the farmer is then *ashamed* to recount his losses to his neighbour; his neighbour, not more fortunate than himself, is equally disinclined to confess; and thus the whole country remains in comparative ignorance of events, till the high-towering load of the *murt-gatherer's* horse is seen to issue from the mountains, a melancholy spectacle of the ravages of the tempest and the carelessness of man.

Instead, therefore, of every one retiring sullenly within himself, gathering his brows, nursing his vexation, and brooding in silence over every misfortune or neglect; how much more amiable, how much more enlightened, how much more profitable and cheering, would it be, were every man to meet with his brother in distress! Nay, even were the sufferers to meet in small circles in each other's houses, there expressly to state each particular instance of calamity, to point out the particular direction and violence of the storm, the situation of the ground upon which the loss occurred, the numbers rescued, the danger and difficulty of doing so, the previous means that were used either to pre-

vent, or the subsequent measures adopted to avert, the recurrence of such mischief; and, in short, to discuss dispassionately, faithfully, and fully, all the causes and consequences of not being adequately prepared to counteract, endure, or oppose, every danger that is liable to arise, from the effects of such sudden and overwhelming blasts.

In this manner, a candid statement of facts, followed by due consideration and experiment, would soon excite a degree of professional intelligence hitherto unknown,—would propose and introduce a *regular system* of operation, and finally induce the most lasting and beneficial effects. Had the nocturnal lucubrations at Entertrony, (as mentioned in the “*Shepherd’s Calendar*,”) been devoted to these purposes, it is impossible to say how much good might not have been derived from the experience, intelligence, and activity of Mr. Hogg and his associates of the mountain. It is obvious, however, that a careful investigation of facts will explain every difficulty, and arrange, in a clear and perspicuous manner, in the mind’s eye, every seeming anomaly, which could not easily be reconciled at first sight, by a mere partial or superficial consideration. The mind being thus duly prepared by industrious investigation, must accompany the body to the scene of action; and, having perambulated, and carefully and repeatedly surveyed, the scene of desolation,—no difficulty whatever will be found in coming to such plans and conclusions, as, when adopted and carried into effect, shall materially

conduce to lower the estimate of probable disaster in times and emergencies to come.

What a melancholy impression is produced upon the mind of the observer, when he beholds the scattered produce of his farm strewed, lifeless, and disclosed by every dissipating wreath of snow! The mere consideration of humanity alone ought to be sufficient to awaken every energy of the soul; but when the recollection of the DAY OF RENT passes as a dark cloud across his mind, what must be the tumult of his passions,—perhaps amenable to an unrelenting landlord, and surrounded by a helpless offspring!

Such has been, and is yet frequently, the case, that a few hard seasons overwhelm the farmer in irretrievable distress. If the weather can thus commit such depredations on the flock,—if the ruin of many an honest man is induced thereby—why do not the landed proprietors come forward in assisting to provide adequate security for that very flock, from which their own rents must be derived? The fact is, the landlords in general know little or nothing of the subject, and not one farmer has ever yet come forward, openly and avowedly, to *state his losses in round numbers*, and bearing in his hand any general plan of rational inquiry, and of probable or eventual improvement. It is quite clear, that the ignorance of the landlord on the subject of these losses, arises almost entirely from the “fear of the farmer to mention them,” and that this “fear,” is the radical and substantial antidote to every attempt at a general and well defined system of improvement.

Farmers *must get the better of this "fear,"* and, having considered well the nature and expense of necessary and substantial improvements, they may then have an opportunity of openly and candidly laying their claims before their landlords, upon fair and equitable terms; who, no doubt, from a proper conviction of mutual necessity, will enter into their views, as far, or perhaps even farther, than may be actually required by the relative obligations of the one party towards the other.

On the smart of a bad season, a reduction of rent is frequently applied for; a very humiliating alternative on the part of a tenant in the middle of a lease, and who perhaps may have formerly made money upon the ground; and, without doubt, it is a favour granted with very bad grace on the part of the proprietor; but, upon these occasions, if the tenant would but come forward with a fair and open statement of facts, causes, consequences, and effects; and, along with the request of a temporary relief, propose some general and feasible plan, as before stated, which should tend to prevent the recurrence of similar disasters,—there is not a doubt but that he would be listened to with the utmost possible attention and regard.

Food and shelter, it may be granted, are the two great preservatives of *human* life; and it is no degradation on our part to allow, that *such conveniences are equally necessary* for the preservation of the *brute creation*. How easy may it be, then, to avert, or, at any rate, to reduce, the extent of probable losses, by the institution of a SYSTEM OF STELLS

*well provided with such winter food, as is either commonly to be found, or easily to be raised, upon any of our mountain farms!* By the word "stell," in the Scottish language, is meant a "plantation," which no doubt affords the very best of shelter, though perhaps not at all times the most advisable; in the extended sense, however, the word "stell" in *pastoral language*, may be adopted generally as a place of "artificial shelter," whether composed of trees, stone, or other material. "Natural shelter" is that which is found on the *lee side* of the hill, in hollows, behind rocks and rush-bushes, moss-hags, and heather-cowes, &c.; all of which, however to be prized in *black storms*, are frequently disastrous in the extreme during the drifting of the snow.

The snow which falls perpendicularly to the ground during a calm, and in most places equalizing its depth, presents *for a time*, but little obstacle to the sheep in acquiring their food: so easily are they enabled to penetrate down through, by working and scraping with their feet, as long as it continues unfrozen at the surface, and otherwise of a convenient depth. But even under the most favourable circumstances that can be imagined, and perhaps scarce ever experienced when the pastures are thus totally immersed, it is imperatively necessary, that a plentiful supply of hay should be widely and generally distributed, at all such quarters as the prevalence of the wind or other local circumstances may seem generally to require. The very circumstance of the whole surface of the hill being thus



covered, is *in itself* sufficient to fill the mind with the most terrible forebodings of a DRIFT.

The "Farmer's Magazine," that great emporium of agricultural intelligence, and which affords a gratuitous and wide-spreading channel through which the speculators in rural economy may publish their ideas to the world, although containing many excellent papers on particular points connected with the science of store-farming, yet there is not one to be found, in all that useful miscellany, which embraces the whole as a "well digested system." In the year 1817, the Etterick Shepherd, indeed, has a very able paper on the *then state* of sheep-farming; extracts of which are here transcribed and recorded for the edification of all concerned. He goes on by saying, "I neither rent lands from any proprietor, nor have I any of my own to let; consequently I have no further interest in the statements which follow, than any other well-wisher to the general prosperity of his country may be supposed to feel on that account alone. The difficulties and embarrassments of those engaged in our agriculture, have of late years excited a high degree of interest; but the peculiarly critical state in which the sheep farmers are placed, has not only been neglected, but seems to be *utterly unknown*. Few of that class *think of publishing their difficulties*, OR ANY STATEMENT OF FACTS, further than laying them before their lairds; who seem of all men the least disposed to give publicity to such statements, or *even to admit their reality*." This latter sentence, indeed, contains a grievous charge against the landed proprietors,

and which we hope to have been unintentional, particularly as the great weight of it is quashed by a preceding sentence, which asserts that "the critical state in which the sheep-farmers are placed, has not only been neglected, but seems to be *utterly unknown*." Without attempting to enter into a minute consideration of this question in all its bearings, we may conclude generally that the landed proprietors were perfectly aware of the *depreciation in the value of stock*, although not of the *losses* sustained the winter before; that they had many claims for reduction of rent, that these claims were admitted by 99 out of 100, whenever a proper case was made out; but that the farmers themselves *never published* those facts, which have since elicited from Mr. Hogg the following very animated description; or, if they have, where are they?

He says, "As it was my fortune to visit most of the pastoral districts in Scotland last summer, both in the north and south, you may depend upon the statements I give, as being as nigh to the truth as any average view may be of a scene so diversified. In the *first* place, then, I cannot calculate the *actual loss of sheep and lambs* last spring, as *less than one-third* of the whole number over at least two-thirds of Scotland; that is, there was fewer live stock, old and young, upon those lands, before the summer sales commenced last year, than there ought to have been. In that range of mountainous country, stretching from Inverness to the banks of Loch Lomond, I know the loss by death to be much beyond that. For *every five lambs* that went to be

brought to market from these extensive districts, there *was not one* at an average last year, and these most wretched, both in size and quality. Even at St. Boswell's fair, which is the greatest market in the south of Scotland, for prime lambs of the Cheviot breed, it appeared by the customs, that there *was not one-third* of the numbers that had been there in some previous seasons, neither was the demand nor the prices good for those that came, owing partly to the inferiority of the stock."

"In some of the districts, indeed, that lie contiguous to the Atlantic, the loss of full-grown sheep was not material, but in every quarter the loss of lambs was great beyond example. I chanced to travel over several of the interior districts of the Highlands, in May last, at the very season when it is generally most delightful to journey through pastoral countries; while the lambs are playing in jocund groups, and their dams feeding at ease on the still-freshening sward; but such a scene of woe and misery as the woolly tribes then presented, I never witnessed, and *hope* never to witness again. During the severe weather that occurred late in May, the ewes that had nursed their lambs carefully, *though with difficulty*, for several weeks, *left them by scores to perish*, and seemed glad to get out of their sight: *famine* overpowered the kindness of their nature; they scarcely uttered a bleat on leaving their helpless progeny to immediate death, and I could not help thinking there was a kind of despair in their looks and motions, that I had never seen before. One cold inclement day, in a walk

through the braes of Glenorchy, I counted *upwards of one hundred lambs by the way*, that seemed all newly dead, and nearly as many more that had lain quietly down to perish without further exertion. In fishing along the river Lyon, for about two hours, one day, in THE FINEST PASTURE GLEN OF THE HIGHLANDS, I counted *sixty-three carcasses of old sheep* by the side of the stream, all appearing to have *died of sheer hunger*. But it is needless to descend to particulars. Were I to detail every individual loss that was recounted to me, I might *fill up your whole magazine.*"

Thanks again to the "bard and shepherd," not exactly for having rescued these facts from oblivion, as generations of the sufferers may still pass downwards, bearing the ruthless tale upon the stream of time, but for having thus been the only man among thousands who has dared to publish such facts in the face of day, which, to some of those most interested, would have otherwise been "utterly unknown."

It is unnecessary to follow Mr. Hogg further through this dissertation, as it might lead to a good deal of argument foreign to our present purpose; but for the sake of those who are desirous of becoming acquainted with his views at the critical period to which they are adapted, it is only necessary to turn to page 144, vol. xviii. of the Farmer's Magazine, being in May, 1817.

It appears by this evidence, that the farms in the Highlands are not more secure than those of the "pastoral division;" and that, even in "the

very finest pasture glen," there were counted *sixty-three* old sheep in the short space of two hours' fishing, which had all *died of sheer hunger*.

It is probable that this affords but a mere glimpse of the casual losses endured in the Highlands; and, as the great proportion of rent paid in that division of the kingdom is derived from *live stock*, it becomes absolutely necessary that the proprietors should turn their attention to some plan of remedial effect.

Many of the farmers of the south are concerned extensively in the operations of the north, and as they cannot be present personally in both quarters at once, such losses are grievous and vexatious in the extreme. For although we maintain that no regular system of *management and security* is adopted in either the one quarter or the other, yet it is always satisfactory that the farmer himself should be present on these occasions, were it only for the purpose of convincing himself that every *usual* exertion has been made by those who are principally entrusted with the management of his flock. Others, again, in the south, who are in no wise implicated in northern speculations, possessing a happy degree of disinterested feeling toward their brethren, sometimes look forward with no small silent satisfaction towards a *storm in the Hielands*, for the very glorious and patriotic purpose of *mending the times*. This worthy consideration arises from a conviction that the Highland farms are less secure than those of the Lowlands, and that the odds will be in favour of the latter; but just let such charitable sub-

jects consult the foregoing account by Mr. Hogg, where it will be found that the losses were pretty much the same in both quarters, and they may then draw a fair estimate of the advantages they are likely to derive from the comparative effects of the storm. It is very possible, perhaps, that Highland proprietors may in some instances have been considerably benefited by the introduction of the Lowland management with all its deficiencies; but no consideration can tend so infallibly to annihilate every generous sentiment, every useful endeavour, every step towards the general improvement of the whole country, as when any one set of men shall build their hopes of prosperity and success upon the ruin and destruction of another. An honourable competition between man and man is not only most praiseworthy, but attended with a positive and individual benefit; so, instead of thus hoping to destroy one another, the joint exertion of every wool-grower should be directed to the one great end,—that by so improving the quality and the quantity of their staple, they may be enabled to drive the Spanish, Saxon, or other foreign competitor, clean out of the British market altogether.

This, perhaps, may be considered as “a forlorn hope” at present; but let it be remembered, that every single step towards so great a consummation, will tend to enhance the prosperity of those who have been the means of effecting it; and, for the further encouragement of such as are neither fond of innovations, nor remarkable for stepping aside from the regular and well-beaten track of their

“auld forbears,” we beg to recommend a careful perusal of “DR. PARRY’S FACTS AND OBSERVATIONS TENDING TO SHOW THE PRACTICABILITY AND ADVANTAGE TO THE INDIVIDUAL AND THE NATION, OF PRODUCING IN THE BRITISH ISLES, CLOTHING WOOL EQUAL TO THAT OF SPAIN,” &c. Also REPORTS BY THE REV. THOMAS RADCLIFFE ON THE FINE-WOOLLED FLOCKS AND THE MERINO FACTORY OF THE MESSRS. NOLAN AND SHAW IN THE COUNTY OF KILKENNY ; and ON THE FINE-WOOLLED FLOCKS OF LORD VISCOUNT LISMORE AT SHANBALLY CASTLE, in the COUNTY OF TIPPERARY : and HINTS AS TO THE MOST ADVANTAGEOUS MODE OF MANAGING THE MERINO BREED OF SHEEP IN CAITHNESS, BY THE RIGHT HON. SIR JOHN SINCLAIR, BART., all of which are applicable, more or less, to many situations in Great Britain, and Scotland in particular. Note VII.

After this short digression, we may now turn our attention towards the situation of the flock on the verge of winter. At this time, the hills, though no longer exhibiting the beautiful verdure of the month of June, retain yet upon their surface a plentiful supply of pasture, continued in mild and open weather, by an active vegetation. The sheep, in full vigour of condition, unconscious of the doubtful aspect of the times, are wont to stray to the very utmost limits of the range ; and, by an intuition peculiar to themselves, are ever found at midnight along the very pinnacles of the mountain, or immured in glens and deep recesses—“far in the wilds.”

Here, by a sudden change—

“ Through the hushed air the whitening shower descends,  
At first thin-wavering ; till at last the flakes  
Fall broad, and wide, and fast, dimming the day  
With a continual flow.—The bleating kind  
Eye the bleak heaven, and next the glistening earth,  
With looks of dumb despair ; then, *sad dispersed*,  
Dig for the withered herb through heaps of snow.”

——— “ Now from the bellowing east  
In this dire season, oft the whirlwind’s wing,  
*Sweeps up the burden of whole wintry plains*  
*At one wide waft, and o’er the hapless flocks,*  
*Hid in the hollow of two neighbouring hills,*  
*The billowy tempest whelms ;* till upward urged,  
The valley to a shining mountain swells,  
Tipped with a wreath high curling to the sky.”

Who shall attempt, after the BARD OF EDNAM, to describe a visitation of the storm, so sudden, so awful, and with such effect, as is alone pourtrayed by the element itself? Suffice it then to say, that when the poor creatures are thus unwarily and unexpectedly overwhelmed by the snow ; that not only their own efforts of escape, but the most active exertions of the shepherd, are thus rendered of little or of no avail. Here, then, it may be seen, that “ natural shelter,” or the “ hollow of two neighbouring hills,” becomes the great receptacle of “ drift ;” and, in consequence, the very harbinger of death. The shepherd’s care is now to wade from “ hill to dale,” searching his flock beneath the “ formless wild.” Armed with a spade and pole, and attended by his trusty dog, whose sagacity oft leads to the hidden flock be-



low, he braves the tempest in the dangerous pursuit, and thus haply may he rescue a portion of his charge. Note VIII.

Of what invaluable utility would a PLENTIFUL SUPPLY OF STELLS be accounted on such occasions. At the commencement of the fall, "at first thin wavering," the sheep, aware then of their situation, and accustomed to the stells at every season, would naturally draw forward, and by contiguity reach them with little exertion. There in safety might they remain till the blast was o'er, and the pastures clear again; but allowing, even on the first occasion of the season, that the unsuspecting creatures should not have exhibited that degree of care and circumspection which is so remarkable at a later period of the year; what convenience would not these stells afford to the shepherd, in promptly and securely providing a place of refuge for the stock, as fast as he was enabled to recover them from the snow?

It is customary, indeed, when a proportion of the flock has been thus rescued by the shepherd at any particular spot, to drive them forthwith to what shall be *considered* as a place of safety; but taking into consideration, that the time which is lost in thus endeavouring to effect a change of situation, (and which perhaps is never properly accomplished,) might otherwise have been more profitably employed in *further search*; remembering that the sheep are not yet secure from the further violence of the storm or change of wind, and, above all, the situation of the shepherd; perhaps,

“ Far from the track and blest abode of man,  
While round him night resistless closes fast,  
And every tempest, howling o'er his head,  
Renders the savage wilderness more wild !”

Considering all these appalling circumstances, is it not consistent with the laws of humanity—is it not rational, sensible, and profitable, that every endeavour should be made to adopt such plans as may tend, in *any* degree, to counteract those dreadful visitations of the storm? nay, even, is not that man guilty who would neglect it?

“ Natural shelter,” though highly dangerous in a “ drift,” as being more or less liable to become the receptacle of snow, is yet of the very utmost consequence on every other occasion; and there are few of our mountain-farms which do not possess all such advantages in a very eminent degree. Rising gradually but boldly from their bases, intersected by numerous cleuchs, hopes, and glens, they present their wide and extended sides, their various brows and summits, in every shape, to every breeze that blows. With such diversity of external feature at command; the stock are enabled, under *favourable* circumstances, to avail themselves of that shelter on the *one* side of the hill, which they are *compelled* to seek from the other. Thus, fortunately, does nature interpose the varied forms and eminences of the mountain, between the creature and the storm. These natural advantages, without doubt, are of the highest importance; nevertheless, it still becomes both the positive interest and the bounden duty of the master of the

flock, to devote a constant proportion of his time and talents, in considering and effecting the best means of completing and amending all the various works, efforts, or *deficiencies*, of nature. It might appear at first sight, that ARTIFICIAL SHELTER OR STELLS are perfectly unnecessary as long as a hill has a sheltered side of its own; and, perhaps, in a common point of view, the supposition may be partly correct, as long as *the surface of the ground is clear of snow in winter, and the lambs are strong enough to follow their dams in spring.* But, in the event of a long continued storm, when the whole face of vegetation is *completely* covered; when the frozen surface of the snow is almost impervious to the foot; when the animal, using its utmost exertion to procure its food, by dint of labour, becomes imbedded in the snow; when the blast howls fearfully above, and the drift spreads dismally below; when the bed of the hollow burn becomes a plain, and mountains appear to rise from every hillock,

“When boundless snows the withered heath deform,”

“And the dim sun scarce wanders through the storm,”—

it is *then* that the sheltered stell and the well filled rack reward the diligence of the man, and insure the security of the flock. With such provision, the shepherd, enjoying his usual night's repose, needs not, in rising, to risk his precious life against the dark and rising storm. The sheep, conscious of the advantage, and accustomed to the comfort of the stell, resort thither from a natural impulse, an intuitive instinct of avoiding the dangers of the

blast. There in safety they remain, satisfied abundantly with the hay, and return not to their wonted haunts, till warned by a corresponding change above. Thus, during a long and protracted storm, both man and beast find rest and refuge, comfort and security, from the adoption of a simple stell.

At other times, the perseverance of the sheep in working through the snow to reach the grass beneath, is truly astonishing; never desisting till actually compelled, and melancholy is their situation under such circumstances, when no such refuge is at hand. When the surface of the grass is partially, but not deeply immersed; when *occasional* blasts of sleet and snow drive fiercely down the glens, then are the sheep seen also to resort to the stell; and, be it only for the space of one short hour, the blast gone by, they return to the labour among the snow. So much sometimes do they prefer the half-green grass, to the best hay that can be provided in the stell, that, generally speaking, they never leave the one for the other, as long as they *feel* themselves proof against the cold: but the careful and judicious man will always leave it at the *creature's choice*, whether to persevere *without*, or whether to find its sustenance *within*. When the stells are sufficiently numerous, and well situated for ingress and egress, the sheep have been seen many times passing and repassing during the day, according to the change or prevalence of the blast. With a *sufficient* number of stells, unless under very particular circumstances, they ought never to be barred in. Nature or instinct

has taught them when to fly for shelter, and when to return to the pasture; when to partake of the hay, and when to resume the grass.

Without a *regular* and *sufficient* supply of hay, the stell is deprived of some of its most valuable qualifications. Considered as a place of temporary refuge and resort, it ought to contain *within itself*, a substitute for every thing required by the flock without. Sheep have often been observed during a continued storm to linger under the shelter of a wall, making but little exertion to seek their food; and which, at the same time, is probably covered to a considerable depth beneath the snow. This apathy arises decidedly from exhaustion, incurred partly by previous exertion: After labouring long without finding a sufficient supply, the debilitated animal is fain to find shelter where best it can; and, having once acquired a place of security, there insensibly it remains, till death or open weather shall pronounce its doom. In like manner, a *mere solitary and empty stell*, prepared in the middle, or at the extremity of a spacious farm, is well calculated to become the harbinger of death. Travelling from the extremities to the centre, or from any distant situation to another, where such inhospitable mansion is prepared, if death itself does not fix upon many of the devoted flock, it is more owing to the good constitution of the animal than to the good management of the man. But, setting death aside altogether, debility, leanness, and loss of lambs, do most certainly ensue; but, on the other hand, when the stells are numer-

ous and plentifully supplied with food—when the animal can find its way to the one or the other, with little or without *any* fatigue—when it can fasten on the hay and fill itself in comfort, it *never* will be seen to stand shivering under the mere wall, but with good appetite and strong stomach, it will delight to pass actively backwards and forwards, out and in, according to the impulse of inclination, or the peculiar appearance of the times.

These remarks, the *result of observation*, are generally applicable to the situation of the stock during the *winter*; and if at all appropriate in reference to that season, how much more so must they be in many particulars during the season of the spring!

Among the mountain-farms, it does not always follow, that “ethereal mildness,” and the genial warmth of spring, are attendant upon the change of season as regulated by the certain motions of the earth. The spring is said to commence, when the sun, arriving on the equator from the south, enters the constellation of Aries on the 21st March. At that period, our mountains are frequently half-covered with snow; and for the space of two months after, they are constantly subjected to the overwhelming effects of sleet and hail-showers, impelled by the most keen and bitter blasts. Vegetation is also dormant, and it is not until the month of May that the face of the hill again begins to exhibit signs of that verdure which shall soon gladden the heart of the shepherd, and restore new life and vigour to the flock.

At this season, or in the middle of April, commences the most interesting of all events, that are annually developed in the consecutive operations of the mountain-farm. The period of gestation is now closed, and on a sudden the hills appear as starting into life, under the blythsome impression, and the joyous appearance, of the new-born lambs. When the season is favourable, every heart is glad; the farmer looks forward with delight on the prospect of a numerous and improving stock; and even the simple ewes themselves are seen to cherish their tender offspring in conscious joy, with more than ordinary care. But, how often, melancholy to relate, does the reverse appear! A long protracted winter, verging even upon the very close of spring, exhibiting over the face of nature a wild expanse of snow, varied alone by those sudden thaws and frosts,—those various blasts of snow, and hail, and rain, alternate, which “mark the trembling year yet unconfirmed;” “these, as they change,” are oft the portion of the tender flock: the famished ewes, incapable of charge, are now constrained to leave them to their fate; and thus is exhibited on every hill, the farmer’s hope strewed lifeless, victims of hunger and neglect. How often do these sad instances recur! Yet are there to be found those who maintain that “artificial shelter and storm-feeding” are of “no avail!!!” It is said, that “shelter” prevents the ewes from being *hardy*, and that “hay” cannot induce *milk*. Let any such person apply the first of these positions to himself. Let him pass a few

nights in the summer season out upon the mountains alone, and then contrast the effect by a similar experiment in winter, and he will very soon find to his satisfaction, that however easy or agreeable it may be to withstand the little inconvenience arising from the short absence of the sun in the summer nights, yet will it be impossible for him to endure the cold and bitterness of the winter's blast, without experiencing within himself a *conscious feeling* of the *propriety* and *necessity* of *placing himself in such a situation* as can alone enable him to preserve the vital spark. So is it with animals; and although we may readily admit that the sheep are by nature endowed with greater powers of enduring cold, than even the most hardy shepherd himself, yet ought it to be remembered, that these powers are all *comparative*; that the sheep might be regardless of shelter, where the shepherd's frame would yield and tremble in the blast; and that *where* the sheep themselves *would live*, there would the shepherd immediately expire. The sensation of the brute creation is analogous to that of man in every climate; and in those northern regions of the globe least calculated to afford comfort and security to either, it is only by the powers of human reason being more fertile in invention than the low instinct of many of the brute creation, that human nature can be found possibly to exist. But by the application of human reason in aid of animal instinct, creatures may be reared, nourished, and produced, in climates the most unfavourable; and thus it will ever be found,



among our mountains, at any rate, as far as concerns the Cheviot sheep; so that plentiful shelter, instead of being a bar to their improvement, may justly be considered as a staff in the right hand of the shepherd.

In noticing the other objection, "that hay does not induce milk," the case is so simple that few remarks will be necessary. We readily admit that *dry food* is far from being the most efficacious in exciting the secretion of milk in any animal; but, with the exception of *florin grass*, which may be cut green almost at any season, there is no other provision which can be laid down to a numerous breeding stock for such purpose, without perhaps incurring a very unwarrantable expense. But the truth may be easily elicited from the following questions. Whether will a breeding ewe be found IN BEST CONDITION at lambing-time after a severe winter, by having *previously fed plentifully upon hay*, or by having *tasted none at all*? And, whether is a ewe MOST CAPABLE OF REARING HER LAMB in *good condition or in bad*? We answer naturally and rationally, that a ewe which has been well fed with hay during the hungry season, *must be in better condition than one which has not*; and that the MORE FAT AND FLESH WITHOUT, AND THE MORE TALLOW WITHIN, (which can only be acquired by *feeding*,) the better will she be prepared and enabled to suckle her young. The consequence is, that every step towards improving the condition of the dam, must also tend directly towards the improvement of the lamb. A ewe in good condition cannot fail to give

milk; but one which has neither fat, flesh, nor tallow, having no substance of her own, must *inevitably go dry*. Besides, a ewe maintaining her condition during the period of gestation, will produce a fine stout healthy lamb, capable of withstanding the rigours of the season; whereas one of the opposite description is too frequently born to *lie down and die*. The power of nourishing the foetus, and the ability of rearing the lamb, depend entirely upon the comparative state of the condition of the ewe; and although it is constantly maintained on the part of those who give themselves no trouble in the matter further than *to talk*, that the sheep can do *well enough* without such provision; yet has it been clearly shown, that thousands of sheep have died of sheer hunger and starvation: And further, we do assert, that there never was a winter among our mountains, when hay could not have been administered but with the utmost advantage and effect. If "storm-feeding," therefore, tends to improve the condition of a ewe, it will also do as much for a hog or wedder; and, if condition is accessory to the value of the stock, it is evident that STORM-FEEDING IS VALUABLE. This may be considered as a sort of "pastoral axiom,"—a self-evident proposition, the truth of which is, or *ought* to be, immediately perceived by every one.

"Shelter and storm-feeding," acquired by the INSTITUTION OF A REGULAR SYSTEM OF STELLS, is moreover actually necessary for the purpose of doing justice to the grass or other herbage produced upon the

hill. It is of the utmost advantage to the farm, that the whole pasture should be *regularly and equally eat down*. This can only be effected by the different hirsels remaining "regularly and equally" upon their own particular ground." In Etterick Forest, we allow the different ages of stock to depasture indiscriminately together, as preferable to the old plan of herding or "hefting" the different ages upon different situations, as still practised among the Cheviots, and in other quarters; for by the habit of thus going *early* upon the ground where they are to feed *latest*, their constitutions are naturally adapted better and more regularly to the quality of the grass; they are less inclined to remove from their wonted haunts, and spared all that previous hounding and herding which is unavoidably necessary in "hefting" them in their consecutive situations. Lambs are also said to thrive best upon that grass, from whence their mother's milk had been derived. This promiscuous plan, therefore, is infinitely superior to the regular system of "hefting," and well adapted to the purpose of effecting an undisturbed, equal, and general consumption of the grass; but as the sheep are always liable to fly, and sometimes to a considerable distance from their own particular spot in the event of a blast or storm, either "black or white," it is naturally of the greatest importance to determine upon some plan which shall induce them to remain quiet upon their own ground, even during such blast, so as to save the exertion of such occasional and often unnecessary

migrations; and, above all, to preserve the grass for *those alone*, to which such grass does naturally belong. Feeding two upon one is attended with a double disadvantage. The pasture thus deserted, is not always regularly resumed; consequently a great proportion of all that which *ought* to have been consumed in summer is lost; and when the snow lies deep, and perhaps for a length of time in winter, when it *might* be advisable perhaps at times to admit such double gathering upon the confined space, that grass which ought to have been sufficient for such double purpose, is now consequently deficient for its own. The necessity, therefore, of adopting such a plan as shall *constrain* the sheep to *remain as much as possible upon their own ground*, without flying before every *occasional* blast, is too obvious to require further illustration; but one beneficial consequence is, that the more regularly the grass can be eat down, and the more that the stock can be dispersed and maintained upon and over the *whole surface* of the farm, so much the greater number of sheep will that farm be enabled to contain. As the sheep fly from the storm in the most exposed situations, the only preventive is, to *afford shelter in all such situations*; and although it may be needless to "supply hay" during the occasional blasts of summer, yet, according to the rotation of the "solar system," allowing the autumn to commence on the 21st September, we may, with great advantage in the middle of that season, or in the beginning of November, when snow-drifts oft suddenly arise,—commence admi-

nistering a regular supply of hay; especially at the upper or more elevated stells; so that, by the very fact of its being *there* provided, the sheep may be induced on a cold and suspicious night, to seek their food and shelter in a situation where no perils await them; and, moreover, by continuing such supply even to the very end of spring, thousands of lambs may be thus rescued from the fatal blast, even in one single night alone.

It has been already remarked, that a proportion of the haugh, or other low lying ground, is generally set apart for the convenience of the ewes during the lambing season. The advantage expected is an earlier supply of grass, and less risk in suffering from the blast. All this is very well in its way, but by no means what it ought to be. The ewes thus treated are either gimmers, or such as are in the habit of feeding on the highest and most exposed situations of the farm. When the lambs are a day or two old, they are, with their dams, generally turned out to make room for others, and to resume their stations upon the hill; and as fast as the one can follow the other, so fast do they use every speed and every exertion to reach their ordinary haunts; and having once arrived, there they remain at the very mercy of the elements, snow and sleet, hail and rain, impelled by the most keen and bitter blasts; not only sufficient, but too often *effective*, in working unutterable destruction among the ill-provided lambs.

As it appears they cannot be maintained on the low grounds for a sufficient length of time, the next



step is to provide such shelter on the "heights" as shall be most conducive to our purpose. Nothing can be so simple, so handy, and so efficacious, as a "plentiful supply of stells," easily come at, and regularly supplied with hay; so as, in a manner, to *solicit the very occupancy of the stock*. At all times, and on every occasion, must these stells do good, calculating even upon the mere chance of their being occupied at all. But on the close of a dark and lowering day, when the ewes with their lambs are dispersed generally upon the surface of the ground; when the anxious shepherd eyes the threatening blast, and the unconscious creature, lured by the promises of spring, fears not the danger nigh;—with what ease, comfort, and convenience, will he be enabled to gather them gently to the nearest stells, and there secure them safely for the night. By such simple manœuvre, the whole breeding-stock may be happily preserved, and comfortably fed, at a time when such loss of lambs might have otherwise occurred, more than equivalent, ten times over, to the value of the improvement itself, and perhaps deeply affecting the subsequent produce of the farm.

It is not to be supposed, however, that the most valuable improvements are of themselves sufficient to insure the constant security of the flock; the shepherd must ever be on the watch; he rules over the whole; and with care, diligence, and perseverance, must he avail himself of the conveniences thus provided, so that he may be enabled to meet every

emergence, and surmount every difficulty that occurs.

There are none of our mountain farms which can enjoy the *greatest possible* degree of benefit, and afford an adequate return, without having first undergone a system of "planting and inclosing," as recommended in the "General Report," but perhaps never yet carried into effect in any such situation; and probably but little contemplated by the generality of our mountain farmers themselves. Such expense on an extended scale, however profitable in the end, is far beyond the reach of the tenant, and not always to be attained even by the proprietor of an entailed estate. Failing the grand object, therefore, the next step undoubtedly is, to adopt such measures as shall, in effect, *border as near as possible* upon the advantages which were to be derived from the former, and which, by the moderate expense incurred, shall not exceed the means of the tenant, or, at any rate, the ability of landlord and tenant united. The benefit of a judicious improvement, to a certain extent, is undoubted. If the tenant executes the whole by his own means, he is deserving of a most ample reward; if by the proprietor alone, he must also have *his* return: but if at a joint expense, the benefit should be mutual.

The general statement of losses we have now been able to produce "during the currency of six generations; from the days of our old grandsire, and the black ewe of Bowerhope," to the present time, fairly entitles us to assert, "that there has ever been, and that there does still exist, a most

unaccountable deficiency in what a person of the meanest abilities would immediately conceive and decide upon, as being imperatively and unavoidably necessary, towards the secure and profitable management of the flock; viz. "a suitable provision of food and shelter." We have every reason to believe that our forefathers were little given to the practice of foddering their sheep, and it is extraordinary that in these more enlightened times, the practice has been so little improved upon. In other points, however, a slow but gradual improvement is easily detected, among which may be noted the perseverance in upholding the stock, in spite of every disaster and neglect; which circumstance, when contrasted with the abhorrence evinced by the country in acknowledging their losses and adopting the probable means of averting them, bespeaks a spirit so anomalous, or so contradictory to the real character of enlightened improvement, that it is impossible to reconcile it with the dictates of ordinary prudence and investigation. It is with more pleasure we allude to the introduction of the lucrative practice of "clipping at home," instead of disposing of the stock, "all clad;" a custom which appears not to have been adopted "till many years after the year 1760." In later times also, the radical change of stock from the black-faced to the Cheviot, and even in some parts with a dash of the more valuable breed of the Leicesters, commands our warmest admiration, together with the general introduction of "draining," which, when carried further into effect, and seconded by a liberal



provision of food and shelter, will *then*, perhaps, establish as great an improvement upon our mountains, as the nature of the climate will admit. Considering, then, the present various deficiencies, we may be fairly entitled to come to this gentle conclusion; viz. That the situation or condition of our mountain farms is ill calculated to afford security to the stock on every occasion, and consequently, that they are susceptible of a necessary and important improvement. And when such improvement can be acquired at a moderate expense, it becomes not only the duty but the interest, both of landlord and tenant, to use every exertion to effect it.

The next consideration then is, In what does this improvement consist? We reply, in many provisions, but principally,

1. In providing food and shelter in every situation.
2. In surface-draining, and mole-catching.
3. In raising march-dikes.
4. In making necessary inclosures.
5. In the management of breeding.
6. In facilitating the communication between all parts of the farm.
7. In a suitable provision of sheep folds and smearing houses.

These points being particularly attended to, every subsequent consideration naturally suggests itself. It may be necessary, however, to offer a few remarks on each head separately.

## SECTION I.

## FOOD AND SHELTER.

THE neglect of this provision has been too often the occasion of the severest loss. The fatal effects are marked in red lines in the "Shepherd's Calendar;" and, though unnecessary to be repeated here, yet should the consequences never be forgotten. We have shown that "food and shelter" are not only necessary for the preservation of life, but highly conducive in upholding and promoting the "condition," and consequent value, of the stock. The effect of unbounded shelter, as recommended in every situation of the farm, is an equal, regular, and advantageous consumption of the grass, and a *more extensive holding* upon the ground. The most valuable and efficacious description of shelter, particularly in a drift and during the lambing-season, is that which is derived from the *bield* of a close, well-built, stone-dike, bounding and inclosing an irregular line of a thick well-grown fir, larch, and spruce plantation. The drift and snow fly over to a considerable extent, and leave a proportion of the sward uncovered in the calm. Here should be placed the well-filled rack, and regularly replenished; then may both sheep and shepherd rest in security and peace. Let not however an entrance be effected within; for when once the creatures

become accustomed to such trespass, they not only canker and destroy the trees, leaving a proportion of the fleece at every bough, but are liable to induce disease by browsing on the various bark or bud. This description of shelter is not always to be met with on the mountain farm, and one that cannot become effective during the currency of a common lease. Hence the necessity of seeking a *substitute*, and such as can be almost *called into action at a word*. A march-dike between two farms, or a long plantation-dike, before the trees have risen to sufficient height, are *both to be avoided in a drift*. The snow at first falls close beneath, then upon, and at either side, and hence along the whole extent, till another ridge appears, "high curling to the sky," as if by fancy or enchantment wrought. Here may the simple flock be easily overwhelmed; and hence the necessity of the shepherd's care in previously effecting, from all such danger, a sure and safe removal to the "stells."

Any description of shelter may be considered as effectual in a "black storm," but not so in the "drift." All natural shelter in *confined places* is more or less liable to do harm; all buildings in the shape of squares, crosses, crescents, stars, and E's, although perfectly efficacious in *black weather*, are yet highly dangerous in the *drift*. Any obstacle presenting a straight line at right angles, or even obliquely to the direction of the drift, that obstacle, with all around it, presently becomes smothered in the snow. We have known sheep dig out from behind a cross or star, three

To be dug

feet immersed, in a very few hours drift; and we have seen the small square sheep-folds literally choked up, when not as much could have been collected within the area of a CIRCULAR STELL of 12 yards diameter, as would have amounted to the bulk of a tolerable sized snow-ball. The action of the blast upon the circular surface of the wall, causes a rotatory motion in the air, to such a considerable height, that when the diameter of the circle is kept within proper bounds, the snow is thrown off at a tangent in every direction, and the included space left thus uncovered within. When the snow falls at "first thin wavering," in a calm, a proportion must also lodge within the circle; but as the calm is generally of very short duration, little or no inconvenience can result. This is a point to which we have ever continued to pay the strictest regard, and we can safely recommend *a circular stell of dry stone dike, ten yards in diameter, with a three feet open door, and six feet high, including cope, as the least expensive, and the most sure and efficient improvement* that can possibly be adopted, both for the purpose of containing food, and affording shelter and security in the storm. A larger circle is apt to collect snow on the lee side within, when driven by a gentle wind; we therefore fully recommend that the diameter should never be above the dimension just proposed, unless under some particular circumstance independent of the hill.

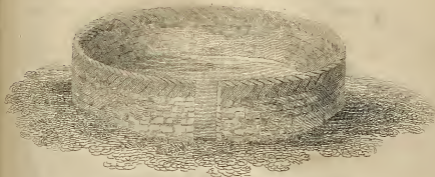
We do not here mean to lay claim to any discovery; as circular stells, or *rounds*, as they are

sometimes styled, have already been recommended as preferable to all other figure or disposition of stone-dike, by Sir George Mackenzie, Mr. Little, Mr. Hogg, and others; and there may be also seen upon individual farms, constructions of this nature aspiring to considerable antiquity, as well from their ruinous condition, as the moss-covered surface of the stones. It is the *smallness of their number* upon every farm of which we complain, with the defect in proper size and regular and systematic arrangement; and we believe that there are very many farms without almost an approximation to any construction of the sort, except as far as might have been considered necessary for the purposes of assorting the stock. And although we decidedly wish to discourage every description of artificial shelter in our "general system," which does not correspond with the "circular stell" already described, yet we by no means deny the utility of all others during the prevalence of a "black storm;" and perhaps, at a time of that sort, a ewe, with her lamb, might be more readily disposed to seek shelter under the lee of a cross or crescent which is open, than within the inclosure of a round; but the consequence is, that the animals themselves being unconscious of the difference of the danger to be apprehended between a "black storm and a drift," are thus unsuspectingly betrayed into utter destruction, by the habit of seeking refuge in situations inapplicable to the nature of the most difficult and overwhelming emergency. We are therefore constrained to recommend among our moun-

tains, that description of shelter which shall be proof against *every* misfortune, and custom will soon render it familiar ; and this will be found to consist of the " circular stell" alone. We may here notice, that there are sometimes, though very rarely, to be found individual hollows about the opening of a cleuch, whose particular configuration, with the wind at any *airt*, prevents the liability of their being drifted up ; and these afford an excellent shelter for storm-feeding, especially when closed at the opening by a high cross-dike. Of this nature is the stell at the Rough-Grain-Foot, where there are several hay-racks in winter kept constantly supplied. See Plan.

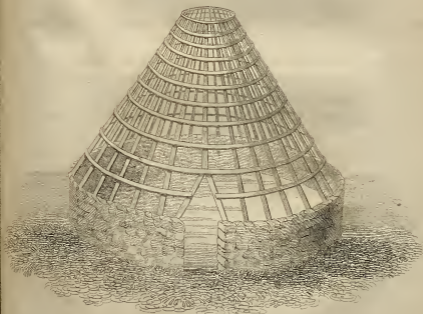
The " mountain-stell" should ever be placed, if possible, rather on a *rising spot*, with the door in the direction *to the hill*, with a free ingress and egress, so that no difficulty may be found in easy access or approach. But, in following up the REGULAR SYSTEM OF STELLS PROVIDED IN EVERY DIRECTION, it may be necessary at times, perhaps, to place them on the *slope* or *quick declivity* of the hill. In this case, when the wind cannot act with such regular mechanical effect, it would be advisable to reduce the diameter to seven or eight yards, whose included space will easily contain from 40 to 50 sheep, without the slightest crush or discomfort. Suppose, then, a hill-stock to consist of 1000 sheep, and each stell on an average of ten yards diameter *inside*, the area or included space in each, will be found to amount to 675 superficial feet, and allowing 9 such feet for every sheep, the said stell will

OPEN SHEEP STELL



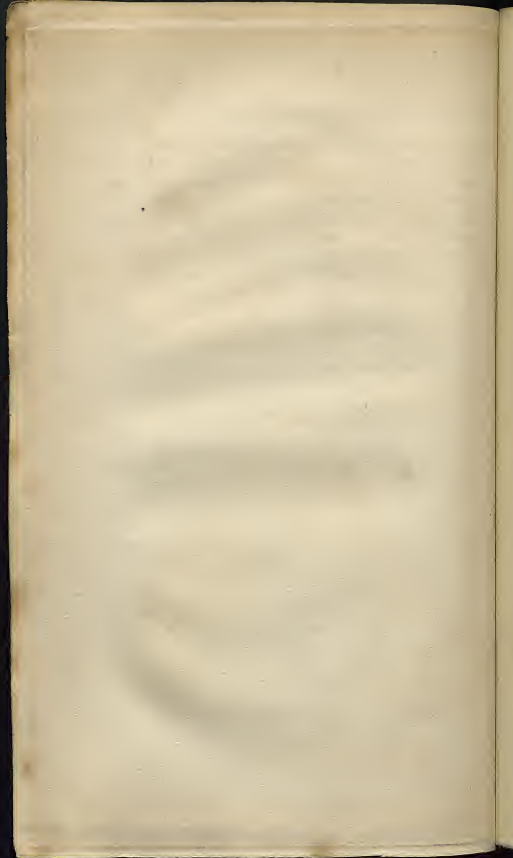
*4 F. 6 in. stone, 1 F. 6 in. of turf coping, 10 Yards diameter inside.*

STELL HOUSE READY FOR THATCHING



*10 F. diameter inside, Walls 3 F. 6 in. high & 3 F. thick, Opening at top 3 F. in diameter, Door 3 F. Coupler 8 F. long, and if necessary supported with posts to the floor inside.*

*Eng'd by W. H. Lizow*





accommodate 75, with an ordinary accompaniment of lambs. *Fourteen* stells, therefore, will be found sufficient for 1014 sheep, with the lambs, and space also to contain the common sized *heck* or hay-rack standing in the centre.—A stell of 10 yards, or 30 feet diameter *inside*, will amount to 35 feet diameter *outside* measurement, allowing  $2\frac{1}{2}$  feet at each side for the diameter of the base; consequently the *outside circumference* at the ground will amount to 105 feet, or a little within 6 roods of 18 feet each. SIX ROODS, at the average price of *six shillings and sixpence* each, for *quarrying, driving, building, and coping*, will amount to 39 shillings per stell; and 14 stells, at 39 shillings each, will be found to amount to *the mere trifling* sum of L.27, 6s. A thousand sheep, however, ranging over an extent of perhaps 1500 English acres, will naturally require an *additional number of stells*, placed at *intermediate spaces*, so as to render unnecessary any considerable migration from one point towards another, in case of a sudden blast; and particularly so in winter, when the snow lies deep upon the ground. In this latter situation, with a fresh breeze at their tails, the stock are often observed during the continuance of the day, to sail, as it were, gradually down before the wind, scraping for the “withered herb” below. At the close of day, with the wind freshening in their faces, to drive them back through deepening wreaths, if not *impracticable*, is always attended with positive difficulty and danger; and, most frequently, with the greatest detriment to themselves.

Hence the necessity of establishing a "system of stells," *widely extended*, which shall at once answer for the prevalence and *change* of every wind, constrain the stock to remain as much as possible upon *their own particular haunts*, and afford a *ready and convenient* entrance, whenever necessity may require. Instead of 14 stells, therefore, we should propose, for such general and beneficial purpose, the number of 24. TWENTY-FOUR STELLS, at 39 shillings, is an expense of L.46, 16s.; and as many hecks, or hay-racks, (part of which may easily be prepared by the shepherd,) at 15 shillings each, is exactly L.18,—making, in this department, an aggregate outlay of L.64, 16s.; the interest of which, at 7 per cent. amounts to the trifling sum of L.4, 10s. 8½d.—unworthy of the slightest consideration, when put in competition with the benefit derived. The hay which is provided from suitable inclosures, or from other parts, as most convenient, should be stacked in central situations, so as to be easily transferred from such regular *depôts* to all those stells within immediate reach.

Now, let any storemaster look back upon the various losses he may have sustained for these last ten years, and let him lay his hand on his heart, with a clear conscience, and swear, that, had he been so provided, his losses would have been equally the same. If such a man is actually to be found,—one who would despise every attempt at a plain and obvious improvement;—such person, whether landlord or tenant, can deserve but very little commiseration, when loss of rent and loss of stock can-

not be found sufficient to convince him of the truth.

As every argument derives value and consideration from the assistance of established fact, we beg to lay before our readers an extract of a letter from Alexander Laidlaw, shepherd at Bowerhope, whose judicious management on the farm for many years past, with the success which has attended his comparatively slender means, reflects the highest credit upon himself, and adds most forcibly to the value and importance of those improvements which we now endeavour to illustrate and recommend.

“HON. CAPT. NAPIER,

*Bowerhope, Dec. 5, 1821.*

“SIR,

“IN your letter of this day's date, you desire my 'opinion on the probable advantages the country would derive from the use of stells and winter provender for sheep.' I shall begin with giving you a fair statement of our real situation on the farm of Bowerhope, since we *partially* adopted this plan in 1813; but, being more *personal* than *general*, it may be necessary to say, that it is merely meant to show what great advantages may be derived from the *use of very scanty means*, provided they are properly directed.

“We have now 8 rounds, (circular stells,) and one open stell (of a larger description;) and at all the rounds but one, we have a sheep-house. But as I provided all the materials for, and built these houses myself, (all they cost the master was five

shillings for couples,) they are necessarily on a very limited scale. Most of them are 12 feet by 6; the door in one end, and a straight barred flake across the other end, at nearly 3 feet from the wall, which, when subdivided in the middle with a small flake 3 feet long, gives two places of nearly 3 feet square for confining one ewe and lamb in each. The use of that house is first to keep hay for the sheep till they need it in winter and spring, and then for keeping ewes and lambs, when new lambed on a stormy day. With respect to the first use, the keeping hay in, I soon found that, when once the sheep were accustomed to eat it, they left off eating grass, and consumed the hay before the time of the year came in which they stood most in need of it. But after thus securing my hay in the *little barns*; I then shut the door till stormy weather, or a scarcity of grass takes place; and then it is handed out in such quantities as the state of things require, and my *too limited* stores admit. I say "*limited*," for it has always been my opinion that much more might be done this way than has ever been even thought of by the generality of people in this country.

"I shall now state the advantages we have had over such of our neighbours as did not provide so well for the comfort of their flocks; and as the bare statement of a *well-known fact* is better than a thousand arguments founded on *theory*, I shall mention one or two.

"In the disastrous spring of 1816, we had a good deal of our *sheep's hay* unconsumed even at the

middle of April; and as the weather turned very stormy in that month, we put all our hay out of the houses into small ricks (for we had no hecks) in and about the stells, that the sheep might eat it at all times; and at the same time we brought in all our *lean kind* of sheep into the park, and fed them with lea hay, (which we had that year as green as leeks,) till the weather turned better; and by this plan, on the disastrous 18th April, we got all our sheep safe to the stells, when most part of our neighbours, by suffering their lean stock to remain on the hills, could not bring their sheep to a place of shelter through the deepness of the snow; and many sheep thus situated *died of hunger*, and the rest were so much reduced in condition, that *comparatively fewer brought lambs*.

“ Now, on Bowerhope that year, we had only from 60 to 80 lambs fewer than usual, and but 10 old sheep (hogs and ewes) dead, above our ordinary average of deaths; whilst, on the farm of Crosscleuch, where the sheep got no hay, and where they have no stells convenient, they lost one-half of their lambs, besides a good many old sheep, although they are well known to be as healthy and as hardy sheep as any in this country. Mr. ——— told me, that he lost a great deal of sheep, both old and young, on ———; for he, unfortunately for himself, consumed all his hay with *cows and horses*; and I am morally certain, that, had the limited use of hay been adopted, there would have been little or no loss of sheep, and that even several thousands of lambs might that year have been saved in Etterick

parish, where hay may be got in such incalculable quantities every summer.

“ It is impossible to calculate the loss to improvident farmers that year: many of them still labour under its direful effects; but unfortunately too many of them, instead of becoming wiser by experience, console themselves with repining at the bad seasons, and *trust* merely to better times and the landlord’s generosity, to save them from impending ruin. Pardon, Sir, this digression; for, as PILATE said of old, (though with a very different conviction of the truth of what he wrote,)

“ What I have written, I have written !!! ”

“ I shall now, in a comparative statement of the losses of sheep and lambs on Bowerhope and Crosscleuch, in 1816 and 1818, show at once the advantage of even a partial use of hay, and providing shelter for the stock in winter and spring; for, in 1818, there was a loss of sheep and lambs on Crosscleuch, equal to the loss in 1816; whilst, on Bowerhope, we lost only 50 lambs, and 6 or 8 old sheep above the average loss. We shall, in comparing the losses in these two years, reckon the average price of lambs at 8 shillings, and the price of old sheep at 20, which is rather low than otherwise; and this gives more force to the comparison.

EXTRA LOSS OF SHEEP AND LAMBS ON CROSSCLEUCH.

1816.	{ To 200 lambs, at 8s. is . . . £80 }	£120
	{ To 40 old sheep, at 20s. . . . 40 }	
1818.	{ To 200 lambs, at 8s. . . . 80 }	110
	{ To 30 old sheep, at 20s. . . . 30 }	

Total extra loss in 1816 and 1818, £230

## EXTRA LOSS OF SHEEP AND LAMBS ON BOWERHOPE.

1816.	{ To 70 lambs, at 8s. . . . . £28 }	} £38	
	{ To 10 old sheep, at 20s. . . . . 10 }		
1818.	{ To 50 lambs, at 8s. . . . . 20 }	} 28	
	{ To 8 old sheep, at 20s. . . . . 8 }		
Total extra loss in 1816 and 1818,		£66	
Do.	do.	on Crosscleuch,	230
Difference,		£164	

against Crosscleuch. Now, as Bowerhope keeps AT LEAST ONE-THIRD MORE SHEEP than Crosscleuch, we ought to suppose "one-third" more loss on Crosscleuch to make the calculation quite just; and I may also observe, that proportionally fewer sheep die of violent diseases on Crosscleuch than on Bowerhope; and when these are fairly taken into consideration, the extra-loss on Crosscleuch above that of Bowerhope, may, without the smallest injustice to the OLD CAUSE, be stated at upwards of L.200 in these years.

"I come now to state the advantage of "hay and shelter" in good and middling seasons; and although this cannot be so clearly proved from incontestible facts, yet I think that very forcible arguments may be brought forward to establish this proposition, THAT PARTIAL FEEDING WITH HAY, AND PROVIDING PROPER SHELTER, EVEN IN ORDINARY SEASONS, WOULD BE ATTENDED WITH GREAT AND SUBSTANTIAL ADVANTAGES.

"I know some will say, we have only hay for

our cows, and how can we feed our sheep with it? To such I answer,—Nature hath provided the means, if we have wisdom to conduct them to the proper end. Very few places in this Alpine district are so scarce of water that they can do nothing by IRRIGATION. To illustrate this, we shall recur once more to a comparison between Bowerhope and Crosscleuch. Where we now raise hay by irrigation for two cows and ten rams, besides about 200 stone, which in good seasons is left as a corps-de-reserve, before watering we could get almost none; the ground was so poor and thin, that the grass would not cut for hay; and all this was done with no more expense to the tenant, than about one pound, (as you know I had no right to charge for my labour.) Now, on Crosscleuch, there is meadow-hay for five or six cattle, and this by irrigation may be easily increased ONE-THIRD. This might be allotted to the sheep, and all this done at the expense of ‘one pound,’ providing the herd be as willing to supply hay for his sheep, as to warm his shins before a good fire.

“It is well known that, on all boggy soils, very much of the grass is suffered to rot; nor can this be remedied any other way than by cutting it for hay; although *draining* does much, but not all that is necessary. The severe rains, or, at any rate, the first heavy snow, *lodges* such kinds of grass entirely, when it becomes good for nothing. Now, when it is cut for hay in the month of July, or beginning of August, the after-growth is much shorter, and of course not so apt to “lodge;” consequently gives



more food for the ensuing season, and this also of a more palatable and feeding quality. Now, here we save much more than all the grass cut for hay.

There are, indeed, some seasons (but they are but few) in which the hay cannot be got so well *cured*, (or *win*, as we call it,) as the sheep require. But the fault rests oftener in neglecting to cut it in a proper time of the season than in the season itself. At any rate, hay can never be so bad, when even but *indifferently* made, as that kind of rank grass of which it is prepared, when it has stood the winter frosts and rain. And the late Act of Parliament, allowing salt to be purchased nearly "duty free" for agricultural purposes, puts it in every one's power to sprinkle their hay with a little salt; and I know from experience that sheep, when once accustomed to eat hay, would readily eat it when thus prepared, although it be but *indifferently win*.

We shall now endeavour to determine the *outlay* and *income* arising from feeding sheep partly on hay in winter and spring, even in good and middling seasons. And here I think it will be made to appear, that the outlay for the farmer is but trifling, when compared with the substantial advantages that will follow the reducing this plan into real practice. As the sheep may eat hay by rotation, one heck, value 15 shillings, will suffice for 100 sheep. This, on a farm of 800 sheep, requires 8 hecks at 15s. and this gives L.6. Now, allowing these hecks to serve only 4 years, (and, if properly

kept, they will serve much longer,) this gives, per year . . . . . L.1 10 0

And as the herds may win the hay, say,  
for one mower—4 weeks at 15s. is 3 0 0

Expense of providing 4000 stone of hay, is . . . . . L.4 10 0

The expense of building stells on a farm keeping 800 sheep, is 5 stells, at from 40 to 50 shillings each, amounts on a lease of 10 or 12 years to very little more than L.1 a-year, and as they will last longer if they be well built, we may fairly state it at, per annum, . . . . . 1 0 0

So that the yearly outlay does not exceed . . . . . L.5 10 0

We shall now state the income.

And, from the great saving of grass that will take place from cutting and winning it into hay, we may fairly reckon on the farm keeping 40 sheep more than formerly, and these, when valued at six shillings of yearly profit, gives . . . . . L.12 0 0

Then from the sheep being in better condition, and better sheltered in stormy weather, there will be fewer deaths even in ordinary seasons;

and this, when combined with the having yearly 40 or 60 more lambs, may be stated at L.18 or L.20; and as every thing brought to market will give more money from being in better condition, this is not too high. I think the wool may be advanced to one fleece more per stone, and this at 20s. is . . . . .

20 0 0

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L.52 0 0

Deduct outlay, . . . . . L.5 10 0

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Thus, in *ordinary seasons*, a profit of L.46 10 0 and when this is combined with savings from the "extra-loss in bad seasons," viz. L.50 per annum, it gives such a superiority to the plan, as cannot fail to leave on the mind of every *unprejudiced* person, THE STRONGEST CONVICTION OF ITS UTILITY. I cannot see wherein any thing is over-rated; I have rather leaned to the other side of the question, in order that I might keep free from being thought attached to the *extravagant*, or, as some would say, to the *marvellous*; for, however sanguine I may be in thinking that the plan of feeding sheep entirely on hay in winter will, some time or other, take place in many parts of the country, yet I see that for many years to come, its full accomplishment will be looked for in vain. Indeed, improvements of every kind, whether in science, the arts, or rural economy, are carried on gradually from less to

more, till they arrive at the utmost extent of human invention.

\* \* \* \* \*

With the greatest respect,

ALEX. LAIDLAW."

Such, now, are the general views, and the judicious management, of an active and industrious man, whose success, even on the *limited scale*, holds out the highest encouragement for further exertion, and affords a fair criterion of the advantages to be derived from a diligent perseverance in such useful and efficient measures. The "great expense" of carrying these plans into execution, is often considered as sufficient excuse for *doing nothing*; but when the shepherd of Bowerhope is enabled to build his master's sheep-houses with his own hand, there can be no reason why every other able-bodied man in the Forest, in similar circumstances, should not as willingly undertake a similar service if required. And here it may be observed, that sheep-houses of the sort, and attached occasionally to the stells, will be found of the utmost utility on many critical occasions; but they ought only to be adopted in those situations least liable to be drifted up. In the more dangerous places, where such convenience would be advantageous, we strongly recommend a circular-roofed stell, open at the top, which, by way of distinction, may be denominated a "Stell-house." The circular construction of the roof precludes the possibility of its being lodged

with drift; and the open funnel at the top is the means of causing a draught from the door; whereby the animals within, however closely stowed, are thus preserved in an equal temperature, and free from the deteriorating effects of an increased or irregular perspiration. See Plate.

We hope we have now clearly demonstrated to our readers, the theory of a REGULAR SYSTEM OF STELLS, WIDELY EXTENDED AND PLENTIFULLY SUPPLIED WITH HAY; but by way of further illustration, a reference may be made to the annexed plan of the farm of Thirlestane, where the system of stells, with every principal improvement, are accurately delineated.

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## SECTION II.

### SURFACE-DRAINING AND MOLE-CATCHING.

In consulting the "Farmer's Magazine" for further information on the subject now proposed, we are surprised to find that it has only been *twice* noticed in the numerous volumes already published; an additional proof of the little regard that has been paid by rural economists to the improvement of "practical store-farming." The first of these, in vol. ix. p. 148. is evidently from the pen of my very worthy friend, the Reverend Dr. Brown, minister of Eskdale Muir, in whose parish the practice of "surface-draining" has been adopted on a

wider scale, and attended with a more beneficial result, than in any other part of the whole south of Scotland. To those *altogether* unacquainted with the principles of this improvement, and the most scientific manner of carrying it into effect, this paper will afford the most clear and satisfactory demonstration; but in addressing a community already more or less familiar with the subject, and whose exertions perhaps only require at present a little stimulus or incentive, we prefer transcribing *verbatim* from vol. xviii. a most excellent and intelligent dissertation, the "result of repeated observation," and in consequence, "the more deserving of credit."

"Surface-drains should always be made, where the ground will allow, in as level a direction as possible, not only as the best method of drying the land properly, but likewise of preventing the water in the drains from making irruptions in the soil through which it passes, as it always does, when allowed to descend with too much rapidity to the stream it is destined to fall into. As a great proportion of the land requiring surface-drains is much elevated above the beds of rivers, or even smaller streams, it requires a considerable degree both of ingenuity and experience to conduct the water in a proper direction, till it unite with these streams. The benefit derived from draining marshy wet land, is acknowledged by all who have made the experiment; and as the practice for many years past has become very general in most parts of the country, the sheep pastures have by this

means been much improved, though *not to the extent* of which they are capable, owing chiefly to the injudicious manner in which a great proportion of the drains are led, having too great a descent. Where the soil is easily washed away by the force of the rapid current, deep and dangerous gulfs are thus formed in the middle of the pastures, and every succeeding flood increases the extent of them. What is still worse, the small stones and sand are carried to, and lodged on, level and valuable land on the sides of large streams; and, in certain situations, where the force of the current is abated, are collected in great quantities, and are often the means of altering the course of the water, and thereby doing much damage, not only to meadow and pasture lands, but frequently to fine arable haughs. When draining hill-land was first introduced, it was accounted the best method to make the drains in a straight line, from one end to the other, so that the water might meet with no obstructions, but have a free and rapid descent. This method was attended with many circumstances, either detrimental, or at least of little benefit, as the situation of most land required so much descent in a straight line, that the drain was often made nearly parallel with the run of the water upon the surface. This being the case, the land intended to be drained was not dried at all, and the rapid force of the water had the bad effects already described. Although surface-drains are now laid on with much more judgment than they were 20 or 30 years ago, yet the great body of landlords,

or *even farmers*, have not as yet paid so much attention to the proper method of draining the surface of wet land, as the subject appears to me to require. There is still *much room for further improvement*, as every pastoral vale in the country, where draining has been practised, will fully testify. Were the water conducted by drains nearly level, at least with a very moderate descent, the ground would receive the greatest possible benefit, and the water be conveyed to the burns, or other larger streams, with a gentle or easy motion, leaving the soil undisturbed by the agitated and increased current of a deep descent. Where drains were made with a rapid descent, many years ago, upon soils penetrable by the force of water to any great depth, every succeeding flood, to the present day, has left a monument of unskilfulness in planning out the drains, and of *stupidity in allowing the water to continue still in the same course*. The evil might still be in a great measure removed, by taking as much of the water possible out of, or preventing it from running into, these deep run cataracts, and conveying it to the place of destination in such a level as has been already recommended. The expense of this improvement would in most cases be trifling, and the benefit derived from it both valuable and permanent, not only to the occupiers of hill-pastures, but likewise to all who have an interest in the low grounds, where the continually increasing banks of small stones and sand cause much damage to their valuable possessions. These considerations should induce those



interested, to set speedily about removing an evil which is constantly increasing, particularly in wet seasons, and must gradually waste the property of such landlords and tenants as are affected by it. Where linns are formed on the banks of large streams, the stones and sand washed from them are likewise very hurtful; and this might in many cases be easily remedied, by preventing the water from falling over these linns, and conducting it by small drains to places where it might descend gently to the course of the water below. Were these seemingly small improvements effected, a vast additional quantity of wool, butcher meat, all kinds of corn, potatoes, flax, and other articles of the first necessity, might be raised. The occupiers of hill farms, if properly encouraged by their landlords, might, by little exertion, in two or three years do much to remedy the evil complained of: They would serve their own interests materially, by having the land drained in a proper manner; they would not run the hazard of losing so many of their sheep and lambs in the deep gulfs occasioned by the rapid descent of the water; nor the valuable surface of their best pastures wasted from the same cause. Those who occupy the haugh-lands might proceed with more safety to confine the water within a proper course, as the sand-beds would not continue to increase so much in bulk, and, of course, fewer alterations and depredations would be made by the flooded current. These assertions are undoubtedly obvious to every person capable in the smallest degree of tracing the connection between cause and

effect, and who has paid the smallest attention to the subject."

For these valuable remarks we appear to be indebted to the skill and observation of Mr. James Little, presently overseer at Thirlestane; to whose care, diligence, and professional ability, combined with a deep penetration and unwearied research, the author of the present treatise is not only most happy in having a public opportunity of bearing the most ample testimony, but also of acknowledging the continued valuable advice, aid, and information he has ever derived at his hand, when busied with the interesting concerns incidental to a residence in a remote district of the country, where general improvement appears to be as yet in a state of infancy.

In treating the subject of "sheep-drains," Mr. Little has succeeded in exciting an additional interest, by his very judicious remarks on the damage occasioned to the "low grounds," or, we may even say, to the lower districts of the arable country, by the quantities of earth, stones, and gravel detached from their primeval situations, by the unskilful application of these drains, and thus hurried downwards with all the precipitancy of a torrent. An investigation of this subject, as far as it is connected with the damage done to harbours, bays, and navigable rivers, might be attended with the most beneficial results.

We only now wish to remind our readers, that, in order to preserve a just and proper declivity, the water in the surface drain should always be

made to flow in a *contrary direction* to that burn or stream into which it is eventually to be discharged, and conducted from the mountain. (See Plan of Thirlestane.) The advantages to be derived from a judicious system of draining are too obvious to require much illustration. It prevents a great many of the diseases to which sheep are liable, and particularly breakshuach, rot, foot-rot, and braxy; and be it always remembered, that it is an easier matter to *avert disease than to cure it*. "It also increases the quantity, and improves the quality, of the grass, and enables sheep to eat it much closer, and, of course, makes the stool of the grass a great deal thicker and cleaner. It affords a dry bed for the sheep at all times—will keep a more numerous and better stock—and, if universally practised, would improve the climate, and thereby benefit proprietors, farmers, and the nation at large."

#### MOLE-CATCHING.

"Wherever sheep-land has been well drained, it is indispensably necessary to have it kept free of moles. They commonly work most in land which is neither very wet nor very dry; but they seem to delight more in working among a soil naturally wet, which has been drained, than in any other soil; and as they often work immediately below the drains, their *runs* often enter into them, and carry the water out of the drains upon the land

below; hence the very end for which the drains were made is defeated. Besides, where moles are not destroyed, it often happens that large pieces of the finest pasture-land are run up and covered with mole-hills, and rendered capable of bearing only foul, soft, unhealthy grass, and weeds; by which means the best pasture is converted into the very worst and most dangerous for inducing disease; but in places where land is kept free of moles, all advantages derived from draining are rendered permanent."—*Vide* Little on the Management of Mountain Sheep.

It appears by the account of the Rev. Dr. Brown, "that the operations of the mole-catchers on the extensive estates of the Duke of Buccleuch are comprehended between the 20th of August and the 20th May following, on account of the moles breeding in the end of May and beginning of June, having five or six, rarely seven at a time; so that it must be in the middle of August, before the young ones can be able to throw up many mole-hills. Yet I would submit to the consideration of the gentlemen of the trade," says the Doctor, "whether they would not accomplish their purpose in a still shorter time, by opening *the breeding mole-hills*, and killing the young ones before they left the nest. These mole-hills are easily known from the rest, by their being much larger. The plan I propose is not an ideal one; for an acquaintance lately tried the experiment, by taking a spade with him to the hill, when he went to look after the

sheep, and killed about an hundred before he returned."

Having considered the advantage of a well-defined system of "draining," rendered efficient by a thorough destruction of the moles, we shall now proceed to examine the outlay and annual expense necessary for establishing and upholding these most important improvements.

We shall begin by supposing that a wild, unimproved wet farm, consisting of 1500 English acres, and containing a stock of 1000 sheep, or an acre and a half to each sheep, will require 30,000 roods of drains, for laying the surface properly dry, and effecting a permanent improvement upon the grass. THIRTY-THOUSAND ROODS, at eight shillings *per hundred*, amounts to an outlay of L.120. We shall say, that the extent of surface thus improved, is equal to ONE-THIRD of the whole; or, in other words, that the proportion of the farm on which these drains have been laid, is equal to 500 acres. From this improvement we have also a right to expect an *additional* proportion of grass or pasture, *independent* of the improvement effected upon the *general quality*. This "additional proportion" cannot be over-rated at ONE-FIFTH of the extent so improved, or equal to 100 acres; and on this "additional quantity of grass," we are justified in laying on an additional quantity of stock, equal to 2 sheep to 3 acres, or 66 sheep in all; the produce of which sheep, at 11 shillings per annum each, will amount to the sum of L.36, 6s.—a tolerably good return for an outlay of L.120. But this is far from being

the *only* consequent advantage; and by no means the most important; for the whole flock now depastured upon the ground, enjoying a dry bed, and partaking of a sweet and wholesome herb, naturally acquire an increased proportion of fat, flesh, and wool, produce a superior description of lamb, and at length retire in the general draft with a degree of constitutional vigour, which can alone enable them to carry their carcasses in a creditable condition, even to the very ultimate destination of their lives. There may be found some people, indeed, who, despising every attempt at improvement, will pretend that an additional quantity of sheep laid upon the ground after draining, will defeat its own object, by *overstocking* the land. To such we reply, that if 1500 acres *unimproved*, could support 1000 sheep, that the improvement thus wrought by the drains, will, without the slightest danger, admit of an increase to the aggregate of 1066. It is true that many instances of deterioration and loss have occurred by the practice of "overstocking;" but these have happened ninety-nine times out of one hundred, where no *previous* improvement had been effected on the ground, and where no *subsequent* measures were adopted, for providing against such obvious and additional demand. It may be also objected, that eleven shillings a-head is far beyond the annual produce of a single sheep; but our readers will be convinced, when they are informed that the average value of the Thirlestane sales for the last five seasons, viz. 1817-18-19-20-

21, affords a return for produce, of eleven shillings and twopence for each sheep.

The next objection now to be opposed, is, that Thirlestane is a strong-feeding grassy land, and beyond the average of the country. In admitting such fact, as well as that every sheep thereon has produced upon an average the sum of 11s. 2d. each, we must remind our readers, that *the suppositious farm we are now improving*, illustrative merely of our general principles, is supposed also to be a wild, wet, grassy land, susceptible of the greatest improvement, similar to a very great proportion of Thirlestane, and requiring also 30,000 roods of drains to lay it dry. In this case, where there has been a similar outlay, we have a right to expect a "similar return;" but on a farm less exposed, and where the great proportion of the surface is naturally dry, and producing a smaller and less valuable description of stock, we shall neither have so great an outlay to provide, nor so great a return to receive; but the one will always be proportionally equivalent to the other. It may not here be altogether unreasonable to suggest, that great advantage would be derived from drawing occasional "surface-drains" upon strong "clay soils," which, though not naturally of a wet or *spongy* nature, yet are extremely subject to retain a most deteriorating and unwholesome proportion of moisture on the surface, during the heavy rains and thaws in winter; and which would add much to the comfort of the sheep and the counteraction of disease, by being carried off immediately from

the surface, as fast as circumstances may reasonably admit.

We have now endeavoured to show that by an outlay of L.120, we have, independent of other advantages, an immediate profit of L.36 6s. These "other advantages," particularly in the article of *saving lives* or *preventing deaths*, are far beyond what we shall pretend to enumerate at present, being in a great measure dependent on the particular colour and complexion of each consecutive year; but in deciding upon the expense to be placed against such profit, we may say, as interest for capital of L.120 sunk, at L.7 per cent. is L.8 8s.; upholding 30,000 roods of drains at 8s. *per thousand*, is L.12,—and the average annual expense of mole-catching at L.6, we shall then have an aggregate of L.26 18s. expense in this department of the farm to be deducted from the immediate profit of L.36 6s.; or a direct balance of L.10, in favour of the drains.

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### SECTION III.

#### RAISING MARCH DIKES.

THIS great and valuable improvement, although not uncommon upon a march between two contiguous proprietors, is yet but seldom to be seen, as forming a boundary between the different farms of



one individual proprietor; much less as creating a general division of the country into appropriate farms, all regularly defined and separate from one another. The erection of an occasional "march-dike" has arisen, in general, more from a spirit of contention between the proprietors themselves, than from any reference to the intrinsic merits of the dike. In some instances, indeed, the farmers have succeeded in acquiring such convenience from the liberality of the landlord; but it is a fact perfectly evident to the most casual observer, that the establishment of march-dikes, either between different proprietors, or upon individual farms, the property of one man, has been adopted on a scale not only very disproportionate to the extent of country capable of such improvement, but by no means commensurate even with the value of the improvement itself, as viewed in the light of a mere boundary or subdivision of property.

To a sheep farm a "march-dike" may be considered as the means of a more *equal, undisturbed, and economical* consumption of the grass,—a *more extensive holding* upon the ground,—a mark or boundary for that distinct line to which the "drains" may be laid on without waste in any sense on either side, as always happens where no dike exists,—as affording an extended line of shelter on *proper* occasions,—one ready side for any subsequent inclosure,—and, above all, by active management on the part of the tenant, as the means of saving the burden and expense of a regular established shepherd and his pack. The ad-

vantages of a "march-dike" or inclosure round a hill-farm are too obvious even to admit of doubt on the part of the tenant; although there are many honest men perfectly satisfied with the custom of mutually *giving and taking*; yet, on the part of the landlord, (who is generally obliged to provide the immediate expense, without appearing to enjoy an adequate return,) such a demand is often acceded to with a very equivocal degree of complacency or grace. This arises entirely from a defective system of arranging a mutual bargain upon a mutual benefit accruing to both parties,—by such outlay on the part of the proprietor; and by which also the tenant has generally a very great advantage. Supposing a dike to be erected along a line of march to a certain necessary extent, and amounting to the expense of L.100, defrayed by the landlord, the tenant, on his part, *ought*, and very likely *does*, pay equal to L.7 *per cent.* for such accommodation. Supposing, now, the rent of the farm so benefited, to be from L.300 to L.400 or L.500 a-year, the trifling consideration of L.7, when added to the larger sum already paid, is immediately absorbed, or swallowed up, as a drop in the bucket, or a spray upon the face of the ocean. The farmer, still enjoying the benefit of his dike,—in case of *loss* or *depreciation* in the value of the times,—either at the moment or at the expiry of his lease, is sure to command a reduction of rent; and on entering upon a new bargain, the tenant, whether old or new, concludes only for such rent as he supposes he can pay, without reference to the additional L.7 inte-

rest for the landlord's former expense; whereby he actually finds himself one hundred pounds out of pocket, or as much as that sum indebted to his agent who had advanced it. In the present times, a farm circumscribed partially by a dike, cannot fail to excite a degree of preference, when compared with another not so distinguished; but no farmer ever gives in an offer, *first*, for the value of the pasture, and *then*, for the landlord's improvements. He may say, that he *slumps* them all together; but this "slumping," according to the present system, will never serve to pay to the landlord that *identical* interest of money he has either drawn from his own pocket, or been obliged to borrow from his agent, and which, in either case, must necessarily be made good by himself. A landlord has a just right to the constant and continued interest of all money, thus judiciously expended upon his own land, especially when done at the request or convenience of the tenant; but by the laws of common sense and reciprocal justice between man and man, he can have no right to ruin an honest and industrious tenant, by the unexpected depreciation of the times, or by any other extraordinary circumstance *incidental to the interest of both parties*. A landlord can have no right to exact from his tenant that which his land hath not positively produced; but he has a most undoubted right, not only to draw the value from his own judicious improvements, but also to see that his lands are farmed with the utmost care, diligence, and economy; or otherwise—to dismiss the tenant. Upon this

particular subject we shall have occasion to remark more fully hereafter; we therefore proceed to the consideration of the subject proposed.

We shall now say that "our farm," already *well drained*, and *appointed widely with stells*, is become, more than ever, attractive to the stock of our less industrious neighbour; that it requires most constant vigilance and care on the part of the watchful shepherd to prevent the incursions of those around, and thus preserve his pastures for his own. The very act of repeated repulsion on his part, however efficacious for the *one* purpose, is found to be attended with the worst of consequences to himself. His stock are unable to approach the boundaries of the farm in peace; the hostile shepherds, ever at variance with each other, are consequently disposed to offer every molestation in their power; and eventually a great proportion of the pasture at the march is thus but partially consumed. The only remedy which now presents, is the "erection of a substantial stone-dike;" and with such interposition, the shepherds may cease their strife, and leave their respective flocks to pasture at their ease. Upon an extended line of march, thus open for a series of years to continued interruption on the part of those *indisposed* to "give and take," it is evident that a great proportion of the pasture must be lost; and when these difficulties are for ever set at rest by the institution of the "dike," it is equally evident that an additional proportion of stock may be maintained.

We shall now suppose that we have raised a line

of dike about 2 miles long, at an expense of L.200, which will be found at an average to be the cost. Two miles, or 10,560 lineal feet, will be found to run straight along a line of extended square acres, parallel to the dike, upon each side of the march, to the number of about 100, half of which falling to our side, will leave an extent of 50 superficial acres, whose pasture had not been properly consumed. Fifty acres at 1 sheep to 2, will amount to 25 sheep, which, at 11 shillings each, will give an additional profit of L.13 15s. the difference between which and L.7, the interest of one-half of the dike, (the other half being paid by the contiguous tenant,) will leave L.6 15s. subjected to the expense of "upholding," which may be contracted for at the annual rate of 1d. per rood, or L.1 4s. 6d., leaving a clear profit to the tenant on this head of L.5 10s. 6d. independent of all the advantages arising from general security and shelter. An *open* farm of 1500 acres and 1000 sheep, will require at least the constant service of two shepherds; but with the advantage of a march-dike, under the management of an active tenant, the expense of one of these men may easily be dispensed with, which will afford an additional profit, as follows: To the value of 47 sheep, at 11 shillings, is L.25 17s.; to the value of a cow's grass, L.7; and to the value of the annual allowance of meal, which may be taken at the average of L.7 more, amounts to a saving of L.39 17s. liable, perhaps, to deduction for occasional assistance in the room of the man discharged, which may be

stated at L.10, or thereabouts, leaving at any rate to the farmer a clear profit, on that head, of L.29 17s. or L.35 7s. 6d. on the whole.

Landed proprietors are often little aware of the damage done to themselves and tenants, when their farms are allowed to continue in the "state of mere open wastes,"—considered either in the view of deteriorated produce, or damage from the contiguous neighbour,—and hence the difficulty that often occurs, before the refractory party can be persuaded to come into the measure, without the horrible necessity or fear of being compelled by the strong arm of the law. When one landlord, indeed, is thus obliged by another to consent to the erection of a dike at mutual expense, the tenant on a lease, pretending to care nothing for the improvement, is sometimes found to take a most unjustifiable advantage of his landlord's predicament, and thus gains all the benefit and advantage of the improvement, without offering the least remuneration in return. Hence the necessity of inserting a stipulation in all leases, that the tenant shall be bound to pay at least 7 per cent. for such outlay, whenever it may be made, as also to contract with a regular artizan for upholding the dike during the currency of the lease.

The best construction for a march-dike is a good stout Galloway dike of sound material, six feet high, including the cross cope of long open stonework, instead of turf, strengthened in the heart, at least with two rows of *through-bands*, and a pro-

per breadth of foundation at the bottom, with a regular batter up the sides.

Stones, however, are not always to be found on wide open bog or other soft land, where the interposition of the dike is most required; and hence the necessity of recurring to a turf or "feal-dike," as an excellent substitute. It is sometimes argued, indeed, that if stone cannot be had, it is not *worth while* to execute the job in feal; but this argument is so contrary to the true spirit of useful and necessary improvement, that it may just as well be said, that if a peasant cannot afford to build himself a house of stone and lime, "it is not worth his while to erect the customary sort of *shealing* of feal and stone alternate;" and that he should *lie thereout*. The cases are precisely similar; for no person can live without shelter, and no ground can be *improved* or farmed to advantage without inclosure; and when the best description of either is not to be had, we then, of necessity, recur to the substitute. If a feal-dike is not half so durable or efficient as a stone-dike, it does not cost *half the money*; and when the tenants are bound to uphold it mutually by regular contract agreed upon with proper workmen, there is no description of feal-dike whatever that may not be made to last for ages, especially if, in the first construction, "the sods are carefully cut, and attentively laid, each course made to cover the seams and joinings of that immediately below, together with ties or thoroughbands at frequent intervals; the whole packed properly in the heart, and a sufficient coping of long

sods on the top to keep out the rain," and a single bar of paling run along the middle about 9 inches above the top. All this carefully executed, and regularly upheld, will produce a fence of a very lasting and efficient description, and create a demand from proprietors for additional supplies of paling, which may be easily and profitably provided from the numerous plantations that now adorn many of our mountain glens.

However advisable it may be to effect a mutual excambion of land, along the extent of a very devious or irregular march, for the purpose of shortening the length, and reducing the amount of necessary outlay for the dike; yet will it be found highly advantageous, in certain situations, to deviate widely from the straight line; so that, by an occasional angular or serpentine direction in the wall, a more general shelter may be afforded in changeable winds, than such as can be acquired by the interposition of a mere straight line.

When it is found necessary to institute a march-dike, where the farms are already divided to a certain extent by a glen or deep ravine, it is advisable that each proprietor should inclose his own side upwards to a point where both dikes may meet and join, to be carried onwards as one upon the level surface of the ground. The included space being planted, will in due time afford an excellent shelter for the stock, as well as the best of materials for repairing houses, fences, or other requisites.

As the landlord derives his rent from the profits



made by the tenant from the flock, it is quite evident that a march-dike of any description must add certainty and security to both.

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#### SECTION IV.

##### NECESSARY INCLOSURES.

So great is the advantage to be derived from a set of proper inclosures of "stone dike" on a farm such as we are at present attempting to improve, that Mr. John Little, in his excellent work already noticed, distinctly states, that the tenant "can easily pay 10 *per cent.* on the proprietor's outlay" for such purposes. It is certainly more easy to understand the *advantages* than to calculate the *profit*, of such improvements, as they depend very materially upon the *necessity* required, in reference to the quality of the season, or the particular healthiness of the flock.

The inclosures of first-rate importance may be considered as—A LAMBING-PARK—A HAY-PARK—A TUP-AND-TWIN-PARK—and AN HOSPITAL-PARK; and these, if possible, should be erected in connection with the march-dike, where one side is already prepared; and by attaching a second park to the first, it will only then be necessary to provide the two remaining sides; and so on with every subsequent inclosure.

## THE LAMBING-PARK,

However, is of such infinite importance, that it ought only to be inclosed in a situation the most eligible for every necessary accommodation; and, in case of such general convenience not being found about the march, we recommend, as the most suitable for our purpose, a "space comprehended upon each side of a low ridge or *shin* of a hill, easily surmounted, and presenting one side or declivity to the sun, and either as a shelter from the opposite or most prevalent blast." It would be advisable also to erect, on each side of the "shin," in the most sheltered situation, a "stell-house," as before mentioned, and perhaps an open stell or two for any casual purpose, as most required. The superficial extent of this park must rest entirely upon the number of ewes to be accommodated, and upon a farm of 1000 sheep, which may produce about 35 score of breeding ewes and gimmers, it would be reasonable and advisable to provide accommodation in the park for at least 10 score of those accustomed to depasture about the "heights," or other exposed parts, and there to retain them till their lambs shall have arrived at sufficient age and strength for enabling them, with the assistance of the "various stells," to bear up against the utmost fury of an occasional blast. It may, perhaps, be difficult to calculate the immediate extent of a park capable of maintaining 200 sheep for two months during the lambing-season; but, according to the

rule of proportion, if 1500 acres will support 1000 sheep for 12 months, 50 acres will be found sufficient for 200 sheep for "two;" and allowing that "inclosed land," which has been "hained" during part of the winter, is *twice* as good as that which has not, we may reasonably conclude that a "park of 25 acres" will be sufficient for the purpose required. An area of 25 superficial acres will be comprehended within a square inclosure of about 236 roods, with an allowance for inequality of surface, which, at 6s. 6d. will cost L.76 14s.; and with 2 "stell-houses" at L.3, and 2 "stells" at L.2, will amount, in all, to L.86 14s.; which, with the cost of "hay-racks," may be estimated together at an outlay of L.90: the interest of which, at L.7 *per cent.* is L.6 6s.; and the expense of upholding at 1d. per rood, is 19s. 8d.; making a total of L.7 5s. 8d. to be deducted from the annual profit of the park.

Were it possible to make an accurate calculation of the real extra-loss of lambs through a given period or cycle of years, we should have no difficulty in ascertaining the real estimate or advantage of our plans. This, however, we may remember, has been stated, from Laidlaw's enumeration, at an annual extra-loss of 7 *per cent.* to which we may add at least 3 *per cent.* more for common occurrences; and as the loss arises generally from among the gimmers and ewes *most exposed*, all of which we have now got under the "shelter of our park," amounting to 10 score, we shall say, merely for the sake of argu-

ment, that we have saved the "tenth" part of their produce, or 20 lambs; which, at 8s. each, the mean price of them, will amount to L.8; the difference between which and L.7 6s. expense, will leave 14s. profit to the farmer. This preservation of lambs cannot certainly be overrated, even in common years; but we must remember, that we have only *here* saved the "10th of the 10 score;" and not the 10 *per cent.* upon the whole 35 score, amounting to 70, which, at 8s. would be equal to L.28, minus the L.7 6s. expense, which leaves L.20 of additional profit. It may be said, however, that the park which is inclosed for 10 score, cannot be sufficient for 35; but it ought also to be remembered, that as the loss of the tender lambs generally takes place during the hours of darkness, or in 8 hours out of 24; we shall be enabled, by good management, so to accommodate the shelter of the dike to the hour of parturition, by admitting the ewes first, and then the gimmers, which come a fortnight later—by herding a proportion of the strongest upon the hill during the day—and by allowing a proportion to avail themselves of the shelter under the lee of the dike *outside* the park, we shall learn, by such judicious management, that not the slightest difficulty will be found in rendering the advantages of the park applicable, *at a pinch*, to the exigencies of every "breeding ewe" upon the ground. We do not, however, by any means insist upon this; we shall only say, as the extra-loss falls principally among the gimmers and ewes most exposed, that we have saved through

the medium of our park *one-fifth* of their produce, equal to 40 lambs, which, at 8s. is L.16; and deducting the expense of L.7 6s. leaving a fair profit of L.8 14s.

The "well filled rack" should be stationed at intervals under the shelter of the wall; which will induce the ewes, already accustomed to the food, to avail themselves of the comfort, and there remain in security with their charge. At the close of the day, be it dark and lowering, the shepherd should be careful to confine within the stells such of the lambs as appear most weakly; and with such of the ewes as shall appear ready to complete their time before the return of the morning sun, he should be no less careful in committing them to the shelter of the "covered stell." We have already recommended the diligence and attention of the shepherd to this eventful point, even through the whole "extended system of the stells;" and he may rest assured, in spite of prejudice or innovation, that such management will be attended with the most unexpected and beneficial effect, and from this simple truth alone, that FOOD AND SHELTER FORM THE TRUE BASIS AND SUPPORT OF ALL ANIMAL EXISTENCE.

Among those who find a difficulty in turning aside from the long-frequented path or wisdom of their forefathers, or "wha canna be fashed wi' sic like," we must really expect to find considerable opposition to our plans. "Our park may be too small for 10 score, let alone for 30; that it is depriving the stock of 25 acres of their range; and

where's the use of lambing the ewes for safety in a park, when we are already provided with a haugh?" and so on. That a *small* park is always better than *no* park at all, we most unequivocally do assert; as well as that, by extending it above a convenient size, its merits may be proportionally reduced. Two parks of 20 acres each must be preferable to one of 40; but let them be as numerous as the most positive person could desire, so far from depriving the flock of a single blade of grass, we conceive that we are not beyond the mark when we say, that, in proportion as the inclosures are made in numbers to increase, so will the pastures be enabled to afford a double return; or, in other words, that any portion of the hill-land inclosed and improved by feeding, top-dressing, or other method, will readily produce *twice* the quantity it did when lying in a "state of more open waste."

It is well known that a hill-pasture is never properly "eat down;" that the long grass is often "lodged" by the heavy rain, and left to rot upon the surface, while the stock are deprived in such cases of a great proportion of their food. But the land being inclosed, we have it in our power to lay on a quantity of stock capable of "eating it clean." The very distribution of the stock upon the surface is attended with the most enriching effect; and let it be the poorest land upon the farm, the improvement will appear before such operation shall have been repeated thrice. An extent of ground, therefore, *this* year, incapable of supporting a certain quantity of stock for a given time, may, in a few

years, when inclosed, maintain full twice the number; and as the improvement in the grass is gradual, so will it be long before there can be any limit to the increase; and by the same rule, were it in our power to divide and subdivide the WHOLE EXTENT, we should be enabled in a very few years to double nearly the present holding of the ground.

Although provided with *one* or with *many* inclosures, it does not necessarily ensue that the stock are to be continually barred out. A sufficient proportion of the grass *must* be preserved for necessary purposes; but at other times a free ingress and egress may be allowed; and although it may be expedient to curtail such range at particular times, let it be remembered that the season soon returns when they shall participate in every benefit proposed; and as it is clear that no one animal can be eating in two places at the same time, how, in the name of common sense, can the stock suffer by the institution of a park? Indeed, the absurdity is so manifest to the eyes of common sense, that little argument should be necessary to expose it; but our opponents may say, that the grass upon the hill, *so desirable* at lambing time, is never equally advanced with that upon the haugh; and that, while *their* sheep are so provided, a great proportion of the hill-pasture is thus preserved, while ours is destroyed. To this we reply, that the reason of the "grass upon the haugh" being more advanced than that upon the hill, arises from the simple circumstance of its having been "eat down" in autumn, and "hained" during the winter; and that, whenever

the same treatment shall be afforded to our "park upon the hill," a similar result will naturally ensue: and moreover, that the *additional* quantity of grass arising in the park from the more scientific system of management, will afford more than an equivalent proportion for that which our opponents have saved by their temporary occupation of the haugh. And then is the advantage abundantly manifest on our behalf. We have saved the first of the haugh grass; and in due time, therefore, shall the land afford a plentiful supply of hay;—whereas, on their parts, the tender grass being torn by the root, or cropped to the very stool, their haughs become comparatively bare as a waste in the summer, affording a scanty return in the autumn, —a season, also, miserably adapted in a highland country for the necessary operation of the scythe.

In considering the value of haugh-land, in reference to the benefit of "shelter," we are decidedly of opinion, that it falls far short in that respect of the advantages which arise from the "varied forms and eminences" of the hill. A hill has generally a "sheltered side of its own," whereas the plane surface of the haugh is not only deficient in those natural obstacles which arrest the violence of the storm, but it extends down that very draft and channel between the hills, which is best calculated to gather and accelerate its utmost efforts and effects. The advantage, therefore, of confining the ewes in lambing-time to a "park upon the hill," of moderate size and elevation, of southern aspect and general shelter, is not only of superior importance



to the stock, but even to the farmer himself,—as enabling him to improve and increase the quality and quantity of the pasture, to preserve his low grounds free from every encroachment, applying them with the utmost effect to those purposes for which the hill is inapplicable; and, in fine, of putting into practice that valuable maxim in “store-farming” which teaches us, “that every operation of the hill ought always to be conducted upon the hill itself.”

The great consideration to be attached to the “institution of a lambing park,” does not exist in the mere annual saving of lambs in common years, as every farmer lays his account to a certain loss; and which, perhaps, when not very extensive, nor too frequently repeated, however anomalous, he may still be enabled to endure; but from that *undeniable security* it affords on such overwhelming occasions as are instanced by the “thirteen drift days,” the “blast of March,” or others of those subsequent years, which have laid waste whole parishes and districts, and driven the farmer out of house and home!! A man *may* be enabled to withstand an occasional loss, and, by the assistance of a friend, may still maintain his situation in the world, though hampered by creditors and debt; but when that precious flock of which his capital consists has fallen a prey to mismanagement and the storm, his fate is then become so melancholy and disastrous, that a very slight consideration of his case is fully sufficient to awaken those sensations of the heart which are more honourable to

our natures than available for purposes of relief.

If we shall have been enabled, once in our lives alone, to preserve any minor proportion of the FLOCK through the medium of a park, it must be allowed that we have fully redeemed the outlay or expense; and without even considering the case *in extreme*, why should we neglect the means of reclaiming that annual detriment or loss, which hard necessity has so long obliged us to endure?

We have thus enlarged upon the benefit of a lambing-park, more as a *preservative* from those prodigious losses followed by IMMEDIATE RUIN, than from any means we may possess of stating directly the amount of actual yearly loss for want of one; but, to the mind of an unprejudiced person, both occasions will afford ample grounds for the adoption of the plan; and if we only call to remembrance the lambing seasons of 1816 and 1818, we should think that no further argument would be necessary for encouraging us to go forward in the measure with the utmost promptitude and dispatch.

#### THE HAY PARK

Is recommended as the only sure and certain means of providing winter-fodder for the stock, through every subsequent season; let those seasons be better or worse calculated for raising and securing such quantity or supply as our utmost necessities may require. On those grassy farms where it has

been customary to mow the bogs, a tolerable supply has generally been acquired; but in cold barren years, when a general deficiency of grass pervades the whole extent, it is not only hurtful to the pasture, but inexpedient on other accounts, to remove any proportion of its produce, even for the purposes of "winter food." There are also many farms within our knowledge, which, having little or no bog-land, are perfectly incapable of raising any thing like a tolerable supply of hay at any season; and the "General Report" asserts that there are many which provide "none at all."

To mow the bog-land in ordinary seasons, is attended with a doubly beneficial effect, as not only recovering hay which would otherwise have been left to "lodge and rot upon the surface," but it improves the quality, and consequently adds to the nutritious property, of the grass; and in the spring of the year, when new grass is much required, the sheep will always be seen to depasture upon those particular spots which had been mown in the summer before; whereas the consequence of allowing the long grass to "lodge and rot upon the surface," is equivalent to a *loss* of just as many acres of fine land, as it is late in the season before the new grass is able to penetrate up through the superincumbent mass of rotten stuff above; and then, when actually within the creature's reach, its quality is so rank and nauseous to the taste, that it is just left unconsumed, to rot and sprout up again, year after year, repeating the same process to the very end of time; consequently, from one

generation of sheep and men to another, there has been, and, without more attention to the subject, there is still likely to be, a continued loss or waste of the best pasture upon the ground. Surface-draining, indeed, is very efficacious in converting rushes and rank grass into an herb of a more palatable and fattening description; but many of our bogs, although drained, are naturally so productive or strong in growth, that it becomes absolutely necessary to have recourse to the operation of the scythe, in order to preserve them in a proper edible condition. Upon some grounds, this may be repeated annually; upon others, only once in two years, but common prudence ought always to be sufficient for regulating these practices.

As it appears that the quantity of hay to be derived from the bogs upon the open sheep-walk, is neither sure nor equal, it is manifest that no proper dependence can be placed for "a regular supply," on a source so variable or inadequate for the purpose; we should never fail, however, to make the best of what is reasonably to be had in all such situations, widely extended upon every different spot, and having it properly "win" or made, there to stack it for the winter's use, in connection with the "nearest stells," so as to save the labour of transportation from one distant place unto another; as much as circumstances will admit. It may be necessary also to secure the stacks with flakes from the premature encroachment of the stock. In this manner, when a great many ricks of hay are set up contiguous to the stells in dif-

ferent situations of the farm, it will become an easy matter for the shepherd to transport a *plaid-full* from the one to the other, as often as necessity may require.

Upon strong grassy lands, similar to Thirlestane, these natural advantages go far in enabling us to carry our useful purposes into execution; but, after making every allowance for such quantity, we ought rather to trust to the "hay-park" for the full supply of winter's food, by raising a continued superabundance therein, than by merely eking out our resources, by making good the deficiency of the bogs, from the supply of an inconsiderable inclosure.

In laying down a specific rule, we are obliged to say that our "hay-park" ought to be large and effectual in itself, affording a sufficient supply for the stock for *four months*, at the rate of one stone a-day, for every score upon the ground. This, at an average of seasons, taking into consideration the loss incurred by waste, will be found fully more than sufficient for our purpose; and we should be careful in case of any of our provender being left, to rot it into muck for top-dressing for the park, or to consume it with Highland cattle during the ensuing winter, rather than to mix it with the next year's crop, as the sheep invariably single out the old from among the new, and the former is thus consequently destroyed.

A flock of 1000 sheep, or 50 score, will naturally consume 50 stone a-day, which, during four months, will amount to 6000 stone in the season.

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Allowing our park to produce, after thorough improvement, a quantity equal to 250 stone per acre, we shall find it necessary to provide an inclosure of 24 superficial English acres. A square field of that extent will be bounded by a stone-dike of 232 roods, allowing for inequalities, which, at 6s. 6d. per rood, will amount to an outlay of L.75 8s. and that at 7 per cent is L.5 5s. 6d. with the annual upholding at 1d. per rood, equal to 19s. 4d.

The benefit arising from the establishment of a "hay-park," does not only consist in the advantages which accrue to the whole stock by affording provender, and so preventing leanness, debility, loss of lambs, and death; but we have a right to suppose, that, by the quantity of hay consumed during the time the snow is *off*, as well as upon the ground, a considerable proportion of the pasture will be thus preserved, which, in the long run, will enable us to add proportionally to the total number of stock upon the ground. To what this additional number may amount, we are not prepared *decidedly* to state; but, allowing the pasture saved during these four months to be equal merely to what would have been consumed by the *tenth* part of the stock or 100 sheep, for *one-third* of the year, we may reasonably conclude, that an additional number of 33 sheep may be fed annually upon the ground, which, at 11s. each, will amount to a profit of L.18 3s. subject to the deduction of L.5 5s. 6d., interest at 7 per cent. outlay, the extra work of one mower for twenty-four

days at 2s. 6d. per day, equal to L.8; and two women, for thirty days, at 1s. equal to L.3, besides the upholding of 232 roods of dike at 1d. equal to 19s. 4d. making in all an aggregate of L.6 10s. 10d. to be set against the immediate profits of the park. In this manner, the prime cost and other expenses are liquidated at once, and these all *in kind*; but the most essential benefit to be enjoyed by the stock, is, along with the shelter of the stells, a continued supply of food at all times,—preservation from poverty and loss of lambs, with a general maintenance of good condition; but to the farmer, whose very life may be said to depend upon the prosperity of his flock,—a perfect security from the effects of those overwhelming blasts, which have been too often effective in destroying both the one and the other.

Having now inclosed the requisite proportion for our park, it is necessary to turn our attention towards the improvement of it. The first care is to lay the surface perfectly dry, and then to effect the improvement either by the means of “irrigation,” or by “top-dressing.” In converting the park into a *water-meadow*, of course the drains for drying the surface will be of such a nature, and laid on in such a direction, as will serve the purpose of conducting the water for “flooding,” as well as for carrying off the surface water at other times, allowing the nature or declivity of the ground to be suitable for such double purpose. The expense of these drains is supposed to be already included in the amount of the 30,000 roods before enumerated.

Although land under the process of irrigation is made very effectual for raising heavy crops of hay at a moderate expense, yet, upon a sheep farm, where the shelter of the park dike may be occasionally required in winter, or at other times, for various necessary purposes when the crop is off the ground, it may perhaps be more convenient to have the surface improved by top-dressing in preference to irrigation—the drains in the latter case being susceptible of considerable damage by the frequent inroads of the stock—and at other times the necessary operation of “flooding” presenting a perfect bar to the occupation of the park, perhaps on some most critical emergency; and although we are aware that it is a common practice, after the crop has been removed from the ground, to consume the after growth of water meadows by the introduction of a stated number of sheep, and considering even that flooding the land is more easily effected than the process of laying on manure, yet we are decidedly of opinion, upon the whole, that our park will be more serviceable and effective in meeting all our various necessities, under the management of a regular system of top-dressing, than under the more simple process of irrigation. In either case, this convenience must be limited to a certain extent, so as not to interfere with the growth of the crop; but the time taken up by the latter process being so much greater than by that of the former, and the more frequent access we can have to our park for any such occasional con-



veniences, so much the more profitable and useful will it be.

Under these circumstances, we give a decided preference to the method of "top-dressing," and we think that the quality of the grass raised by such means will be found to be of a finer and more palatable description.

In this view of the case it is advisable that the inclosure should be erected contiguous to the shepherd's house—in a central situation;—so that the ashes, with other refuse, and the dung from the byre, may be at hand for the purpose of leading out, and laying on with all possible dispatch; and, from the central situation, the least degree of difficulty will be found in exporting the produce to the various distant stells. In this view it would also be prudent to waive the convenience afforded by the one ready side of the march-dike, unless we were possessed of several smaller parks in different situations, equivalent to a large one in the centre; and, indeed, wherever the top-dressing is found to be most convenient, there would certainly be the most eligible situation for a park.

Although a few years might possibly elapse before the land was brought fully to produce the specified crop, yet, by a thorough system of top-dressing,—not a mere sprinkling generally over the whole extent,—but by laying on at the rate of 12 tons per acre, of good rotted muck, upon different portions, year after year, according to the adequacy of our supply, and by repeating the operation in this manner by rotation, the land would

very soon be rendered capable of yielding the produce desired. The sooner, of course, this can be effected, the better,—and whenever we may have any of the last year's produce left upon hand, it would be advisable to winter a few Highland stots for the purpose of adding to the capacity of the *midden*. In the *tupping-season*, also, to lay on a proportion of choice ewes, with a particular tup, to eat down the after-growth quite close, would be the means of adding very materially to the accomplishment of our design, after which the top-dressing should be immediately laid on, before the frost can have time to penetrate to the root of the grass.

In case of the pasture so inclosed being of a coarse unpalatable description, nothing will tend to fine it down better than by eating it close and bare with Highland stots in the autumn: or, perhaps, it would be found still more profitable always to keep a few small Highland cows for the purpose of consuming the surplus hay, and adding to the *midden*; the annual produce of whose calves, reared upon their own milk, and disposed of at the age of 18 months, would afford a most profitable return. These little creatures would also be very serviceable with their milk at *lambing-time*, and, as far as relates to their summer keep, any suitable inclosure, even of *feal-dike*, upon the very worst of the pasture, would be found sufficient for their purpose, without making a sensible deduction from the necessities of the flock. This plan has succeeded well upon the farm of Thirlestane, as far as

it has hitherto been carried into effect. Indeed, a few of these productive little animals appear to be actually necessary to the welfare and convenience of the breeding ewes in spring; and at a time when milk is often of such infinite importance, it would be more professional or business-like, to draw the requisite supply from these animals, kept expressly for the purpose, than to deprive the farm dairy, or the shepherd's wife, of the scanty proportion usually enjoyed at that early season of the year. If the milk should be in little demand, the cows will be enabled to rear their calves, which in due time will afford a profitable return; and, under opposite circumstances, it will be no great loss to sacrifice the calves, and, having applied the necessary proportion of the milk for the benefit of the lambs, the rest of the produce during the ensuing summer may be set aside for other reasonable purposes.

In our climate even it is manifest that a very great proportion of the sheep's hay in ordinary years will remain unconsumed; but in the event of wintering an establishment of six Highland cows for four months in the house, at one stone each a-day, the expenditure would amount to 720 stone, which, at our former rate, will require three additional acres of inclosure; but we are of opinion that this precaution would be almost unnecessary, although it is always preferable to "err upon the safe side of the question." Indeed, the extent of the "hay park" may, especially upon grassy lands, be made conformable, in a certain measure, to the average produce of the bogs; and,

as far as relates to a summer inclosure for the cows, such animals being easily kept upon the most coarse or benty land upon the hill, an expense of L.10 or L.15 will be sufficient for raising a feal dike equivalent to the purpose required.

In establishing these improvements, our endeavour ought to be, so to *increase the number of the stock* as to enable us to *meet the contingent expense*; and then to enjoy the advantages, or consolidated amount, of general improvement, throughout every complicated circumstance or simple detail not capable of separate enumeration, but which, in the aggregate amount, will add most abundantly to the prime value of the stock, as well as to all subsequent profits to be derived. This general saving, or profit, has already been simply stated, upon tolerably good grounds, at an annual preservation of stock, out of 1000 sheep, equal to L.50; and although we have no hesitation whatever in convincing ourselves of the truth of this position, yet we always look forward, rather “to preservation from the effects of some ruinous and disastrous storm,” as a recompense for all our trouble and expense, than to the mere annual profit which arises from the accomplishment of our plans; but which, at the same time, ought never to be forgotten or despised.

#### THE TUP-AND-TWIN-PARK

Ought to be an inclosure of sufficient extent for enabling us to maintain the “fathers of the stock,”

for at least eight months out of the twelve. It ought to consist of the very best of the pasture, placed in such a situation as may be easily accessible for introducing hay and turnips in the barren months, provided with a proper sheep-house containing every convenience of hay racks, troughs for water, oil cake, corn, or salt; well sheltered and warm, preserving at the same time an equal and wholesome degree of temperature, with a sound dry bed for the animal's repose. The turnips ought to be laid down to them without, so as to prevent the putrefaction of vegetable matter within; and, indeed, every attention should be paid to these valuable members of the flock—rather nursing them than otherwise, when withdrawn from their annual exertion upon the hill.

In connection with this park, ought to be a little field of two or three acres, for raising white and yellow turnips, expressly for their use alone; and, should the soil be fit for it, it would be advantageous also to provide a proportion of the Swedes. The dung for the field may be drawn regularly from the sheep-house, and the land being well manured, may be cropped with turnips for a succession of many years, always changing the different sorts from the one part of the field alternately to the other. When the land at last begins to fail, the deficiency may easily be supplied for a time from some other convenient quarter.

We have already laid it down as a maxim, "that every operation connected with the hill stock ought to be performed upon the hill itself, and the haughs,

or other arable ground, preserved for purposes distinct."

In a store-farm, however, every consideration ought to be made to yield in a judicious manner to the convenience and necessities of the flock; and, in a steep mountainous country, like the higher regions of Etterick Forest, it may be sometimes found upon individual farms impossible, from the peculiar configuration of the hill, to erect the proper number of inclosures, without interrupting and destroying that natural or easy range, sometimes denominated the *flock-rake*. It may be impossible, also, for want of a genial aspect, to inclose land, which might otherwise have answered our peculiar purpose; but even under these disadvantages, we are still bound to make the best of our hill-pasture, and refrain as much as possible from encroaching upon the haughs.

When the nature of the hill is such as to impede our views, we must then have recourse to our only alternative; and, whether we may be obliged to encroach upon the haughs, or whether we have it in our power to succeed upon the hill, the *more* purposes to which our inclosure can be applied, so much the greater benefit shall we derive. If, therefore, we apply our tup-park, as being the best of the pasture, to the convenience of the ewes with twins, and enable the ewes thereby to bring up their lambs for a time in that inclosure, when the tups are on the hill, and having disposed of both, or even of one of them, allow the ewe with the other to return to her wonted haunt, at such con-

venient time as will admit of the grass in the park being freshened up before the return of the tups from the hill, about the end of September; we shall then have been enabled to perform a profitable and double service with our park.

Now, if a flock of 1000 sheep contains 15 tups and 5 tup-hogs, and we have been in the habit of keeping them almost always promiscuously upon the hill with the rest, but when, by the institution of a tup-park upon the haugh, we are enabled to relieve the hill of their burden for six months, we are at full liberty to lay an additional stock upon the hill, in the shape of permanent holding, in lieu of those 20 tups which have been thus withdrawn for the time. For this computation, we shall say that 20 tups will consume as much grass in twelve months as 30 ewes; and by removing these tups from the hill for six months, we shall be justified in laying on an additional permanent stock in their place, of 15 ewes, which, at 11s. each, amounts to a profit of L.8 5s.

We may here remark, that, in some instances, where there are fine haughs attached to hill-farms, the value of the produce of these haughs has, somehow or another, been "slumped" in with that of the hill, in such a manner that the proprietors have not *apparently* received any benefit from them in the way of rent; and these haughs are of a rich alluvial soil, capable of bearing heavy crops, although perhaps in many instances not very extensive.

Now, the truth of the four following proposi-

tions will scarcely be denied by any one; viz. 1st, That a landlord has a right to be paid for every inch of his land, "hill or dale." 2d, That, in a store-farm, every requisite for the flock should be granted, before any proportion of the farm is applied to other purposes. 3d, That, after the necessities of the flock, if any arable land remains over, such land ought to pay a rent independent of the flock already provided for; and, 4th, That a tenant has a right to his regular profit upon the one as well as upon the other.

By instituting our tup-park upon the haugh, we have encroached upon land, which we never knew how it paid rent for at all; but now we are quite certain that its produce is applied for the keeping of tups, whose temporary absence from the hill is recognised by the introduction of 15 additional ewes, whose produce is equal to, or rather responsible for, the land-rent of the park thus inclosed.

Suppose now we set off 10 acres of excellent haugh land for the park, and 3 acres for turnips, these amount to 13 acres, specially provided for the support of 20 tups for six or eight months, while, during their absence, the same ground may contain a few ewes with twins for two or three more. The great proportion of the time occupied by the tups is during the winter and barren season, when hay and turnips are regularly supplied; consequently, by putting out the tups at the lambing time, and taking in the twins when the grass is also generally in active vegetation, and keeping in the twins till the end of July, when both, or



even one of the two may be disposed of, and the ewe with her other lamb in a little time be returned to the hill in good condition, we shall then have an interval of fine growing weather for the grass, before the tups are recalled about the end of September. If it should happen that we are not over-burdened or even troubled with twins at all, we may in that case be enabled to save a little grass in the shape of hay from the park, in addition to our other regular supply.

It appears now that the occupation of 13 acres of haugh by the tups produces a return of L.8 5s. from the produce of the additional ewes upon the hill—apparently no great return for land worth at least 30 shillings per acre; but we have also the profit of any occasional twins, and many other advantages naturally arising from the convenience of the inclosure itself, as well as from the expense saved by wintering one's tups at home.

Had our park been inclosed upon the hill, we should have been spared the present discussion about the haughs; and although we cannot by any means pretend to assert that proprietors have never received value for them in one shape or another, yet, in treating expressly on the various defects and necessities of our mountain-farms, we feel anxious, in case of accidents, to define, concisely and distinctly, the limit or boundary between the one proportion of the farm necessary for the purposes of the stock; and the other, from which the stock is altogether detached.

In improving our "fictitious farm," we have inclos-

ed our tup-and-twin park upon the haugh, as of necessity we have been obliged to do at Thirlestane, and determined the value of it by the additional stock laid upon the hill; but had it been possible to have acted otherwise, we should have preferred following up our original purpose.

Some farmers who persuade themselves that, for a proportion of rich arable haugh let in with a "hill-farm," they pay a proper rent in the "slump," and knowing that 13 acres at 30 shillings amounts to L.19 10s. and we only allow a produce of L.8 5s. for the same,—will maintain, that, by such system, the landlord will lose the sum of L.11 5s.; but we cannot help believing that, in a great many instances, where the haughs are not *very extensive*, the farms have been held without any particular reference to the haughs, and, of course, it is only to such farms that we allude. But if any highland farm has been at any time let at so much for the hill, and so much for the haugh, without a proper provision being made for the tups, we conceive that it is then essential, on the part of the landlord, to make some sacrifice necessary for supporting those members of the flock constantly upon their own ground,—otherwise the farm is deficient in a matter of peculiar importance.

It often happens to farmers unprovided in this particular, that they are obliged to send their tups to a lower part of the country, first for summer's grass, and then for turnips in the winter. The expense attending these migrations amounts to a considerable pull upon the profits of the farmer; or

rather, considering it as a drawback upon the farm, as a certain reduction from the landlord's rent.

The summer's grass thus provided in the lower parts of the country for the maintenance of 20 tups, cannot be valued at less than 10 shillings each, or L.10; and the winter's turnips between two and three acres, at L.5 per acre,—with hay and other incidents, cannot be stated at less than L.15,—making in all an annual cost of L.25; consequently, when we have it in our power to make arrangements at home which shall save such un-called-for expense, it becomes the interest, as well as the duty, of the proprietor, to see them adopted.

There is a still greater disadvantage in sending the tups from home, which is attended with the worst of consequences, and which fall entirely upon the tenant. The creatures are sent away in good health and tolerable condition; and not unfrequently return covered with scab, crippling with foot-rot, and half their fleeces torn from their carcasses, and all this independent of the certainty of deaths. The infection from these spreads to the other members of the flock, and much labour and expense is necessarily incurred, before the disease can be banished from the ground. Hence we see the obvious advantage and economy of going through the different details connected with the farm under our own special guidance and management at home.

To estimate the expense of our inclosures, we shall say that it will require 207 roods of dike to fence our two parks of 10 and 3 acres separate

from one another, which, at 6s. 6d. is equal to L.67 5s. 6d. and, with L.10 for a sheep-house, amounts to the sum of L.77 5s. 6d. bearing interest at 7 per cent. equal to L.5 8s. 2½d. and upholding 207 roods of dike, per annual contract, at 1d. per rood, 17s. 3d.—making in all an aggregate of L.6 5s. 1d. to be placed against the profit of L.8 5s. and the great saving effected by managing our tups at home, and the other profits from the twins.

#### THE HOSPITAL PARK

Ought to be erected in connection with the smearing-house and sheep-folds, and of such extent as to contain a few of those bad cases of disease which may require the more particular attention of the shepherd. In the smearing-house should be provided a small dispensary, containing such a variety of medicines and surgical instruments as may be requisite for every particular; and as well for this purpose, as for examples of judicious and successful treatment of prevalent diseases, we refer our readers to the "Treatise on the Diseases and Management of Sheep," by Sir George S. Mackenzie, Bart. where cases will be found sufficiently demonstrative to direct the judgment of the most inexperienced practitioner.

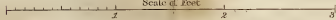
By connecting our hospital park with the smearing house, the greatest advantage will be derived from such convenience on the various occasions of clipping, smearing, and sorting the stock. In case





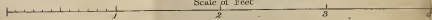
CHEVIOT EWE

Scale of Feet



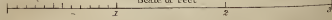
NEW LEICESTER RAM

Scale of Feet



CHEVIOT RAM

Scale of Feet



Eng. by W. L. Linn

of disease being widely disseminated, it will be impossible to provide an inclosure sufficiently extensive for containing the whole proportion so affected. We may, therefore, be satisfied with one capable of containing a few of the worst cases; and if we set apart 10 acres for that purpose, it may perhaps be found sufficient. The expense of inclosing 10 acres with 147 roods of dike, will amount to L.47 15s. 6d. which, at 7 per cent. for interest, L.3 6s. 10d. and 1d. per rood for upholding, 12s. 3d. will amount to a regular annual expense of L.3 18s. 2d.

It will be remembered that Mr. John Little asserts, that a tenant can easily afford to pay 10 per cent. for all inclosures; but in this case, where we can more readily understand the convenience, than calculate the profits, we shall be satisfied to let the one balance the other, which is certainly not overrating the general value and convenience of the park.

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## SECTION V.

### MANAGEMENT OF BREEDING.

It is remarked by the celebrated Mr. George Culley, late farmer in Northumberland, that "the great obstacle to the improvement of domestic animals seems to have arisen from a common and pre-

vailing idea amongst breeders, that no bull should be used in the same stock more than three years, and no tup more than two; because, say they, if used longer, the breed will be *too near akin*, and the produce will be *tender, diminutive*, and liable to *disorders*; but, fortunately for the public, there have been men in different lines of breeding, whose enlarged minds were not to be bound by vulgar prejudice, or long-established modes, and who have proved, by many years' experience, that such notions are without any foundation."

"Mr. Bakewell has not had a cross from any other breed than his own, for upwards of 20 years; his best stock has been bred by the nearest affinities; yet they have not decreased in size, neither are they less hardy, or more liable to disorders; but, on the contrary, have kept on a progressive state of improvement."

"But one of the most conclusive arguments that crossing with different stock is not necessary to secure size, hardiness, &c. is the breed of wild cattle in Chillingham Park, in the county of Northumberland. It is well known that these cattle have been confined in this park for several hundred years, without any intermixture, and are, perhaps, the *purest breed* of cattle of any in the kingdom; and though bred from the nearest affinities in every possible degree, yet we find them exceedingly hardy, healthy, and well formed; and their size, as well as colour, and many other particulars and peculiarities, the same as they were 500 years ago."



“From these instances it appears there can be no danger in breeding by the nearest affinities, provided they are possessed in a superior degree of the qualities we wish to acquire; but if not possessed of these, then we ought to procure such of the same kind as have, in the most eminent degree, the valuable properties we think our own deficient in. It is certainly from the best males and females that best breeds can be obtained or preserved; and to procure other tups is undoubtedly right, so long as better males can be met with, not only amongst our neighbours, but also among the most improved breeds in any part of the island, or from any part of the world, provided the expense does not exceed the proposed advantage. And when you can no longer, at home or abroad, find better males than your own, then by all means breed from them, whether horses, neat-cattle, sheep, &c.; for the same rule holds good through every species of domestic animals; but, upon no account, attempt to breed or cross from worse than your own; for that would be acting in contradiction to common sense and experience, and that well established rule, that “best only can beget best,” or which is a particular case of a more general rule, viz. that “like begets like.”

It appears by this evidence, that the efficiency of the plan of breeding *in and in*, is not only justified by nature, but approved by the practice of Mr. Bakewell, and recommended by Mr. Culley, *whenever our own tups are better than those of our neighbours*, which is just as much as to say, that a farmer ought always to buy a good tup, rather than

use an inferior one of his own; but whenever he can raise one superior to those he can purchase, he had better use the former, although it should occasion an anomalous sort of kindred in the stock.

The system of putting the tups indiscriminately to the ewes, as practised upon the mountain farms, must, of course, afford numerous instances of breeding "in and in;" but we believe that our storemasters are in general extremely anxious to change the run of their tups, by an annual importation of others at a considerable expense; and were the science of breeding *more attended to at home*, it is probable that a very great proportion of such expense might be saved.

If the pastures, for instance, in Etterick and Eskdale are as good as those of the Cheviots, why should not tups be produced of an equal character? It may be said that the pastures are inferior; and hence little chance of success. But the fault lies not in the pastures altogether, but far more in the management.

Some farmers among the Cheviots have long derived a lucrative trade from the sale of tups; and others are accustomed or inured to purchase them at any price; and one consideration certainly is in their favour, that their breeding ewes are of a more equal and a more perfect appearance than ours;—a circumstance sufficiently natural, considering that when our hills were first supplied with the Cheviot breed, those introduced were only of a secondary description, generally the casts of others. As an

inferior description of ewe can never produce a superior description of lamb, it is impossible that our stock can be as yet, or for many years to come, as good as the original breed upon the Cheviots. Much has been effected, indeed, by the introduction of tups; but this is an annual burden, a drawback upon our farms, which can only be remedied by having first raised a superior description of ewe,—a consummation only to be acquired by a more careful attention to the *management* of breeding, which depends particularly on a scientific adaptation of the male to the female.

Although it is admitted that almost every farmer in the forest uses his best tup among a selection of his best ewes, yet this experiment falls far short of the means requisite for exciting an extensive and simultaneous improvement; because, for want of the convenience of proper inclosures, that adaptation of opposite qualities in the animals cannot be effectually applied; and many good tups, indiscriminately turned out upon the hill, thus waste their labour upon subjects quite incapable of affording a suitable return.

As it is allowed that a bad misshapen ewe will never produce a good lamb, whatever might have been the nature of the tup, it appears to be almost a matter of indifference as to the quality of the tup so applied, as long as we have any of those inferior ewes upon the ground; and the sooner they are discharged in the annual draft, without any reference to age, so much the sooner will there be a more equal and more valuable stock to improve up-

on. The best tups, therefore, ought always to be put to the best of the ewes, applying any comparative excellence in the male, to make good a peculiar deficiency in the female. Thus, in a cold mountainous region, some of the ewes may be too fine; it then becomes necessary to apply a tup of the strongest wool. Others, on the contrary, being unnecessarily coarse, we must consequently apply a finer description of tup. One set of ewes may be particularly diminutive; a larger description of tup becomes then necessary. And, indeed, there are many points of deficiency among the ewes, which may be counteracted or improved in their produce, by an application of tups particularly adapted to their situation, as long as we have the means of riding them without intermixture, and which never can be effected without proper inclosures.

We conceive that no sheep can thrive to the best advantage upon unwholesome pastures; consequently, *as are the pastures so will be the sheep*. The first care, then, is, to ameliorate the pastures as much as possible, either by draining or otherwise, as necessary; to provide food and shelter in abundance during the time of hunger and the storm; after which, every other improvement in the quality of the ewe must be sought for in another quarter.

The next resource is that of the ram; and, if not allowed proper convenience, all his symmetry and fine proportions are in vain. In what manner, then, shall we be enabled to make the most of him? Only by a proper adaptation of his peculiar excellencies to the particular deficiencies of those ewes.

committed to his charge ; and this can only be effected, as we said before, with the accommodation of inclosures, and a judicious selection of the stock. Half a score of excellent tups, so applied, will do more benefit than twice the number going promiscuously *through* upon the hill ; and were it in our power to improve our farm by a general subdivision of the whole extent, attending to a judicious selection of the ewes, we should very soon be sensible of a wonderful improvement in the stock.

The great deficiency of symmetry in the Cheviot sheep is a lightness in the breast and fore-quarters, which defects would undoubtedly be much remedied by studying that adaptation which was so successful in forming and upholding the Dishley breed. To improve upon the shape, our farmers have sometimes tried a cross upon the Cheviot ewe with this Dishley or new Leicester ram, as if to effect a change by one immediate effort ; but we believe the offspring of these crosses have always been found too soft or delicate for the climate, and too inactive for the steep rapidity of our hills. Nothing, then, will tend so effectually or so permanently to remedy the defect, as a careful adaptation of the rams ; and for these purposes inclosures are indispensably necessary.

Upon the "fictitious farm" we have thus been endeavouring to improve, our inclosures have been four, viz. a *hay park*, a *lambing park*, a *tup-and-twin park*, and an *hospital park*. Of these, three may easily be made applicable to the services of the ram ; the fourth, or *tup-park*, being tolerably

well ate down before the enlargement of its inmates, and the greatest necessity existing to allow a freshening of the grass previous to their return.

Perhaps, in assorting a stock, it will not be necessary to draw out above three or four particular lots; and if we shall have hained our three other parks for a sufficient time previous to the season, we may avail ourselves of their accommodation with the greatest possible advantage and effect. To lighten the pasture, as soon as several of the ewes have been served, they may be turned out again to the hill, or indeed the whole lots might be herded outside during the day, in the immediate neighbourhood of the park, and returned back again at night.

The more inclosures, however, to be provided for such purposes, the more certain shall we be of our produce; as many ewes are left annually *tup-eild*, either from the inattention of the shepherds in not herding them close among the rams, or from the impossibility of effectually doing so; and were farmers to give up the deteriorating practice of breeding from the gimmers, more time and attention might be dedicated to the other branches of this concern.

There is no inconsistency among farmers more extraordinary than the differences of opinion which universally exist in their ideas as to the perfection of one ram, when compared with another. Some are found to judge of perfection by the touch, others merely by the eye, and others, again, more rationally by both; but as it is universally known

what the points of an animal *ought* to be, it is extraordinary that there should be any difference of opinion at all. To remind our readers, however, in this particular, we transcribe the description of a ram from the work of Mr. Culley.

“ His head should be fine and small; his nostrils wide and expanded; his eyes prominent, and rather bold or daring; ears thin; his collar full from the breast and shoulders, but tapering gradually all the way to where the neck and head join, which should be very fine and graceful, being perfectly free from any coarse leather hanging down; the shoulders broad and full, which must at the same time join so easy to the collar forward, and chine backward, as to leave not the least hollow in either place; the mutton upon his arm, or fore-thigh, must come quite to the knee; his legs upright, with a clean fine bone, being equally clear from superfluous skin and coarse hairy wool from the knee and hough downwards; the breast broad and well forward, which will keep his fore-legs at a proper wideness; his girth or chest full and deep, and, instead of a hollow behind the shoulders, that part by some called the fore-flank should be quite full; the back and loins broad, flat, and straight, from which the ribs must rise with a fine circular arch; his belly straight, the quarters long and full, with the mutton quite down to the hough, which should neither stand in nor out; his twist or junction of the inside of the thighs, deep, wide, and full, which, with the broad breast, will keep his four legs open and upright; the whole body covered

with a thin pelt, and that with fine bright soft wool."

"The nearer any breed of sheep comes up to the above description," says Mr. Culley, "the nearer they approach towards excellence of form; and there is little doubt but if the same *attention and pains were taken to improve any particular breed* that has been taken with a certain variety of the Lincolnshire, the *same consequences* would be obtained."

A reference to the plate will show at one view how far the Cheviot sheep are deficient in the above particulars, when compared with the perfection of the Dishley or new Leicesters.

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## SECTION VI.

### ON FACILITATING COMMUNICATION BETWEEN ALL PARTS OF THE FARM.

THIS improvement can only be effected by the formation of some necessary roads, and the erection of convenient bridges for the sheep; and although at first sight the idea of such an undertaking would seem to occasion an unjustifiable degree of expense, yet upon a proper application of our means, and acting within the bounds of propriety and economy, it will be found that a con-



siderable saving will result from a moderate sum expended for the purpose.

The burden on a hill-farm, independent of the sheep, is the yearly provision of fuel for the farmer, shepherds, and cottars. These supplies often occasion a very prejudicial necessity of much detrimental passage to and fro upon the ground; horses, carts, and slipes, cutting up the fine bog pastures, sinking down through to the axle-trees, breaking carts and harness, and laming horses, following a new track on every succeeding rake, and scaring the sheep from their regular and undisturbed occupation of the ground.

The time lost by the difficulty of the passage, and the extrication of carts and horses from bogs and holes,—the damage done to the sheep-drains in crossing, with the comparatively small load of peats brought out at every rake, might easily be remedied by the institution of an appropriate road where necessary, which in the end would destroy a much smaller proportion of the pasture, than such as is cut up by the circuitous return of every succeeding cart.

Farmers are in the habit of bitterly complaining of the damage done by the cottars on these occasions; but were they to lay out the matter of L.40 or L.50, for establishing a proper road, where one appears to be so much wanted, there would not only be a general saving of the pasture, but a more economical expenditure in the articles of cart, horse, and harness.

It often happens, also, that the most productive

bogs on a steep hill are inaccessible, so that the hay which might otherwise be cut and applied with advantage to the stock, is left to rot, year after year, upon the surface, and a valuable proportion of the pasture is thus continually destroyed. Although it might not at all be necessary to make a long line of road from one quarter of the farm to another, yet would it be advantageous to make such occasional parts as would facilitate an easy communication over the whole extent, both for the purpose of availing ourselves of all the superfluous produce of the bogs, and transporting it easily and expeditiously, for stacking in the immediate vicinity of the winter stells.

The more readily, therefore, we can make ourselves master of every creek and corner of the ground, so much the more profitable will it be.

And another point now presents itself, of the greatest importance to the stock, and which relates to the expediency of erecting bridges across the burns or brooks; and as the experience of the late Mr. John Little must be considered as of first rate authority, we prefer transcribing from his work *verbatim*.

“ When it happens that a burn or brook runs through the land where a hirsell of sheep is kept, it is necessary to make bridges, in order that the sheep may be able, according to the shiftings of the wind, to shelter themselves on either side; and also they are of great advantage in deep falls of snow, when sheep can obtain food on one side of the burn only. There is often a great loss occa-

sioned by the want of bridges when burns are full of rain-water or snow, at the breaking up of a storm, and especially when the usual passes are obstructed in any sudden way, and the shepherds not at hand to direct the sheep. Every shepherd knows, that, from the shifting of the wind, sheep will go of themselves from one side of a burn to the other; and when they do so, either in the night time or in bad weather, very serious losses are often sustained. Any accurate observer will readily see the most advantageous situation for a bridge. Stones certainly make the best, though the most expensive bridges. The most common and cheapest way of making bridges for sheep, is by laying two or three trees, of sufficient size and strength, across the burn, and as many small branches across these trees, as may be required to support a covering of divot or sods; and bridges made in this manner will last a long time if they are properly covered with sand or gravel. The wider these bridges are made the better; but they ought to be at least four feet in width. The improvement is simple and cheap, and at certain times it is of very great consequence."

An outlay of L.100 would be fully sufficient in most cases for remedying the defects already described; and for upholding in good repair the road thus made to the peat-moss, the farmer might be joined by the cottars—a very slight servitude on their parts for the gratuitous supply of peats. If the damage suffered by the farmer under

the present circumstances is equal to the common outcry, assuredly the outlay of L.100 will be very well bestowed, and the advantage arising more than equivalent.

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### SECTION VII.

#### ON A SUITABLE PROVISION OF SHEEP-FOLDS AND SMEARING-HOUSES.

THESE being indispensable for the various operations of clipping, smearing, and assorting the stock, it is only necessary to say, that they ought to be placed in such a situation as will be most conducive to general convenience; the smearing-house well paved and lighted, clean, airy and dry; containing, as before stated, accommodation for medicines or other articles requisite for the convenience of the flock. The folds ought to consist at least of two larger ones, capable of containing several scores of sheep, in addition to three or four smaller ones, for the convenience of *gripping* and sorting out any distinct lots or parcels for particular purposes. If not built altogether with lime, the walls ought at least to be pointed up to the height of three feet from the ground, both to preserve them from the violence of the animals, as well as to secure the creatures themselves from be-

ing hurt or lamed by the projection of loose stones.

Attached to the smearing-house and folds, ought to be a park capable of containing a hirsel in readiness for sorting; and for this purpose the hospital-park will be most convenient.

It is also of infinite importance, that the farmer should be possessed of a "wool-house," whose temperature should be equally removed from an excess of damp or of drought. The one renders the wool too heavy, moist, and unfit for working; and the other, by extracting the natural moisture, makes it too brittle and dry. A large loft, lathed and plastered all round and over-head, will afford the most proper place for our purpose, and ought to be situated in the immediate vicinity of the farm-house, not only for the convenience of inspection, but also as a more effectual safe-guard against the hands of any occasional depredator.

These conveniencés, which are indispensably necessary, and already attached to the different farms, either in a better or a worse condition, are not here noticed for the purpose of determining the first expense, as not being actually within the limits of *neglected improvement*, but only by way of recommending a more diligent attention in the construction and upholding of them, which at the same time induces us to notice another deficiency, not applicable alone to the *pastoral division*, but unfortunately from Johnny Groat's to the Border, and perhaps a little upon the other side of it. We allude to the abominable proportion of dirt and

filth, which not only surrounds the dwellings of the lower orders, but which often actually impedes the entrance into the very door; and we wish we could say that all the farm-houses in the country were perfectly correct in this particular. When a farm-house or cottage is first built, it is certainly as easy to arrange certain proportions of material in the shape of comfort and *convenience* as of dirt and filth; and assuredly it is in the power of proprietors and farmers to enforce such regulations as would effectually remove that stigma from our country, which is attached by every traveller, and by those from England in particular.

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CONCLUSION AND SUMMARY.

WE have now endeavoured to lay before our readers an account of those deficiencies, which, in our opinion, appear to exist in the "management of our mountain-farms;" and which, without amendment, must not only retard the progress of general improvement, but in the end entirely prevent the arrival at that degree of prosperity, which, by the nature of the land and other peculiar indications, we are reasonably entitled to expect.

In proposing the means of amendment, our pretensions are *not* such as to contend, that *a better or superior plan could not have been adopted*; we aim only at an *easy* improvement, at a *moderate* ex-

pense; and such as, when carried fairly and fully into effect, will afford more than an adequate return in general, and secure to us a comparatively safe deliverance from the rigours of the winter and the dangers of the drift.

We have applied our improvements on a suppositious farm, wild and stormy, and "open as a waste;" and, as far as such improvements have actually been effected upon Thirlestane, we feel assured that the soundness of our speculations has been identified or confirmed by the proof of experience.

The abstract of general outlay is as follows:

	Money Sunk.	Int. at 7 per Cent
To 24 Stells, at 39s. . . . .	£46 16 0	£3 5 6
24 Hecks, at 15s. . . . .	18 0 0	1 5 2
30,000 roods of drains at £4, . . . . .	120 0 0	8 8 0
Upholding do. at 8s. per 1000, . . . . .	0 0 0	12 0 0
Mole-catching, . . . . .	0 0 0	6 0 0
Half expense 2 miles dike, . . . . .	100 0 0	7 0 0
Do. do. upholding 1d. per rood . . . . .	0 0 0	1 4 6
Dike, &c. of lambing-park . . . . .	90 0 0	6 6 0
Upholding do. . . . .	0 0 0	0 19 8
Hay-park dike . . . . .	75 8 0	5 5 6
Upholding do. . . . .	0 0 0	0 19 4
Expense of extra hay-makers . . . . .	0 0 0	6 0 0
Tup-park dike and house . . . . .	77 5 6	5 8 2½
Upholding do. . . . .	0 0 0	0 17 3
Hospital-park dike . . . . .	47 15 6	3 6 10½
Upholding do. . . . .	0 0 0	0 12 3
Roads and bridges . . . . .	100 0 0	7 0 0
	<hr/>	<hr/>
	£675 5 0	£75 18 3

## PROFIT.

To 66 additional sheep on account of drains, 11s.	£36 6 0
25 do. do. march dike,	13 15 0
Possible saving of a Shepherd . . . . .	29 17 0
Saving of 40 lambs by the park, 8s. . . . .	16 0 0
33 additional sheep on account of hay park, 11s.	18 13 0
15 do. do. do. tup-park, . . . . .	8 5 0
Hospital park equal in value to expense . . . . .	3 17 9
Roads and bridges, do. do. . . . .	7 0 0
	<hr/>
	£133 13 9
Deduct annual expense . . . . .	75 18 0
	<hr/>
Net profit after 7 per cent. on outlay . . . . .	£57 15 9

It will be observed that no allowance has been made for upholding the "stells," and the repair of hecks, &c.; but as all these come within the immediate department of the shepherds, they can find full time and opportunity for looking after them. With regard to the other items of expenditure and profit, it is to be hoped that no person can accuse us of endeavouring to *make out a case* on a favourite subject, without having stated matters fairly on both sides of the question; neither can it be said that the additional proportion of 139 sheep, in consequence of a material, though not a perfect improvement, at the expense of L.675, can be overstocking the ground. It is quite clear, that if a wild, wet, open farm of 1500 acres, could contain 1000 sheep in that situation, it will be fully enabled to hold 1139, under the more favourable circumstances consequent upon such improvement.



It is true also, that the *net* produce of every sheep upon the farm does not amount to eleven shillings; because against such produce is to be placed the interest of farmer's capital, and every different expense upon the ground; but having entered upon a lease, and having performed these improvements by the end of the second or third year, we shall find, in course of time, an additional income returning from these improvements, which was not accounted for, nor contemplated, as in anywise payable to the landlord on the first taking of the farm, unless the landlord himself had provided a proportion of the outlay; consequently, except in the annual expense attached to the smearing or clipping of these additional sheep, their whole produce may be considered in the light of additional profit, as well also as that proportion of *extra-losses* which falls naturally to be *saved* in consequence of the efficacy of our operations. During the first three years of the lease, when the operations are only in a state of progression, and not at once attended with all the benefit proposed, it will also be an easy matter to retain a proportion of lambs during these years, so that in due time they may be ready to answer for the additional stock so required. It has already been proved from different authorities, that the average annual *extra-loss* in open farms amounts to not less than 5 per cent. or 50 sheep out of 1000; and these, at L.1 each, amount to L.50 per annum. To this sum add the amount of value from the improvements, viz. L.57 15s. 6d.; and these totals will afford an increased profit of

L.107 15s. 6d. Thus, on a tenant's entering upon a lease of one of our farms upon the old plan, he may, by the expenditure of L.675, draw an annual return, by good management and care, of a sum not less than L.107; independent of an allowance of 7 per cent. upon the outlay.

Making the very liberal allowance of the first three years of the lease to go for nothing in the way of increased revenue, as the operations are in progress; and at the end of the fourth having deposited the L.107 as a sinking fund to redeem the original outlay at compound interest, continued by such annual deposit, we shall have been enabled, by the end of the sixth, or the ninth year of the lease, to have redeemed that sum, without taking into consideration the 7 per cent. interest, as stated in the summary already shown, amounting to L.47 5s. 4d. By this account, however, the net profit upon improvements, independent of the 7 per cent. interest, and the saving of 5 per cent. of extra-losses, amounts to L.57 15s. 6d., which, at 5 per cent. compound interest, as before, with the regular deposit, will redeem the original outlay in  $9\frac{1}{2}$  years, from the first return. A man, therefore, entering upon a lease of 10 years, and performing all his improvements in one, which is perfectly possible, may very easily redeem his capital in that time, and receive also the benefit of 7 per cent. for the time he is doing it.

It may be said, indeed, that the capital ought to be redeemed in a less time than  $9\frac{1}{2}$  years; by applying the 7 per cent. to the other profit, which

would add L.47 5s. 4d. with its interest annually, to the sinking fund, and thereby accumulate to the sum required within 6 years ; but we have no wish to make the business appear too easy. We remember that there is little or no capital among landed proprietors, especially of entailed estates ; and perhaps their tenants are little better off in that respect ; consequently, the money for improvements must be borrowed either according to the disadvantages of "Montgomery's Act," the best heritable security, or otherwise, as most convenient. We think it fully necessary, therefore, in the first place, to set aside the sum of 7 per cent. to answer the interest and expenses attendant upon such transactions.

We have now been enabled to determine the five following propositions : 1st, That the total annual loss of sheep amounts to at least 7 per cent. 5 of which is "extra-loss" induced by bad management. 2d, That this extra loss ought and may be saved by a general system of improvement. 3d, That, upon a farm in the state of an "open waste," it will probably require the sum of L.675 5s. to effect our purpose. 4th, That, independent of saving of lives, and exciting a general amelioration, the sum of L.57 15s. 6d. will remain as an annual surplus profit, after allowing 7 per cent. interest on the original outlay ; and, 5thly, That this outlay may be redeemed in  $9\frac{1}{2}$  years, by applying the L.57 15s. 6d. at compound interest annually as a sinking fund.

These facts being established, the next great points to be considered, are, "In what manner it

will be most convenient to apply this outlay; provided either by the landlord himself, the tenant himself, or by the joint interest of both parties."

This question immediately involves the consideration of two others, whose intimate connection precludes the possibility of their being disunited; and without a fair understanding upon the whole, it will be impossible to bring the mutual interests of landlord and tenant to a proper bearing or termination. The points we allude to are, *first*, "The proportion of benefit to be immediately derived by the parties concerned;" and, *secondly*, "As to the continued method of paying and receiving rent; so uniting the interests of both, that the one party shall never have an unequal or undue advantage over the other." We have already stated, that nothing tends so materially to stop every useful improvement, as the deficiency which exists in the method of arranging a mutual bargain between landlord and tenant, upon a subject which ought to provide or occasion a mutual benefit to each of them. The *language* of landlords and tenants is, that their interests are "one and indivisible;" but the upshot of their endeavours in concluding a bargain, if not actually to *overreach* one another, is, most frequently, to make the *best* bargain for *self*, which comes to something very like it. Although there are exceptions to what we shall state, yet it cannot be denied that landlords generally let their lands either by public roup to the *highest* bidder, or in the *same* manner through sealed tenders; whereby (if a man of decent character and habits) the highest bidder is generally the successful candidate, without much

reference to the particular properties of the land. Farmers have also sometimes found means to *underbid* one another, and they are never backward in detecting numerous drawbacks upon the land; hence it is, that every man endeavours to make the best bargain for himself, confirming the truth of the old English adage, *Every man for himself, and the devil for us all*. Indeed, the same system appears to pervade the whole transactions of the busy world, and grows naturally out of that corruption which is innate in the constitution of the human mind. If a landlord does not take the trouble of defining the value of his own land himself, "competition in the offers of tenants" is certainly necessary towards leading him to the truth; but in this he is *often* deceived. There are numerous instances of land being *overrented* through the ignorance or avidity of the competitor; and, in the end, the man is ruined, the land destroyed by inefficient management, and the landlord disappointed of his gain; and there is also, at times, a very honourable feeling among farmers, which forbids them to join in any competition which shall tend to remove a respectable man from the ground occupied by himself or friends, perhaps for a series of many years. This delicacy, however creditable to them, is sometimes very detrimental to the interest of the landlord; and hence the repeated necessity of every proprietor making himself thoroughly acquainted with the *nature* of his estate. If a landlord *knows* the actual value of his land, he will always *find* a

respectable man to give it, in spite of the present incumbent, or the want of regular competition.

Arable farms are always subdivided into fields whose measurement is accurately ascertained, and paid for accordingly; whereas our hills, "in a state of mere open waste," are generally let according to the number of sheep they are *said* to contain, which must frequently be erroneous in the extreme; especially after the accomplishment of some little improvement effected at the commencement of a lease, perhaps by the liberality of the landlord. A rent, therefore, paid according to the value of produce, and that produce accurately understood, would reconcile many difficulties, preclude many heart-burnings, and confirm that mutual interest between landlord and tenant, which is often more spoken of in moments of generous hilarity, than attended to in point of fact.

There may be, and there actually are, differences of opinion upon the subject of *paying of rent according to produce*; and, what is more extraordinary, there are some, whose speculative habits or inclinations would prevent them entering upon the measure at *one* time, while, under other circumstances, they would rejoice at the very proposal. So unsettled and so uncontrollable are the views of men in various stations of life, that even farmers themselves have often been led away and deceived through the vain hope of realizing sudden wealth, by grasping at numerous farms or very extended operations, under the prospect of improving times. Thus it is, that, when a farmer enters upon a lease

at what he may conceive a moderate price, nothing short of ruin would induce him to alter the plan; and pay according to produce, because he would then *know at once the amount of his annual profits*; but on a sudden change in the times, attended with the deteriorating effects which we have witnessed of late years, there are many who would willingly renounce their leases, and compound almost at any price to save them from that destruction which must happen to those who, without a great capital, continue to pay a rent above the produce of the soil.

Rent according to produce *insures* to the tenant a return for his capital and industry; and to the landlord, the enjoyment of the fruits of the earth, according to the various degrees of fecundity or abundance which it hath pleased the Almighty to bestow. But farmers are often too speculative to make up their minds to a *certain* profit; they say, "we are only farming for the landlord, not for ourselves; we are his managers, not his tenants; we risk our capital upon his ground at a *certain* price; we can never make more of it; we are tied down and confined within a certain sphere, and there we must remain without the chance of ever bettering ourselves." Such are their arguments when they look back to the occasional prosperity which has been exemplified by individuals during these last thirty years, in the progress of reclaiming fertile but uncultivated lands held at low rents, and returning an unnatural profit through the disorganized state of Europe: They forget that there

never was before such an anomalous state of things as that which succeeded to the sanguinary revolution of France; one of the principal effects of which was, to derange all classes and orders of society,—to divert the regular course of commerce from the ancient channels, and to give an impulse to the affairs of men in *this* country, which must naturally subside as order and regularity are resumed. One of the effects of these convulsions has been, to occasion a great interchange of landed property, so that in many instances the fortunate farmers have been enabled to purchase the lands they formerly held, from proprietors already incumbered with old standing mortgages or debts, and thus become the *lairds* themselves. No wonder, therefore, that the views of others rising in life, should receive a bias or impression from the peculiar circumstances which have been in operation during the younger part of their lives; but they must now remember, that the “bubble has burst,” and with the cause must cease the effect, leaving them, as their forefathers were, in the very creditable and distinguished situation of BRITISH FARMERS,—the very heart and soul of this glorious and still-flourishing empire. Farmers, therefore, *must* be farmers; and the sooner they can unite themselves in a common interest with their landlords, which shall secure the just rights and consequent prosperity of either party, so much the sooner will there be an end to that outcry, which, in the middle of peace and plenty, is anomalously termed “agricultural distress.”



To effect all this, landlords must be satisfied with *their proportion* of the produce; and a tenant need not aspire, in that particular, to be more free than the proprietor from whom he holds his farm; and let the leases run as a security to quiet possession or assedation to the tenant, which secures to him also a return for the value expended on the temporary improvement of the soil.

We believe that in no country in Europe have the landed proprietors expended such sums within the last 50 years, for internal improvement, as has been exemplified by the public spirit of heritors and farmers in Scotland; and it is much to be lamented that their generous exertions have been so ill repaid by the sudden and unexpected depreciation in the value of national produce; and as many of them have entailed heavy burdens upon their estates by such operations, it is clear that nothing but a long train of prudent and economical measures can in any wise tend to redeem the original outlay, and so restore to the proprietors of the soil that degree of splendour which is due to their dignity and rank. But we protest vehemently against the too general system of seeking splendour and economy united, by an expatriation from the "land of our forefathers," to the "lilied fields of France," or the still more fascinating enjoyments of her gay but licentious metropolis. Every man, woman, and child, has a right to *travel*; it is a duty even incumbent on the higher ranks of society, to make themselves acquainted with the manners and customs of other countries, but not slavishly or con-

ceitedly to adopt them: It strengthens the mind, matures the judgment, and dissipates prejudice and error by a *rational* intercourse with men of other countries; but, above all, to a "Briton," it teaches him, when surrounded by the bayonets, prisons, and inquisitions of Continental Europe, to admire, with holy reverence, the deeds of his forefathers—to value that liberty of conscience and that *personal* independence which has been transmitted and held unimpaired to the present time; and it ought, under such enjoyments, to stamp a pledge at his very "heart's core" never to desert the land of his nativity, at her utmost need, for the tinsel splendour, acquired at a cheap and shabby rate, the pleasure or profligacy, vice and effeminacy, inherent in the very character of those continental states most approved and resorted to by our national absentees. Let it not be thought that the peasant, the widow, and the orphan, are insensible to the effects of this *continental manianism*; the curses of thousands are borne on the unavailing breeze in the course of rich deserters; while the more patriotic, having it equally in their power to riot in extravagance and luxury, prefer to maintain that conscientious and dignified situation at home which commands the respect and blessings of the poor; with the rigid performance of that Christian duty which is implied in the scriptural text—"Unto whom much is given, *from him much shall be required.*"

With a landed proprietor altogether unacquainted with the extent and character of his "wild, wet, and open farm,"—the first step is, to employ a land-

surveyor, or the parish schoolmaster, at his leisure time, to make an accurate measurement of the whole; stating the extent of the different descriptions of superficial produce, whether of "unreclaimed arable;" "fine dry pasture;" "strong bog-meadow;" "coarse benty land;" "flows and mosses;" "heathery land;" "barren rocks, or natural wood;" and, indeed, all the varieties exhibited on the surface; and being thus in possession of the number of acres producing various herbage applicable to the use of sheep, he may, with the assistance of a practical storemaster, soon determine the quantity and quality of stock capable of being maintained upon the ground, in the exact situation in which nature left it. If these shall be found to amount to 1500, sufficient to maintain 1000 sheep, it follows that the outlay and profits will correspond to the prices already stated. If there happens to be less draining required, there will, of course, be less of either; and should there be one good inclosure already, with a proportion of march-dike, the outlay and return will correspond accordingly; so that in beginning a general improvement of our mountain farms, we should find, in many instances, a part of our operations already performed, to complete which would require a smaller capital than what has been specified above.

It is quite impossible that a landlord can ascertain the real value of such property, without adopting similar measures. Practical local experience may go a great way; but a survey denoting *extent*

*and quality* is conclusive ;—and he may very seldom attend to the report of the tenant upon these subjects ; for as long as it remains the custom for every man to make *the best bargain for himself*, it is contrary to the dictates of nature, or the rules of selfish policy, that disclosures should be made by the one party so detrimental to his private interest ; and were it not for the competition that *has* existed, landlords would be much more in the dark than they are at present.

It is very probable that sheep-lands paying at *this time* the prices of ten years back, afford a rent perhaps beyond their actual value, as things are ; and when a tenant has accumulated a large profit, at the former expense of his landlord, we do not grudge him the pain of a certain disbursement ; but, in most instances, farmers have *not* saved that probable superabundant profit. It has either been wasted by improvident expense, or frittered away by persevering in unprofitable speculation. Under these circumstances, it is impossible that the landlord can reclaim any part of the past profits, without imposing utter destruction upon his ill-fated tenant ; and, indeed, whatever may be the amount of his free capital, as long as it has not been amassed from the profits of the land, we conceive, in all justice and humanity, let him be ever so much bound by the legal ties of a lease, when a sudden and continued depreciation of produce shall exist, that the landlord, under such circumstances, cannot be authorized to exact that which his land hath not positively produced. It may be

argued, indeed, that a tenant takes his farm upon a lease with his eyes open ; that a lease is a formal contract—an obligation binding both parties to abide for better or for worse by the specified terms ; and although such is the case actually in fact, yet, when the general condition of the country is so much deteriorated as to preclude, on the part of the tenant, the possibility of his realizing that return which was looked for at the commencement of the lease, and upon the faith of which rested all his calculations,—it is then full time, on the part of the landlord, to condescend to such terms as can alone insure a just and permanent rent to himself, and continued security to his tenant. A lease should never be looked upon as the *medium of speculation* between the contracting parties ; but as a safeguard to assedation, and the means of encouragement to the tenant—the laws of hypothec affording sufficient security to the landlord. If farmers, therefore, would condescend to pay according to produce, and if the landlords would regulate their expenditure according to a certain medium of income, as the ministers of the kirk are obliged to do, they would then participate in that regular and easy change in the value of the produce of their lands, and be spared that inconvenience which results from a sudden and serious diminution of their incomes. This plan would also infallibly lead people to regulate their domestic expenditure within the limits of their natural receipts.

There unfortunately exists in some quarters an

idea that a reduction of taxation would place the farmer in his former situation of ability to meet the lawful or ancient demands of his landlord; but as the proportion of taxes paid by the farmer, either *directly* or *indirectly*, bears no proportion at all to the deteriorated value of his produce, it is clear that such a measure can have little or no tendency to assist him for that purpose; and, after all, if such saving is applied to the landlord, it is only "robbing Peter to pay Paul," and not adding one farthing to the comfort of the tenant; unless his landlord would halve the difference, affording to either a trifle too miserable to be noticed. If, in good times, a farmer paid L.500 per annum rent, and L.250 for taxes, and the produce of his ground can only now afford a return of half the sum for his landlord, it is clear that the repeal of these might transfer the sum of L.250, to make up the deficiency of rent; but this is supposing a case which never did exist, and all those who trust to it will find themselves deceived in the end. We are far, however, from undervaluing the reductions which have lately taken place,—the labouring poor will derive much benefit; but to the landlord, the difference will be inconsiderable. Agriculturists, perhaps, may be rescued, in future times, from distresses similar to the present, by *preventive* measures instituted just now, either by the government or themselves; but as *we* can neither make "store-houses" of our mountains, nor keep our sheep "in bond" for higher prices, we feel satisfied that nothing can so effectually relieve either the proprietor

of the mountain, or his store-farming tenant, as that active and economical improvement which has been so long and so unaccountably neglected. Most of the improvements in the country were effected when labour, material, and wages, were at the highest; so that the difference between the past and present, or probable prices, is a dead loss; but when these operations are performed at a time when labour and material are low, and the result of these shall afford a handsome profit, even according to the present deteriorated value of produce—it is clear that they must add, not only considerably to the value of present property, but particularly so in anticipation of more prosperous times. So far, perhaps, it may be reckoned fortunate that means are yet in embryo for the employment of the labourer, and the reward of the proprietor.

In considering the benefit of the *whole* community, and perhaps the convenience of the landlord, it is recommended that these operations should not be too simultaneously commenced, nor too speedily concluded. They ought to be made progressive, according to the extent of population, without incurring the *necessity* of an importation and consequent superabundance of inhabitants. Every county ought to be sufficient for itself; so that, what with the labour of general upholding and repair, and with progressive improvements, added to the incidental jobs which, unlooked for, annually occur,—the one may be kept always equal for the purposes of the other. Let it not be forgotten that the law of Scotland obliges the heritors of the soil

to provide for the *necessitous poor unbeggand* ; and that the surest means of doing this, or of preventing "begging necessity" in old age, is to provide in youth for a consistent and proper population, by such labour as shall at once afford a valuable return to the employer, and an honest independence to those employed. (See Note IX.)

The evils of a superabundant population have already been proved and experienced in populous towns ; but in many of the mountain districts, where the inhabitants are scattered far and wide, and the reclaiming hand of industry has scarce been called into active operation, the few occasional improvers have been sometimes much impeded from the want of necessary assistance. There is something extremely deficient, on the part of landlord and tenant, in reference to the situation of the labourer ; and it is one which requires the minutest investigation, not only as far as relates to the numbers, but also to the *condition and circumstances* of these people. Wherever there are no existing *fews*, nor any willingness to grant them, the landlords have it constantly in their power either to check or add to the population, as necessary ; and this question is materially involved with the consideration of all internal improvement.

We now proceed to consider, as formerly proposed, *in what manner it will be most convenient to apply the outlay for improvement, provided either by the landlord himself, the tenant himself, or by the joint co-operation of both parties.*

Our readers will remember, that the necessary



outlay for improving our "wild, wet, open farm," amounts to the sum of L.675 5s. affording a clear profit of L.57 15s. 6d. after allowing 7 per cent. interest, or L.47 5s. 4d. on the capital.

If the landlord shall have funds at his own disposal, the work will be easily completed, and he cannot invest his capital at a greater advantage. The tenant, as has been shown, can easily afford to pay him the 7 per cent.; and if he should feel anxious to redeem the capital thus sunk upon his ground, he has only to lay by at compound interest annually, the difference between the common and increased rate of interest, or 2 per cent. out of the 7, which will accumulate to L.675 in twenty-six years. It was formerly stated, that "in case of loss or depreciation in the value of produce, either at the moment or at the expiry of the lease, the tenant is sure to command a reduction of rent; and on entering upon a new lease, he concludes only for such rent as he supposes he can pay, without reference to the 7 per cent. interest for the landlord's former expense. And indeed he may say that he *slumps* the whole together; but we have also stated that the "slumping system" will never continue to repay to the landlord, the interest of that identical sum he has expended on his property. It is easy to understand the arguments which may be adduced against us, "that the additional quantity of sheep maintained upon the ground in consequence of the improvements, will be sufficient to repay the landlord for his expenditure, and he is sure to get his proportion of their value, whatever

may be the prices, and that it matters not in what name it is paid, as long as he gets it." This is tolerably correct, but not such as ought to satisfy the landlord. We may suppose a proprietor, any time during the last war, when the prices were good, to have expended L.300 upon a hill-farm, paying L.500 a-year rent, as an encouragement to the tenant, and receiving a proportion of profit thereon, supposed to be included in the rent already specified. Along with the general peace, down comes the value of produce, and the tenant commands a reduction of rent in the *same proportion as the rest of the country not so improved*. He comes to his landlord, and says, "Sir, produce is fallen 30 per cent. in value, therefore I must have 30 per cent. reduction of my rent;" but he never thinks of adding, "Sir, you have expended L.300 in improvements, therefore I am justly due to you the sum of L.21 a-year for them; and if you will reduce my rent according to the depreciation of the times, I will add L.21 to it, so that you may not be the loser by what you have done for me." This second part of speech is always forgotten by the tenant, and if urged by the landlord, he is told, that the value of his improvements is "slumped in" with the rent, and the land will pay no more; and he is then left to claw his empty purse with the very consolatory reflection of having thrown away L.300 for nothing. We do not mean at all to insinuate that proprietors, having expended large sums in reclaiming actual wastes, do not even now receive a tolerable return, we only pro-

pose a reasonable case in connection with "a mountain farm," where no stated bargain had been made between landlord and tenant, as to the continued advantage to be derived from improvements effected at the proprietor's expense; and we believe there are "not a few" in the predicament now described. If landlords are not to have a *continued* profit upon their outlay, of course there will be no encouragement, nor any improvement; and if we now even go so far as to join with our opponents on this question, and allow that a former partial improvement *does still continue to pay in something* to the landlord—they cannot certainly deny us the propriety and utility of proposing some plan which shall actually define to the landlord a clear and continued profit upon his expenditure, repaying him handsomely for the outlay, and encouraging him to go forward, as far as can be approved by measures of prudence, economy, and benefit, to his tenant.

Improvements upon a hill farm are not only substantial and lasting, but they afford a return over and above the proportion yielded by the land when in a state of "mere open waste," and as this return is permanent, so ought to be the landlord's profit. The rent ought to be calculated according to the value of the present or unimproved state of the ground, and permanent interest paid for the outlay according to the sums thus judiciously expended, and the saving from deaths and deterioration left to go as additional profit to the tenant. Mr. John Little decidedly states that the

tenant can afford to pay 10 per cent. upon inclosures, which amount to a principal part of the improvement; but as their value must naturally vary with the fluctuation of produce, we shall be satisfied with 7, and we do not even object, upon a very bad year, to make a temporary abatement in that particular. Thus, upon a "hill farm," there ought to be *two* items for rent, ONE FOR SHEEP, and THE OTHER FOR IMPROVEMENTS, which latter will urge the farmer to make the best use of them, and insure to the landlord a constant return for his money as safe and secure as the bank of England itself; and by receiving 7, and putting out 2 at compound interest annually, his capital, if equal in amount, according to the former calculation, will be redeemed in 26 years. This system, of course, does not apply to *arable* farms altogether, because lime or compost applied for quickening the soil at a great expense is not permanent, but effectual only during the currency of the lease; but in case of our hill farm having from 10 to 100 acres of fine alluvial haugh altogether independent of the necessities of the flock, there naturally occurs a *third* item of rent in the shape of PRODUCE FROM ARABLE LAND. If the tenant chooses to have these acres inclosed, he will of course pay the 7 per cent. upon the outlay, and any expense incurred by himself for liming where he sows, will be amply repaid by the additional produce drawn during the currency of the lease.

Whether the annual grass-rent for the sheep be fixed at a stated sum during the currency of the

lease, or whether it may be made to depend upon the fluctuation of the produce, as we have already recommended, it will in no wise derange our plan of the two items for the hill, and the third for the haugh, wherever such superabundance of arable land may be found to exist.

From these remarks, it may be inferred that a landlord having funds at his own disposal, may invest them upon his "hill farm" to a certain extent, with special advantage to himself; receiving 7 per cent. on the outlay, 2 of which being set aside annually at compound interest, will redeem his capital in a stated period. If his only funds should be required for younger children, retaining his lands for succession, and these funds disposed upon the property, the interest might be accumulating after his death at 2 per cent. for the capital, and the other 5 paid over in the interim in behoof of the bequeathed. It is possible that a plan of this sort might be adopted even upon entailed estates, with the consent of the next heirs of entail, which would remove all the difficulties and expenses incurred by the provisions in "Montgomery's Act."

If a proprietor has no funds of his own, but obliged to borrow upon the said "Act," it is doubtful how far the undertaking may be authorized by the profits; at any rate, he must endeavour to make a better bargain for himself with his tenant than we have specified, otherwise the wisdom of the undertaking might be very problematical, and in that case we would rather refer him to the "joint plan

between landlord and tenant," hereafter to be noticed.

In as far as relates to the "outlay provided by the tenant alone," it is clear that in performing such essential service to the property of another, he has a just right to a proportionate reward. It has already been shown, "that by a tenant's entering upon a lease of one of our farms in the "state of nature," and by the expenditure of L.675 for improvement, he may draw an annual return by good management and care, of a sum not less than L.107, independent of an allowance of 7 per cent. upon the outlay." And, "allowing the first three years of the lease to go for nothing, in the shape of increased profit, on account of damage when the operations are in progress; and at the end of the fourth, having deposited L.107 as a sinking fund to redeem the original outlay at compound interest, continued by such annual deposit, he will have been enabled, by the end of the 9th year of the lease, to have redeemed the capital without having taken into consideration the 7 per cent. interest allowed upon the same."

But allowing the prevention of deaths to go for nothing, as well as the 7 per cent. interest, we shall only take into consideration the annual profit of L.57 15s. 6d. which at five per cent. compound interest with the annual deposit, will redeem the capital in  $9\frac{1}{2}$  years; therefore, any landlord, either unable or unwilling to expend a farthing himself upon such land as we have constantly described, may, with all justice to himself, grant to a tenant

*binding himself to such outlay*, a lease of at least 12 years, at the price of unimproved land, at the end of which time, the tenant, with proper care and management, may retire with his capital or outlay formerly sunk, *above twice redeemed*.

“The joint plan,” however, “between landlord and tenant,” appears to be the most feasible for all parties. Divide the expense by the number of years of the lease, and let the landlord apply such proportion of the rent annually towards the improvement; and he receiving in his turn from the tenant 7 per cent. annually for the outlay, the whole will be done progressively and easily, both on the part of the landlord, who lays out a proportion of his rent, as well as on the part of the tenant, who pays an increasing annual interest; and by the end of the lease, of whatever extent, the whole improvements will be effected.

We think a seven years' lease sufficient for a hill farm, and, under these circumstances, the outlay and interest calculated upon our *suppositious* farm are as follows:

*Scheme of Mutual Outlay in Seven Years.*

	Total sum required, £675 5 0	Tenant's Int. 7 per cent.	Proprietor's actual outlay.
End of 1st year $\frac{1}{4}$ th	96 9 3	£6 15 0	£89 14 3
2d	192 18 6	13 10 1	82 19 2
3	289 7 9	20 5 1	76 4 2
4	385 17 0	27 0 2	69 9 1
5	482 6 3	33 15 2	62 14 1
6	578 15 6	40 10 3	55 19 0
7	675 4 9	47 5 4	49 3 11

*The same on a Ten Years' Lease.*

	Total sum required, £675 5 0	Tenant's Int. 7 per cent.	Proprietor's actual outlay.
End of 1st year $\frac{1}{10}$ th	67 10 6	4 14 6	62 16 0
2d	135 1 0	9 9 1	58 1 5
3	202 11 6	14 3 7	53 6 11
4	270 2 0	18 18 1	48 12 5
5	337 12 6	23 12 8	43 17 10
6	405 3 0	28 7 2	39 3 4
7	472 13 6	33 1 9	34 8 9
8	540 4 0	37 16 3	29 14 3
9	607 14 6	42 10 10	24 19 8
10	675 5 0	47 5 4	20 5 2

These tables show at one view how easily the improvement of a hill farm may be effected during the currency of a lease of any such duration as may be suitable to the views of both parties; and we can anticipate no objection to the plan, unless the tenant may pretend that his stock will be necessarily much disturbed by such a continued train of operations; but we would remind him that he is only charged 7 per cent. interest, instead of 10, as recommended by Mr. Little, and if the improvements are to be carried into effect at the joint expense of both parties, as preferable to any other plan, it is evident that of different evils, the least has been adopted.

Of the "three plans" which have now been proposed for improving our "hill farms," we may reasonably conclude that the "third, or co-operative," will be the best adapted to the present circumstances of the country; and although the landlord



must submit to a proportionate diminution of his rent during progress, yet, by the always increasing interest annually received for the sums laid out, this diminution is reduced in an equal ratio by the increase of the other, so that during the last years of the lease, the difference against him is trifling, and on the event of granting a new lease, he enjoys all the benefit of improved property, without having encountered the risk of expending a proportion of any other capital he might have been possessed of.

If the subject to be improved be of a nature capable of returning a greater profit than we have proposed, and the landlord be happily a nabob, he had better commence operations according to the "first plan," and follow them up with that degree of magnificence and liberality which generally characterises the gentlemen from the "East," and to whom this country of Scotland is so peculiarly indebted, considered not only in reference to the employment of the labourer and mechanic, but in fact to the whole appearance of the face of nature, wherever these gentlemen have been pleased to affix their abodes.

We now come to consider the other two points connected with the last discussion, *viz.* first, the *proportion of benefit to be immediately derived by the parties concerned*; and secondly, *as to the continued method of paying and receiving rent, so uniting the interests of both, that the one party shall never have an unequal or undue advantage over the other.*

A LEASE, according to Sir John Sinclair, "is

properly a contract founded on the principles of equity, between two men, for their mutual advantage. The one possesses an absolute right in the property of a certain tract of land and its produce; the other purchases the temporary privilege of appropriating the produce of that land to himself, at a certain stipulated price." And according to Mr. Malthus, RENT is that portion of the value of the whole produce which remains to the owner of the land, after all the outgoings belonging to its cultivation, of whatever kind, have been paid,—including the profits of the capital employed, estimated according to the usual and ordinary rate of the profits of agricultural stock at the time being."

This definition of a lease is correct in point of theory, but deficient in correctness according to practice; as leases entered into through the means of competition are not always granted on principles of equity. That is, the farm falls to the highest bidder, and not exactly to that person who shall return the most equitable rent, either according to the nature of the soil, or the most proper amount of capital to be invested thereon. And, again, this definition of rent, although undeniable also in point of theory, or in what it ought to be, is still defective in reference to practical experience; because the proportion paid to the proprietor of the soil does most frequently exceed "that portion of the value of the whole produce, after all the outgoings of every kind, with the profits of capital employed, estimated at the ordinary rate of the profits of agricultural stock at the time being," have been ac-

counted for, or allowed on the part of the tenant. Thus we may detect the source of much "agricultural distress"—the difference between RENT AND RACK-RENT—and what rent and leases *are*, rather than what they *ought to be*.

This difference is the effect of competition, urged by the acquisition of capital, the growth of agricultural knowledge, and the increased value of produce, raised upon the faith and encouragement of long and substantial leases. The granting of leases, with an annual rent modified according to the annual value of produce, would insure to all parties a "contract founded on the principles of equity," or to the landlord "that portion of the value of the whole produce which remains, after all the outgoings and interest of capital have been accounted to the tenant." As far as the tenant is deficient in these particulars, so great is his proportion of "agricultural distress;" and this depreciation, from similar reasons, is found to exist fully more in the "pastoral" than in the agricultural districts.

Landlords may think it hard, distressing, or inconvenient, to reduce their rents to the just standard of the present times, their hopes being buoyed up by the vanity of legislative enactments; but they ought to recollect, that according as their rents are decreased, so are the profits on the farmers' capital. They ought to consider, that the same distress is co-existent in the different governments of Europe; and they ought to remember WITH GRATITUDE, that while almost every corner of the habitable world has of late years been over-

run with fire and sword—while whole villages, cities, and principalities, have been spoiled, plundered, and their inhabitants slaughtered by invading armies, the beautiful hamlet of England is still seen smoking through her ancient trees in pristine comfort, and the more humble cottage of the Caledonian, *still kythes outowre the midden of his auld forebears*; while Ireland alone, deserted and despised, amid the present reparation of the world, is left by the richest of her sons famishing in penury and rags.

The unhappy state of Ireland is not here glanced at for the purpose of consoling the proprietors of the sister kingdoms for their loss of rent; but merely in reference to that misgovernment through almost every department of her national economy, depending principally upon the measures of the great proprietors and clergy of the Protestant church, which have thus co-operated in debasing the moral character, and ruining the prosperity of a nation, whose geographical situation, added to the quick perception and natural enterprise of her inhabitants, ought to have placed her ages ago the foremost in intelligence and in wealth.

On the authority of the two great political writers already alluded to, we shall conclude, that “a lease ought to be founded on the principles of equity;” and that rent should be the “surplus of produce, after interest of capital and the outgoings of management.” To deny the latter is to subvert the former; and the only question which naturally remains, is, With what per centage ought the farmer

to be satisfactorily rewarded? This, says Sir John Sinclair, "is a question that has long been considered as abstruse, mysterious, and very difficult to resolve."—"On one hand it is contended, that the produce of land is of such universal and absolute necessity to the existence of mankind, that it is not reasonable it should yield to him who raises it more than a fair profit. On the other hand it is urged, that a farmer is entitled to be fully recompensed for the application of a considerable capital, exposed to the uncertainty of the seasons, when it is managed with economy, and conducted with industry and skill."

We conceive that these two opinions are easily resolvable into one, viz. that a farmer is entitled to a fair profit, and without it he cannot be fully recompensed; or that, whenever he is fully recompensed, he then receives a fair profit; but this does not bring us the least nearer the mark; for the *quantity* of that profit, or the amount of such recompense, is yet to be determined.

In the GENERAL REPORT OF SCOTLAND, vol. iii. at page 335, will be found a statement of the PRODUCE, RENT, and EXPENSE of cultivating a farm in East Lothian, of 553 Scots, or 702 English acres, by GEORGE RENNIE, Esq. of PHANTASSIE; the result of which is, "after paying 90s. per Scots acre as rent, and every other expense whatever accounted for, there is left to the farmer the sum of L.901 1s. 4d. or L.1 6s. 1d. per English acre, as interest for the capital employed—about L.6000, and being

at the rate of 14 per cent.; "which," says Mr. Rennie, "is hardly equal to that to which a farmer is justly entitled, considering his toil, and the hazards to which he is liable from the seasons, the markets," &c.

It is stated also in the CODE OF AGRICULTURE, from the reports of several different counties, that "the interest on capital invested on agricultural farms varies from 10 to 15 per cent." And we may remark, that all these calculations are made in reference to *arable*, not *pastoral* farms.

It is not our business at present to analyze the question in connection with corn-farms; granting the subject to be rather abstruse, and somewhat mysterious; because the landlord and tenant are often found to pull one against the other; as well as from the consideration that one farmer will sometimes make more out of L.50, than another can out of L.100; but in reference to the "store-farm," having certain data to go upon, we hope to find little difficulty in coming to a rational conclusion.

It has been shown that the profit upon capital on arable lands, varies from 10 to 15 per cent.; and, taking the mean, we shall call it  $12\frac{1}{2}$ . Now, a "store-farmer" may say—If the agriculturist is entitled to  $12\frac{1}{2}$ , assuredly I may expect the same, being equally respectable. But we reply—The agriculturist enters upon his farm without the *certain knowledge* of a *positive loss*; to meet the *chance* of which, he expects  $12\frac{1}{2}$  per cent. for his capital;—whereas you, who have a clipping account, as well

as a smearing account, are perfectly aware of the incidents of winter, and give in your offers according to the former, not the latter, which accounts for the stock capable of being kept upon the ground; consequently, in paying your rent, your losses are all sunk upon the ground, and you only pay according to the produce of the remainder. If we allow the agriculturist to lay by  $2\frac{1}{2}$  per cent. for incidental losses, his profit will be reduced to 10; and as your total losses have been proved to amount to 7 per cent. all of which falls to the farm, and 5 of which might easily be saved by more diligent measures, effected by the means already described,—and for a proportion of which you will pay a percentage in the shape of additional rent, according to the price of those improvements which are to effect this saving of 5 per cent. along with the value of the additional stock to be maintained upon the ground; we think that, by allowing you 10 per cent. upon your capital, in the first place, your additional profits, in consequence of the improvements, viz. L.57 7s. 3d. equal to more than  $5\frac{1}{2}$  per cent. upon 1000 sheep averaged at L.1000, your total profit will then amount to  $15\frac{1}{2}$  per cent. being fully equal to any compensation enjoyed by the agriculturist. In addition to this, we allow you the domestic, and every other expense upon the ground, in the shape of tax or management.

We may here observe, that a farm of 700 English acres of fine arable land in East Lothian requires a capital of L.6000, with the skill of a first-rate agriculturist, to work it to what may be called

the greatest advantage; whereas our "hill-farm" of 1500 acres, and containing 1000 sheep in the first instance, only requires about L.1000 to be sunk in the value of the stock, according to present prices.

Allowing, therefore, all expenses to be paid for both parties, there remains, according to Mr. Renie, on his farm, the sum of L.901 1s. 4d. for his annual income; and in the event of improvement, for the proprietor of the hill stock, about L.155.

We have already stated that our sheep have produced 11s. 2d. each, on an average of the last five years—a produce equal to L.558 6s. 8d. for 1000, liable to certain farming and domestic deductions, as under.

Smearing 1000 sheep, at 6d.	£25 0 0
Meal for 2 shepherds, at L.7	14 0 0
One lad, at L.15	15 0 0
Two women, do.	30 0 0
Marketing expenses, (being near at hand,)	5 0 0
Keep of a riding-horse	10 0 0
Taxes	6 0 0
Interest on L.1000, at 10 per cent.	100 0 0
	<hr/>
	£205 0 0
Value of produce	558 6 8
	<hr/>
Landlord's rent,	£353 6 8
	<hr/>

In addition to the above expenses, there may be an assessment for roads and paupers, which, of course, falls upon the landlord, because a tenant calculates all such burdens before he gives in his offer for his lease; and on a farm partially improv-



ed, there are other incidental expenses, perhaps falling upon the tenant, as clearing out drains, &c. all of which, however, will be accounted for as we make good our system of improvement.

We readily allow that the storemaster is a man equally respectable and intelligent as the agriculturist, and, of course, deserving of as good an income. But to make him equal in that respect to the farmer of 700 acres in East Lothian, it would require him to have a stock of at least 9000 sheep, upon land of the open and unimproved quality we find in the Forest; and this would depopulate a country already too thinly provided in that particular. It would seem, therefore, that store-farming is not so good an investment for capital as corn-farming; and this, again, perhaps, not so lucrative as the foreign trader. But we must remember that if the storemaster's profit is the least, his risk is also proportionally small. We may observe, that the prices of produce in Mr. Rennie's statement, except in the article of wheat, are considerably above the average of the present time, upon which the storemaster's capital is made to depend; and this, in a true comparative statement of their respective profits, would, of course, operate in favour of the latter.

The amount of profit upon capital in every profession must, in a great measure, be governed by the quantity of capital embarked by all the different interests which embrace that profession; and the more competition, or, in other words, the farther this trade is removed from a monopoly, the

less will be the profits of those concerned. A very extensive competition, however, in the mercantile world, seldom fails to correct itself; for when the speculation fails to pay, the capital is removed to some more profitable transaction. But, with a farmer, bound down to a stated number of years, by lease, at a stated price, he has it not in his power, as the merchant, to cause his capital to work in another channel; he must just dispose of the produce of his land at the current prices, whatever these may be; and at the expiry of his lease, if he cannot enter upon another, on account of competition, at a fair remunerating price, he is incapacitated, from previous habits or education, to turn his attention to any other profession; consequently, he is induced to go on at a continued loss, till his career may at length be stopped short by absolute ruin. We would ask if there are any cases of this description to be found, even among men noted for good management and integrity? If so, does not there exist a strong necessity for interference on the part of the proprietor, when competition becomes an evil rather than a good? For our parts, we see very little of the *abstruseness* complained of; and as for the *mystery*, it is complete smoke. The "abstruseness" may be occasioned, in a measure, by the unwillingness evinced by farmers to content themselves with a *known profit*; but the landlord, who has the power to interfere, ought to say, "If my tenant makes nothing upon his capital, he must starve; if he makes 5 per cent. he had better put his money in the

bank, and he will draw as much without any trouble or toil; but if I allow him 10 per cent. he is then getting 5 for his trouble; for had I my whole estate in my own hands, it is clear I should not turn it to as good account as he does; therefore I had better allow him the 5 per cent. for his trouble, in addition to the 5 per cent. he has of a natural right? Whenever there is *no competition* for farms, those in possession, perhaps, will not continue on them under a profit of 50 or 100 per cent.; but this can never happen in Britain, the very cradle of agriculture; and this also points out the necessity of the landlord's interfering between competition and the tenant's interest, which will dissipate the *mysterious* part of the question—amounting to nothing more than this simple fact, that when two men are endeavouring to make the best bargain *off one another*, self-consideration obscures that principle of reciprocal justice between man and man, which ought never to be lost sight of in any transaction whatever. We may here be allowed to remark, however, that, on bringing in, for the first time, a track of open waste, and reducing it, on a long lease, according to the rules of good husbandry, to the standard of other arable farms, the landlord is fully justified in making the best bargain for himself, because the tenant has every chance to be well repaid—and it will excite him to push his exertions to the utmost; but whenever the lease has expired, and the value of the land is accurately ascertained, he may then act in condescendence to our present recommendations.

As long as this competition exists, we do not object to allow or certify to the tenant the sum of 10 per cent. upon the stock of our hill-farm, according to its present unimproved situation; and it has been shown, that when these improvements are carried into effect, the landlord may derive 7 per cent. for his money laid out, and the tenant increase his by  $5\frac{1}{2}$  more, making  $15\frac{1}{2}$  per cent. upon his former capital. We also allow every expense upon the ground—the major part of which ought to be paid personally by the landlord, not allowed to the tenant for that purpose, because, in case of diminution, he then enjoys the difference.

Under these circumstances, we proceed to show the intrusions upon our “suppositious farm,” in its improved state, supposing all the improvements to have been effected at the sole expense of the proprietor; for which refer to Table.

In reference to this Table, it will be seen that the landlord is charged with every expense upon the ground; because it is impossible that the tenant can afford to pay them out of the interest of his capital. A farmer always calculates the amount of these, before he gives in an offer for his farm; and as the landlord is actually, though not nominally, obliged to bear the burden, it is just as well that the allowance should be made at once; and in case of mitigation or remission, the amount just falls to where it ought to do. It is true that tenants have been unwarily taken in during the currency of a lease; as was the case with the late property-tax, or an occasional bill for local assessment, part of which

is charged upon the tenant; but in the event of the lease being concluded, the weight of the said assessments must eventually fall upon the landlord. All taxes and assessments, therefore, do operate against the landlord, and he had as well submit to them at once; and in course of their remission he then pockets the difference.

The landlord is also charged with the *personal* payment of the expense for upholding improvements; such as clearing out drains, repairing dikes, and *moling* the ground. In these cases, the tenant actually pays the amount to the landlord, which he draws again from the improvements; and it is of the greatest consequence that the landlord should actually receive, and then pay to contractors, the sums thus set against the upholding of improvements. If it is left to the tenant, he sometimes *forgets* to have the drains properly scoured, and the dikes repaired; but at the end of a lease, by the interference of the proprietor, the shepherd is sometimes set on to patch up holes and gaps in the one; and the others are quite incapable of being replaced in their original condition. Tenants are often very negligent in these particulars, otherwise the eye would never be offended with the broken and tottering dikes, and the deep-run drains that are to be seen in almost every part of a pastoral country.

It has been shown that improvements not only afford a return capable of maintaining themselves, but of rewarding both landlord and tenant; consequently, if there exists the slightest possibility of negligence on the part of the tenant, it then be-

comes the interest and bounden duty of the landlord to take that part of the management into his own hands. According to our plan, the landlord is to receive from the tenant the value of the upholding, and he is immediately to contract with proper people for the work specified. To secure the *execution* of the work on the part of the contractor, he is never to receive one farthing of the price, until he brings a certificate from the tenant, of his having faithfully and diligently performed every particular specified, and the terms of payment will be at Whitsunday and Martinmas. The tenant also will bind the landlord by the articles of the lease to the special performance of this obligation. This will provide continued work for the labourer, as well as profit both to landlord and tenant:

By referring to the Table, where the outlay is supposed to have been made at the expense of the proprietor, the rise of rent amounts to L.47 5s. 4d.—a standing sum as interest at 7 per cent. for improvements which are lasting and substantial.

The rent of land unimproved is	L.359	6	8
Value of improvements	.	47	5 4
		<hr/>	
Improved rent	.	L.406	12 0
		<hr/>	

Now, as these improvements are upheld by their own value, and continually paid for, the landlord, already acquainted with the number of sheep capable of being maintained upon the ground while in

a "state of nature," on granting a new lease, has only to calculate the average value of these, laying on a proportional rent, in addition to which, he is to receive the continued interest of his money, viz. L.47 5s. 4d.; so that in effect, the produce of his cash is just as secure upon the *hill* as in the *bank*, and in case of receiving rent according to annual value, it is equally easy to add the interest as before specified.

The number of sheep upon our farm has been stated at 1000, and the improvements have caused an increase to 1139; but if the land is good, and very much improved, it is possible, in the course of another lease, it may be enabled to contain an additional number, say one to every acre, or to every acre and a quarter, in which case, the numbers would amount to 1250. The difference between 1139 and 1250 being 111, ought, of course, to pay an additional proportional rent. The tenant, perhaps, may hardly admit of such a possibility; but if the landlord has good reason, by accurate judgment, to be of a different opinion, he is fully justified in laying on the rent, and the tenant will eventually accede. In doing this, however, the landlord ought to be guided by truth alone, because 1000 good healthy sheep will afford a better return to all parties than 1200 indifferent ones; and to come at the truth, he must make himself accurately acquainted with the nature of his property, which can only be done by regular inspection, either personally, or through a bailiff of experience and integrity, and who will

have a good opportunity of making necessary observations, by annual inspections of the condition and upholding of the improvements.

If the improvements are effected by the tenant on a 12 years' lease, he of course only pays a rent according to unimproved land, and deservedly draws the profit of the whole. The value of this has been stated, in the first instance, at L.57 15s. 6d. to himself, and L.47 5s. 4d. to his landlord. These amount to L.105 0s. 10d. which being annually deposited at 5 per cent. compound interest, will amount in 12 years to L.1710, being very considerably above twice the original outlay, independent of the saving of lives and all other advantages.

Upon due reflection, what might not the tenants have done for themselves by industry and care during the last 80 years in addition to their other prospects? But as past times cannot be recalled, they must only now look out for times to come.

We have already recommended the "third or joint plan," as the most convenient, according to the present circumstances of the country, and the result is shown in a tabular scheme calculated for the purpose; we therefore proceed to consider the "second" question proposed, viz. *as to the continued method of paying and receiving rent, so uniting the interests of both, that the one party shall never have an unequal or undue advantage over the other.*

The necessity of interfering between the tenant's interest and "ruinous competition," has already been demonstrated, and we have accordingly



acknowledged the propriety of granting to the tenant "all his expenses," and 10 *per cent.* interest upon his capital. This, however, must be done with certain limitations, as in case of a still greater deterioration in the value of live-stock than that to which we are presently subjected; the whole produce might be absorbed by the expenses, and interest allowed to the tenant, leaving little or nothing to the landlord, which would be placing him, in the exact predicament complained of at present on the part of many of our farmers.

Leases have been granted, supposing them to be founded on "principles of equity" to both parties; that is, that the landlord should continue during that term to receive a mean annual rent, according to mean annual *profit* during the currency of such lease; but the vicissitude of times and seasons in which we live, has proved the inefficacy of the plan; the landlord complaining at one time that the tenant has his lands "too cheap," and the tenant complaining at another that the lands "will not produce the rent," consequently the "principle" of equity is lost. This has been equally common to "pastoral" as to arable lands. The "lease" is undoubtedly essential to the welfare and respectability of the tenant; it raises him above the rank of the mere husbandman, or the annual *serf* of an English tenant, and, in itself, involves a "principle of equity," considered either as personally towards himself, or essentially towards the temporary security of his capital invested upon the land; but the other "principle of equity," relating to

payment of rent, can only be implied or detected in the practice of paying and receiving, as Malthus says, according to value of the "profits of agricultural stock at the *time being*." Speculating farmers are perhaps averse to this plan, but we hold it to be essential to the good of "all parties," that some modification should be adopted, better suited to the fluctuation of the times and prices, and bearing more generally upon principles of equity or reciprocal right, than such as is found to grow out of the system of leases in operation at present in this country.

If we can by any means determine a remunerating price to a tenant, and a satisfactory one to a landlord during any period of past years, a future rent calculated upon such data, must determine on a principle of equity to both parties, the same being *made liable, in a relative degree, to every fluctuation*.

During the last five years, viz. 1817-18-19-20-21, the average produce of certain sheep upon certain lands, have been,

For top-lambs, each	10s.	3d.
Draft-ewes, do.	19	8
Stone of laid wool, 24 lbs.	21	8
	<hr/>	
Making an aggregate of	51s.	7d.

And the actual produce of each sheep has been in those years, on an average, 11s. 2d. each. The rent paid and received during these years, has been considered "remunerating" and "sufficient."

consequently, when both parties are satisfied, the "principle of equity" is acknowledged. We therefore apply this to our calculations in the table.

By the testimony of the table, we find that the rent paid for each sheep per head is 7s. 2d. We know also by experience, that the produce of each sheep was 11s. 2d., leaving 4s. for profit and management.

The aggregate above mentioned of 51s. 7d. is not *profit*, but only certain produce, liable to every drawback and expense; but such being taken in reference to a certain rent, we find a STANDARD—in relation to which, or on the authority of which "standard," rests the relative amount of profit accruing both to landlord and tenant; considering the land the capital of the landlord, and the stock the capital of the tenant, both equally exposed to every fluctuation.

If, therefore, the sum of those three articles of produce aggregate 51s. 7d. every sheep upon the ground, whose produce is 11s. 2d. each, will afford to pay a rent of 7s. 2d. each. But whenever the aggregate of these three articles falls below the said "standard" of 51s. 7d. the rent is proportionally diminished, as well as the tenant's profit. And, on the other hand, whenever the aggregate rises above the "standard" of 51s. 7d., it naturally follows that the profits of both parties are accordingly increased. Thus we will say, that a farm of 1000 sheep, capable of paying a rent of L.359 6s. 8d. or 7s. 2d. a-head, when the standard is at 51s. 7d. will suffer a deduction when the aggregate:

amounts only to 35s. 9d., the prices of 1821, as a

Top-lamb, . . . . .	6s.	9d.
Draft-ewe, . . . . .	12	6
Stone of laid wool . . . . .	16	6
	<hr/>	
	35s.	9d.
	<hr/>	

Or 15s. 10d. below the standard. We say, therefore, by the rule of proportion, If 51s. 7d. : L.359 6s. 8d. :: 35s. 9d.—Answer, L.249 0s. 8d. for the year's rent. If, on the other hand, the aggregate rises 15s. 10d. above the standard of 51s. 7d., or to 67s. 5d., we then say, If 51s. 7d. : L.359 6s. 8d. :: 67s. 5d.—Answer, L.469 12s. 7d.

It appears by the table, that when the produce of 1000 sheep is L.558 6s. 8d. there are of

Expenses and interest to tenant,	L.199	0	0
Rent to landlord, . . . . .	359	6	8
	<hr/>		
Total . . . . .	L.558	6	8
	<hr/>		

At which time the prices are at the standard of 51s. 7d. Now, as the three prime articles whose prices compose the "standard," do not bear exactly a third proportion *each* of the total sales off the farm; and as loss and deterioration will not always bear an equal proportion, especially on a farm in the situation of an "open waste;" we may conclude that after deducting the landlord's rent, amounting to L.359 6s. 8d., the remainder for the

tenant, according to rule, will vary a little by the inequality of proportional prices, and partial deterioration. Thus, by rule, in 1821, when these are at 35s. 9d. or 15s. 10d. below the standard, the landlord's rent is L.249 0s. 8d., leaving, according to the same rule, to the tenant for interest and his expenses, as follows: If 51s. 7d. : L.199 : : 35s. 9d. —Answer, L.137 18s. 4d. But we know by our books, that the actual produce of 1000 sheep in 1821 was L.395 10s., the difference between which and the landlord's rent is L.146 10s., or L.8 12s. more to the tenant, than authorized by the rule.

Considering how low the prices have fallen, it is but justice to grant this difference to the tenant, which only *then* leaves him, after paying farm and servants' expenses, the trifling sum of L.47 10s., to find meat, drink, and apparel. His profit, therefore, has fallen very nearly in an equal ratio with his landlord's, but his proportion of capital being the smallest, his gains are reduced to a trifle. To suppose, then, that farms can continue to pay high prices from diminished produce, is an absolute absurdity; and to force a man who happens to have a little free capital of his own, is to impose certain ruin and unmerited distress.

These calculations are fitted to an unimproved farm; but it has been shown, that by carrying the improvements into execution, the tenant may easily draw 5 *per cent.* more as reckoned upon his original capital.

If a man held a stock of 10,000 sheep, instead of 1000, he would of course draw ten times the year's

produce, or L.475, upon which he might live comfortably; but we argue against the principle of depopulating, as much as against that of letting lands at rack-rent.

Allowing for the *immediate* profit of the tenant, as shown by the table, on a stock of 1000 sheep valued at L.1000.

Three domestics at L.15,	L.45	0	0
Interest on capital at 10 <i>per cent.</i>	100	0	0
	<hr/>		
There is a total	L.145	0	0
	<hr/>		

Or equal to  $14\frac{1}{2}$  *per cent.*

Allowing, for 1821,

Three domestics at L.15,	L.45	0	0
The year's profit,	47	10	0
	<hr/>		
The total is	L.92	10	0
	<hr/>		

Or  $9\frac{1}{4}$  *per cent.*; being a diminution of  $5\frac{1}{4}$  *per cent.*; and, supposing that the land had been let at rack-rent when the prices of the three articles aggregated the standard of 51s. 7d., what would have become of the tenant in 1821?

We have stated, when the aggregate rises to 67s. 5d. or 15s. 10d. above the standard of 51s. 7d., that 1000 sheep will pay a rent of L.469 12s. 7d. Of the last 5 years, the one nearest to that amount was 1818, whose aggregate rose to about 67s. We say by rule, therefore, If 51s. 7d. : L.359 6s. 8d. :: 67s.—Answer, L.466 14s. 6d. for the landlord;

and if 51s. 7d. : L.199 : : 67s.—Answer, L.258 9s. 7d. for the tenant. These sums amount to L.725 4s. 1d. as accounting for the year's produce from the farm; but we know by our books, that the real produce of 1000 sheep that year was L.752, leaving a difference of L.26 15s. 11d. falling of course to the tenant, making up his proportion to L.285, 5s. 6d., which may readily be granted for the sake of encouragement.

It may be argued, indeed, that such a method of paying rent must be attended with inconvenience to the landlord from the inequality of the sums annually received; but if he chooses to live according to a medium, placing the difference at interest in the bank, he will find it more secure there than in the hands of the tenant, who is sometimes very apt to speculate with that superabundant profit which ought to have been preserved for bad years; and, when required, it has been frittered away, and the landlord then obliged to remit the deficiency. We have heard it remarked with much truth, "that the laird had better keep the purse than the tenant;" and let the tenant then hain his own superabundance to meet the demands of less prosperous times.

We recommend, as shown by the table, that the landlord should take every expense upon himself, save that which is attached to the more immediate service of the house and farm. Servants' wages, articles of food, and smearing articles, generally rise and fall according to the fluctuations of produce; and these are answered by the rise and fall of profit reckoned upon the tenant's capital. The

greater the sum, also, paid to the proprietor, in the first instance, the greater will be the proportional rise, as the value of produce increases. If the tenant paid the public burdens and all the upholding, he would also get a rise upon the amount of these, for which he can have no claim, operating, as they do, as a drawback on the value of property: the laird must bear it in the first place, and the proprietor is entitled to every possible benefit, whether it may be found to consist of proportional rise, or of reduction of original expense, the tenant always participating in the benefit of a rise upon his own capital, and his allowance for farming and domestic expenditure.

The profit of the landlord off the farm in the first instance, is L.359 6s. 8d., and of the tenant *immediately*, L.145. In 1821 the landlord's profit amounts to L.249 0s. 8d., and the tenant's to L.83 18s. The diminution of the rent is L.110 6s., or at the rate of 31 per cent., and that of the tenant's profit L.61 2s. or at the rate of 42½, and this arises from the capital of the landlord being considered proportionally of so much greater value than that of his tenant; the one having land, and the other money.

The difference between the *standard* amount of rent, and that of 1818, to the landlord, is L.107 7s. 10d. or a rise of 30 per cent.; and the difference to the tenant (after deducting the original allowance for smearing, &c. as formerly,) is L.59, or a rise of 41 per cent., so that if, in the *fall*, the tenant suffered 11½ per cent. more than the proprietor,



he recovered 11 of it in the rise, having also the surplus profit of the two sums in the two years of L.8 12s. and L.26 5s. 11d. to balance the other half.

According to our plan of improvement, and allowing domestic expense and per centage on L.1000 capital, the total interest upon the same will be as follows :

Allowance for servants' wages,	L.45	0	0
Interest on L.1000 capital at 10 per cent.	100	0	0
	<hr/>		
Total	L.145	0	0
Or 14½ per cent.			
Net profit after 7 per cent.	.	57	15 6
Or 5¾ do.			
Saving of lives, &c.	.	50	0 0
Or 5 do.			
	<hr/>		
Making a total of	25½ per cent.	L.252	15 6

Considerably above what is claimed by Mr. Rennie on the part of the agriculturist, but without it, there will be no encouragement for improvement, and not very much left for the maintenance of the tenant and his family.

Nothing can be better accommodated to reciprocal justice than this, because, when, during the five years already stated, both parties had a remunerating return ; if, by a sudden depreciation, the same return is continued to the landlord as before, there would not be one farthing left for the tenant's subsistence ; he must therefore live upon his capital,

or by getting into debt, which is the same thing; and, in case of his stock not being what is termed a *free-stock*, or all his own personal property, he must in the course of a very few years become bankrupt; and when a man falls into that situation, not by his own negligence, but by the change of times operating against the legal claims of his landlord, as by lease contracted, we do not envy either the profit or the feelings of a proprietor, capable of driving an honest man and family to such an extremity.

We believe that scarce any plan was ever devised for the general good, which was not liable, more or less, to objection or abuse; and such is the plan also which we have just proposed. If perfection could be found to regulate all our actions, the restraint of law would be unnecessary; but as the wicked and dishonest are ever found particularly to avail themselves of the weakness or generosity of others, it becomes absolutely necessary to provide an antidote, and this in many instances is far from being efficacious.

A custom prevails very much in our markets, and we pretend not to investigate the origin; but in practice it appears scarce reconcilable to the rules of honest policy. We allude to the very anomalous system of giving and taking *luck-pennies*, which, in effect, acts as a deception upon the market in general. And, in reference to our plan of determining the rent according to the aggregate of "three prime articles of sale," all of which are liable to be "sold at one price, and paid for at an-

other," through the operation of these abominable "luck-pennies,"—we would warn the landed proprietors, that, were they to accede to such terms with *all* tenants, they would run a decided risk of reckoning upon a false account. We are far from even insinuating that the strictest honesty does not exist among farmers in general; but such is the frailty of human nature, and such, unfortunately, may too frequently be proved, that the same evil spirit which has given occasion to our civil laws, has sometimes shown the cloven foot in spite of them.

In a matter of such infinite concern to all parties, it is not regular or meet that it should be left to any man's word; the proprietor must make himself acquainted with the value of the produce of one of his farms, and from that he can calculate all the rest. Or, for instance, if he knows that a lamb, a stone of wool, or a draft-ewe, from any given farm in the country, sold for so much, he ought then to be enabled to state the value of what his own farms would produce, according to the relative value with the one known; and, however troublesome this may appear at first sight to an inexperienced proprietor, by a very little inquiry he will make himself master of the business. Neither would it answer to rely upon the prices as noted in the public prints, however correct at present, because designing men would soon find an opportunity of turning a mistake to their own account. A landed proprietor must make himself acquainted with his concerns, either personally or

through his factor; and it is nonsense to talk of trouble, when the one has little else to do, and the other is paid for his duty; and when this is effected, he will be enabled to meet his tenant upon even ground. But supposing that the proprietor will neither be at the trouble or expense of determining himself, or by another, the holding, or the sales of his ground, he may always find a tenant willing, *upon oath*, to enumerate these particulars, which will lead him at once to the point, ascertaining that reciprocal profit, which we have endeavoured so strongly to recommend.

We believe, in these times, when the odds are so very much against the farmer, there would be little trouble in bringing matters to a proper bearing. We recommend the plan of paying according to produce, because it is founded on the principle of "equity," and if any other person shall propose a plan easier in operation than that which we have had the honour to submit, we shall be most happy to grant every consideration; but it is certain, that no one can define any little fluctuation to the just advantage of both parties, more narrowly than by the rule just proposed.

It may be necessary to acquaint our readers, that, during the last five years, when the average produce of the stock amounted to 11s. 2d. each, on two of those years only were the gimmers allowed to lamb. On the propriety of this question, there is found to exist a considerable difference of opinion; some farmers constantly following up the

practice, and others rejecting it altogether. It is agreed on all hands, however, that a gimmer producing a lamb, suffers ever after a certain deterioration, the amount of which is very difficult to determine. By the assistance of a first-rate practical judge, we have been enabled to produce the following calculation, considering the gimmer-lambs to be of the same nature as those produced upon Thirlestane.

We determine, in the first place, that the gimmer-lambs throughout, bear a proportion to the *second* lambs and *palies* as *two* to *one*.

Average price of seconds and palies for five years.

8s.	3d. and 5s.	11d.
8	3	
5	11	
<hr style="width: 50px; margin-left: auto; margin-right: 0;"/>		
3)22	5	
<hr style="width: 50px; margin-left: auto; margin-right: 0;"/>		

Price of a gimmer 7 6 lamb.

	Lambs.
Number of gimmers in 1000 sheep $\frac{1}{2}$ or 200 =	200
Deduct 15 per cent. for losses	30
	<hr style="width: 50px; margin-left: auto; margin-right: 0;"/>
Total number of lambs	170

At 7s. 6d. is L.63, 15s. per annum.

Now, we calculate the deterioration as follows:

2d year's deficiency of wool	18 oz.
3d do. do. . . . .	18
4th do. do. . . . .	10
5th do. do. . . . .	8
	<hr style="width: 50px; margin-left: auto; margin-right: 0;"/>
	54 oz.

54 oz. of wool at 21s. 8d. per stone, 24 lbs.	£0 2 0
Loss on 3 lambs in deterioration 6d.	0 1 6
Do. self at draft do.	0 2 0
	<hr/>
	0 5 6
And this multiplied by	200
	<hr/>
Total deterioration	55 0 0
4 months grass for 170 lambs, 5 to 1 sheep at 7s. 2d. =	4 1 3
	<hr/>
Total loss	59 1 3
Produce per lambs	63 15 0
	<hr/>
In favour of the lambs	£4 13 9
	<hr/>

The allowance made for the grass consumed by the lambs cannot certainly be overrated, as depriving the other sheep of that quantity of support equal to such value; and it may also be remembered, that the gimmers giving milk will consume more grass than when eild. This calculation, though not absolute, may be considered, at any rate, as a near approximation to the truth, at such prices, and upon such farms as Thirlestane; therefore, we think it a great risk to lamb the gimmers for such trifling profit, although we do not deny, that when the price of lambs is at double the average of the last five years, it might be worth while to breed from the best of them. The system of sheltering and storm-feeding, moreover, ought to prepare the gimmer for her early progeny, and render the custom more profitable and safe. At the present time, it would be of considerable importance, if every

farmer would simultaneously relinquish a custom of such doubtful expedience. There would be fewer lambs in the country, at a higher price, and no sensible deduction from individual profit.

If we shall have been in the previous habit of breeding from the gimmers, it may be said, that, in proportioning the stock to the pasture, an appropriate allowance had been made for the gimmer lambs; in which case we cannot be authorized in charging for the grass, so that the real loss would amount to L.8 15s. In this case, it cannot be denied that the profit of L.8 15s. would be more easily and more advantageously derived from an additional stock of breeding ewes, which, according to our prices, would in number amount to 16. If no grass had been allowed, in the first instance, for gimmer lambs, we are satisfied that the practice is bad; but if the contrary, it is certainly safer to draw the grass-mail from a few additional ewes. It may be said, that in the middle of such constant and variable losses, a few additional ewes would be of little consideration; but we must reply, that whenever the pastures shall be properly improved, and the stock well sheltered and fed, every individual sheep which can be laid with safety upon the ground, will assist in making up the expected return; and every loss, instead of being slighted, will tend to sharpen the intellects and exertion of the tenant. We may therefore fairly conclude, that to breed from the gimmers is a deteriorating and unprofitable concern; and if there is any proportion of grass left, after relinquishing

the practice, we may apply it otherwise with better effect.

We would here remark another custom which prevails to a considerable extent in this part of the country. We allude to the very deteriorating custom of turning out a parcel of half-starved nolt upon the hill, just as the ewes are beginning to lamb, and keeping them there, either till Whitsunday, or even during the whole summer. It is clear that if the pasture can support these, it ought to support a greater number of sheep, and pay an additional rent;—it therefore becomes absolutely necessary that the tenant should be interdicted from such practice, whenever the farm is found to have its proper holding, and the improvements have been effected. Some people are sufficiently inconsiderate to imagine no harm, because cows will consume a coarse mouthful, or other herbage which does not suit the more delicate palate of the sheep; but it ought also to be remembered, that a cow always eats up the best first, leaving the worst for the last, so that the sheep are miserably defrauded in the main. In addition to what they eat, they dirty a great deal, and destroy the drains and soft lands by poaching with their feet. This custom is therefore deservedly reprobated by the most intelligent storemasters.

We would now only offer a few reflections on the “extent of sheep-farms,” as connected with the good of the country, and the respectability, profit, and occupation, of the store-farmer.

We may bear in mind that every person in the



country is desirous of making that use of his capital which is most congenial to his own feelings or education. And as the amount of capital in different hands is very disproportionate, we may readily acknowledge the utility of farms of various degrees of extent; having, as landed proprietors, a right to command a minimum, as a bar against degradation; and a maximum, to prevent that extensive occupation which approaches to monopoly. The landed proprietor will feel it his duty to look to these three particulars, that a proper competition may have a chance of operating among all sizes of capitalists; and that the person aspiring to the respectability of a farmer may neither sink below the decent level, nor aspire to that situation, *as a farmer*, which outsteps the actual limits of the profession.

We are decidedly of opinion that the extent of land occupied, should not always be measured according to the intelligence, activity, or speculation, of the tenant; because a great capital, in the hands of a most indefatigable, industrious, and intelligent man, may be applied upon an extent of surface quite disproportionate to the amount of profit necessary for the maintenance of a farmer in that respectable situation in the world best suited either to the general interest of the country, or the particular sphere in which he is designed to move. It may be thought hard to limit the *capacity* of a man, or to prevent him turning his ability to the best account; and when success is seen to attend the operations of some most extensive farmers, whose intelligence is far above the level of the profession, others pos-

possessed of capital, but more frequently of "vanity," are desirous of gratifying a spirit of emulation by similar measures,—which, in a little time, brings down ruin upon themselves, and consternation upon their landlords.

A landlord is often desirous of throwing several farms into one, for the purpose of saving the expense of erecting farm-houses and offices; and a tenant says, "Give me these three or four farms, and as I only live upon one of them, I can afford to give you the value of 'the living' of the other families thus turned out." Here, then, is afforded a double inducement to a proprietor; and although we readily acknowledge that a farmer carrying on extended operations is a man of more intelligence and liberality, better suited to appreciate the value of consecutive improvements, and to enter into the various views of the proprietor—beneficial either to themselves or the country—than a small tenant of more confined capital and ability; yet we maintain that the proprietor should be very tender in exercising those privileges; which, however beneficial to two parties, is very detrimental, when carried to a great extent, both to the population of the country, and the amount of internal consumption, upon which the prosperity of the whole country is known to depend. The situation of people dismissed from the land cultivated by their forefathers, and unprovided with the means of ready subsistence, is truly deplorable; and the proprietor, considering whence he holds his lands, and by what special favour he has been raised above the level of

his brethren of mankind, will doubtless remember that he has a duty to perform to others placed upon that land which has been given to him, as *tenant* for the general good, and temporary director of the destinies of its inhabitants.

The profit on a farm in East Lothian, according to Mr. Rennie, of 553 Scots acres, paying a rent at 90s. or the sum of L.2488 10s. on which a capital is invested, of near L.6000, amounts to L.901 1s. 4d. and which that very enlightened agriculturist appears to consider as an indifferent remuneration.

This part of the question we do not enter into; but we cannot help thinking that a clear income of L.900 a-year, or even half that sum, will render a farmer and his family very comfortable. We by no means wish to take from the farmer's profit, and add to the landlord's; but we think that two respectable families in that rank of life might live comfortably upon L.900 a-year. A farmer, also, may live much cheaper by the consumption of part of the produce of his land, than another can by purchasing at the market price; and there are many little conveniencies about a farm, available to the table of the farmer, for which Mr. Rennie makes no allowance, such as swine, eggs, and poultry. Were a proprietor to farm such land himself with equal ability and skill, 553 acres would afford a handsome fortune, equal nearly to L.3400 a-year.

In the "Farmer's Magazine" for May, 1821, at page 171, it is stated, that Mr. Brodie of Scoughall, in East Lothian, is the greatest farmer in Europe, (and we may perhaps add, in the whole world.)

paying a rent of L.7000 a-year. If the management and produce on the land thus occupied by Mr. Brodie, is exactly similar to that mentioned by Mr. Rennie, his capital invested cannot be less than about L.17,000, and the number of acres equal to 1500.

We cannot help expressing our admiration and astonishment at the activity and intelligence of this highly respectable gentleman, which thus enables him to superintend the operations, and define, with perspicuity, a complicated mass of farming accounts, out of which he has been enabled, for many years past, to pay half-yearly visits to his landlord, bearing a sum of L.3500 to welcome his arrival. His profit, according to the other calculation, ought to amount at least to L.2500 a-year; a very comfortable fortune for any country gentleman, but, perhaps, not more than what is due to the trouble, anxiety, and risk, attendant upon such a multiplicity of operations.

The system of throwing several farms into the management of one tenant, has prevailed, perhaps, to a greater extent in "pastoral," than in arable districts; and by way of illustration, we shall only state the situation of the parishes of Etterick and Yarrow in this particular.

There are in the parish of Etterick 28 good farms, all of which, at one time or another, have had single tenants *resident*; but of these, 15, or more than one-half, are *led* farms, as the term is; or whose tenant lives on another farm, or, perhaps, even in a different county. In Yarrow, there are 45 good

farms, 20 of which are similarly situated; therefore, out of 73 fine farms in this part of the pastoral district, there are 35 in a manner TENANTLESS, being nearly *one-half of its farming population*; and of the residenters, (be it spoken to their reproof, and for the benefit of the tender sex,) the majority of them are bachelors.

In feudal times, and not very far back, many of these farms had even 2 and 3 tenants, besides a consequent proportion of cottars; but this description of tenant, with the advancement of civilization, has totally and happily disappeared in this part of the country, saving in one instance, where the occupiers certainly fall far below the level of comfort and respectability of "farmers," as before alluded to.

There is scarce one of the "led farms" just mentioned, that would not support a respectable tenant, with the present resident shepherd, now acting as manager and shepherd; who, for a little additional profit, is willing to do more than a resident tenant without a grown-up son, would be satisfied or inclined to accomplish. Therefore, according to the present system, there is nearly *one-half of the "farming population"* driven from the country, to gratify the avarice or ambition of individuals, under the false plea of paying more rent to the proprietor than the land could afford under the management of a resident farmer. From our own experience by this time, and from the numberless applicants for farms evinced on a late occasion in the counties of Peebles and Dumfries, we are not

afraid to assert, that resident tenants are to be found in abundance, willing to pay as much for their farms as others give who live off them; and as for the expense of farm-house and offices, particularly as required upon "hill-farms," the erection of these may be made a profitable investment of capital on the part of the proprietor. A man must pay house-rent somewhere, and he may do it on a farm, as well as in villages or towns. We have already given it as our opinion, that a landlord, in common justice, is not authorized to let his lands at "rack-rent," however willing people may be to take them at such price,—driving on a miserable existence in poverty and filth; but a fair remunerating price to the one, and fair rent to the other, will cement that reciprocal interest and attachment, which is the strength, wealth, and safeguard, of every well regulated community. Look at Ireland—miserable, rack-rented, and "deserted" Ireland—how the degraded peasant seeks to wrest from the miserable farmer, not only the occupation of the land, but from the "absent proprietor" the very possession of it! How should we look in the Forest under the effect of similar commotions? And if these commotions can be identified, *even in part*, with rack-rents and mismanagement of proprietors, why may not similar reasons produce similar effects at more distant times, even in the country which now affords secure and quiet habitations to those that yet remain?

Upon the principle of "led farms," we have no doubt whatever; but with the assistance of such

faithful shepherds as are intrusted with the charge of those farms already, we could manage a farm-stock, covering an extent of country on both sides of Etterick,—all the way from Etterick Pen to Abbot's Ford, or perhaps below it; and what would then become of all our gallant yeomen, the heart and soul of the country, the terror of her invaders, and—with the magistrate—the constitutional preservers of our liberties and independence? The sooner, therefore, we see the whole of our farms, as opportunities occur, containing once more the legitimate occupiers—in happy independence and faithful adherence to the proprietors of the soil—not bachelors, but sires of an industrious, respectable, and virtuous population,—so much the sooner will every improvement arrive at perfection, and every article of produce, according to increased consumption, afford that rational return which arises from a just connection between produce and proper proportional demand.

To see the honour and independence of landlord, farmer, and peasant, each in his several situation, with the progress of every internal improvement, is what we most ardently do desire; and with such feeling, and for such purpose, we respectfully solicit an unbiassed attention to the plans we have now had the honour to propose.

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One of the principal objects of the Highland Society is to encourage the progress of improvement, by premium or reward.

The state of our mountain-farms has not been neglected in that particular ; but having been requested a considerable time ago, by the Secretary, to point out a few particulars for his better consideration, I endeavour to fulfil my promise, by requesting his attention to the foregoing recommendations ; and should it be the pleasure of the Society to act upon them, I am of opinion, in addition to the premiums occasionally offered for "Sheep-drains," were some encouragement held out for the building of "Stells," and the inclosing of "Parks,"—particularly for the "Hay" and "Lambing-parks," that the greatest benefit would accrue.

W. J. N.



# STATE OF EXPENDITURE, ACCORDING TO IMPROVEMENTS PAID BY THE PROPRIETOR.

Produce of 1000 sheep . . . . . at 11s. 2d. £538 6 8

*Expenses allowed to Tenant.*

Smearing 1000 sheep . . . . . at 6d.	£25 0 0
Meal for 2 shepherds . . . . . at £7	14 0 0
Keep of a riding horse . . . . .	10 0 0
* Marking expenses . . . . .	5 0 0
T'wo women servants . . . . . at £15	30 0 0
One servant lad . . . . .	15 0 0
Interest on £1000 capital, at 10 per cent.	100 0 0

*Mean Price for Five Years.*

Top-lamb . . . . .	£0 10 3
Draft-ewe . . . . .	0 19 8
Stone of laid wool 24 lb. . . . .	1 1 8
Standard . . . . .	£2 11 7 = 51s. 7d.

Allowed to tenant . . . . . £199 0 0

Produce of sheep . . . . . £199 0 0  
 556 6 8  
£199 0 0

*To be paid by Landlord himself.*

Farm-house tax, say . . . . .	£3 0 0
Roads and paupers, say . . . . .	5 0 0
Upholding 30,000 roods of drains at 8s. . . . .	12 0 0
Mole-catcher's contract . . . . .	6 0 0
Upholding proportion of march-dike . . . . .	1 4 6
Ditto ditto lambing park dike . . . . .	0 19 8
Ditto ditto hay-park dike . . . . .	0 19 4
Ditto ditto tup-and-twin-park dike . . . . .	0 17 3
Ditto ditto hospital park . . . . .	0 12 3

Landlord's rent . . . . . £359 6 8, or 7s. 3d. each sheep.

To be paid personally by the landlord . . . . . £32 13 0 . . . . . 32 13 0

Total drawback on the farm improved . . . . . £231 13 0

*Additional per Centage payable by Tenant, and his Profit thereby.*

To interest of £64 16 0 for stells, . . . . . at 7 per cent.	£4 10 8½	Probable saving 5 per cent.	£50 0 0
Ditto 180 0 0 for drains, ditto . . . . .	8 8 0	By 66 sheep . . . . . at 11s.	36 6 0
Ditto 100 0 0 for march-dike, ditto . . . . .	7 0 0	25 ditto . . . . . at 11s.	13 15 0
Ditto 90 0 0 for lambing-park, ditto . . . . .	6 6 0	40 lambs . . . . . at 8s.	16 0 0
Ditto 75 8 0 for hay-park, ditto . . . . .	5 5 6½	33 sheep . . . . . at 11s.	15 3 0
Ditto 77 5 6 for tup-park, ditto . . . . .	5 8 2½	15 ditto . . . . . at 11s.	8 5 0
Ditto 47 15 6 for hospital-park, ditto . . . . .	3 6 10½	equal . . . . .	3 5 6
Ditto 100 0 0 for roads and bridges, ditto . . . . .	7 0 0	ditto . . . . .	7 0 0

Oulay . . . . .	£675 5 0	Total interest . . . . .	£47 5 4
Upholding drains . . . . .	12 0 0		
Mole-catching . . . . .	6 0 0		
Upholding march-dike . . . . .	1 4 6		
Ditto lambing-park . . . . .	0 19 8		
Ditto hay-park . . . . .	0 19 4		
Ditto tup-park . . . . .	0 17 3		
Ditto hospital-park . . . . .	0 12 3		

Total per centage payable . . . . . £69 18 4  
 Extra expense in hay-park . . . . . 6 0 0  
£75 18 4

£158 14 6

Total interest payable by tenant . . . . . 47 5 4

£22 13 0

Payable also by the improvements . . . . . 22 13 0

Total produce . . . . . £628 5 0

Deduct drawback . . . . . 231 13 0

Landlord's increased rent . . . . . £396 12 0

If any arable land—add here . . . . . £

Deduct . . . . . 75 18 4

Possible saving of shepherd . . . . . 276 16 2

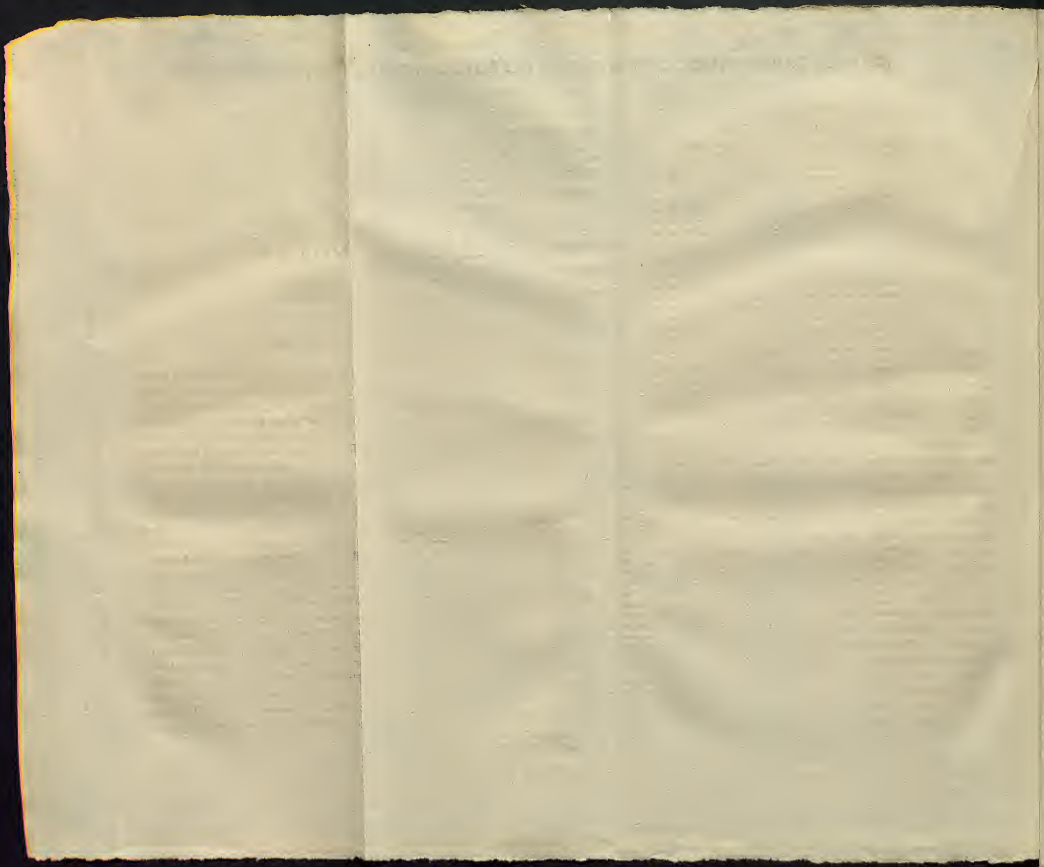
29 17 0

Total possible profit . . . . . £106 13 2

Interest and allowance . . . . . 199 0 0

Tenant's total income . . . . . £305 13 2

\* Supposing the Fairs to be convenient.



## NOTES.

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### NOTE I. Page 8.

If there is one country in the world more than another, which takes an excessive pride in the study and management of horses, it may be said to be "England;" and, of all counties in England, Yorkshire may be said to be the foremost. Agriculture, perhaps, is better understood in that county than in any of those to the southward; and, considering all this double knowledge, the Scottish agriculturist will be amused with the following, which was witnessed by the author. In the neighbourhood of Catterick, on Monday, the 17th December, 1821, were seen—two ploughs at work in one field, one of which was drawn by 4 large black horses, two abreast; and the other by 4 oxen, and 2 such horses—2 abreast, and 2 men at each. On Wednesday, the 19th do. near Grantham, in Lincolnshire, was observed a plough upon wheels, with 4 large horses all on end—tandem-fashion; the ploughman not guiding, but walking a little to one side; bearing an enormous long whip, like a salmon-rod, which, with the weight of a long cumbersome white frock from his neck to his ancles, rendered both him and his whole moving apparatus, the most ridiculous figure, and the most inefficient in purpose, that could possibly be conceived. On the 18th March, 1822, were seen, near Hatfield, two clumsy ploughs in one field, with 4 oxen in each, 2 abreast; and several instances of 3 horses on end, when 2 abreast was not uncommon. On the 19th, near Colterstone, in Northamptonshire, we think, we observed a plough

breaking up old pasture with 5 horses all on end; and, hard by, another plough with 2 abreast, at the self-same operation. Observed, near Stamford, where 2 horses abreast are very common, ploughs with 3 and 4 horses all on end. In the neighbourhood of Newark upon Trent, observed 3 ploughs in one field, with 2 horses abreast, making *straight* ridges; and in the next to it, one plough with 4 horses all on end, making the ridges extremely circular. We observed in several instances, upon these very tortuous ridges, ploughed up high in the centre, the drilling machine for wheat, whose breadth prevents its turning very easily, or progressing *out* of the straight line, drawn straight forward, making the drills at different degrees of obliquity at every step, with the extraordinary shaped ridge over which they were drawn. I am informed also by a very intelligent gentleman, that in the south-west parts of England, towards Cheltenham, it is not at all uncommon to see 4 or 5 horses all on end, with as many bullocks, in one and the same plough.

From these facts, one cannot conceive how the "work-horse tax" could be so much complained of in England; and we are amazed at the stubborn propensity of the farmers, surrounded with agricultural societies, and edified by the practice and advice of Coke and Curwen.

If these pages should ever fall into the hands of an Englishman, we beg his attention to the following system of operation, as practised *even* in the Pastoral District of Scotland.

#### PEEBLES PLOUGHING MATCH.

"Peebles, 12th Dec. 1821. This competition took place on Whitehaugh Farm, belonging to Sir John Hay, of Smithfield and Hayston, Bart. when 25 ploughs started, and, notwithstanding the inclemency of the day, the prize was well contested. All was finished within the specified time; and it may be noticed there was *only one pair of oxen*, and these from Eshiels, and which cleared the leading furrow first, and were *also soonest done* within the stipulated time. Out of the 25 ploughs that started, the oxen were *8th best*."—*Caledonian Mercury*.

Query—If 2 oxen can draw in a Scots plough, what's the reason they can't in an English one?

## NOTE II. Page 21.

An instance of this nature was mentioned to me by an intelligent old shephcrd, who herded the ground at the time. In the winter of 1783, 7 tups were missing for 15 days, having been driven by cold and hunger off the hill, into the shelter of the plantations which adorn the mansion of my much respected friend, Colonel Lockhart Elliott, of Borthwick Brae, M. P. Astonished at the *novelty* of such a place, the wretched creatures had forced their way into a *necessary* in the wood, with the door closing behind them. After a diligent search by the shepherds, in the absence of the family, their delicate retreat was at last discovered; the plaster all eat out of the wall wherever they could reach, and their hips and broadsides perfectly denuded of their wool. What a comfortable reflection might it not afford to the storemaster, in the event of a winter storm, if every farm-house was supplied with a similar convenience!!!

## NOTE III. Page 25.

In addition to these particulars, we may state a loss which occurred upon a farm in the parish of Yarrow, three winters ago. Five score of wedders had been driven before the blast, for want of shelter, upon the surface of a frozen loch. A sudden thaw came on; the ice broke up; and the flock perished. Calculating the value of these wedders at 30 shillings each, or £150, one-half of the sum would have been more than sufficient for providing every species of shelter, to remain good for ever with ordinary care. I cannot help noticing a short dialogue which took place between a very honest farmer, not 100 miles from hence, and myself, as riding past his home, immediately after the breaking up of the storm that destroyed the wedders.

"Gude day to you, Captain: this has been desperate weather of late, and vera ill upon the sheep."

"Deed has it, Mr. ———; I hope you have lost none."

"No mony."

"What feck, think ye?"

"I dinna ken; there was just a wheen hogs washed down the burn, that had been couring for shelter aneath the héngths."

"That is very unfortunat; you would have been the better of some stells."

"Aye, I dinna ken but I might."

Query—Are there any built yet?

NOTE IV. Page 28.

The following years are noted for the severity of the winter.

In A. D. 401, the Black Sea was entirely frozen over.

In 462, the Danube was frozen, so that Theodomar marched over the ice to avenge his brother's death in Suabia.

In 545, the cold was so intense in winter, that the birds allowed themselves to be caught by the hand.

In 763, not only the Black Sea, but the Strait of the Dardanelles, was frozen over. The snow in some places rose 50 feet high, and the ice was so heaped in the cities as to push down the walls.

In 800, the winter was intensely cold.

In 822, the great rivers of Europe, such as the Danube; Elbe, and Seine, were so hard frozen over, as to bear heavy waggons for a month.

In 860, the Adriatic was frozen.

In 874, the winter was very long and severe. The snow continued to fall from the beginning of November to the end of March, and incumbered the ground so much, that the forests were inaccessible for a supply of fuel.

In 891, and again in 893, the vines were killed by the frost, and the cattle perished in their stalls.

In 991, the winter lasted very long, with extreme severity. Every thing was frozen; the crops totally failed; and famine and pestilence closed the year.

In 1044, great quantities of snow lay on the ground. The vines and fruit-trees were destroyed, and famine ensued.

In 1067, the cold was so intense, that most of the travellers in Germany were frozen to death upon the roads.

In 1124, the winter was uncommonly severe, and the snow lay very long.

In 1133, it was extremely cold in Italy. The Po was frozen from Cremona to the sea; the heaps of snow rendered the roads impassable; the wine casks were burst, and even the trees split, by the action of the frost, with immense noise.

In 1179, the snow was 8 feet deep in Austria, and lay till Easter. The crops and vintage failed, and a great murrain consumed the cattle.

The winters of 1209 and 1210 were both of them very severe, so that the cattle died for want of fodder.

In 1216, the Po froze 15 ells deep, and wine burst the casks.

In 1234, the Po was again frozen, and loaded waggons crossed the Adriatic to Venice. A pine-forest was killed by the frost at Ravenna.

In 1236, the Danube was frozen to the bottom, and remained long in that state.

In 1269, the frost was most intense in Scotland, and the ground bound up. The Cattegat was frozen between Norway and Jutland.

In 1281, such quantities of snow fell in Austria, as to bury the very houses.

In 1292, the Rhine was frozen over at Breysach, and bore loaded waggons. One sheet of ice extended between Norway and Jutland, so that travellers passed with ease. In Germany, six hundred peasants were employed to clear away the snow for the advance of the Austrian army.

In 1305, the rivers in Germany were frozen, and much distress was occasioned by the want of provisions and forage.

In 1316, the crops wholly failed in Germany. Wheat, which some years before sold at six shillings a quarter in England, now rose to two pounds.

In 1323, the winter was so severe that both horse and foot passengers travelled over the ice from Lubeck to Dantzick.

In 1339, the crops failed in Scotland; and such a famine ensued, that the poorer sort of people were reduced to feed upon grass, and many of them perished miserably in the fields. Yet, in England, at this time, wheat was sold so low as 3s. 4d. a quarter.

In 1344, it was clear frost from November to March, and all the rivers in Italy were frozen over.

In 1392, the vineyards and orchards were destroyed by the frost, and the trees torn to pieces.

The year 1408 had one of the coldest winters ever remembered. Not only the Danube was frozen over, but the sea between Gothland and Oeland, and between Norway and Denmark; so that wolves, driven from their forests, came over the ice into Jutland. In France, the vineyards and orchards were destroyed.

In 1423, both the North Sea and the Baltic were frozen. Travellers passed on foot from Lubeck to Dantzick. In France, the frost penetrated into the very cellars. Corn and wine failed, and men and cattle perished for want of food.

The successive winters of 1432, 1433, and 1434, were uncommonly severe. It snowed forty days without interruption. All the rivers in Germany were frozen, and the very birds took shelter in the towns. The price of wheat rose, in England, to 27s. a quarter, but was reduced to 5s. the following year.

In 1460, the Baltic was frozen, and both foot and horse passengers crossed over the ice from Denmark to Sweden. The Danube likewise continued frozen two months, and the vineyards in Germany were destroyed.

In 1468, the winter was so severe in Flanders, that the wine distributed to the soldiers was cut in pieces with hatchets.

In 1544, the same thing happened again, the wine being frozen into solid lumps.

In 1548, the winter was very cold and protracted. Between Denmark and Rostock, sledges, drawn by horses or oxen, travelled over the ice.

In 1564, and again in 1565, the winter was extremely severe all over Europe. The Scheldt froze so hard as to support loaded waggons for three months.



In 1571, the winter was severe and protracted. All the rivers in France were covered with hard and solid ice; and fruit trees, even in Languedoc, were killed by the frost.

In 1594, the weather was so severe, that the Rhine and the Scheldt were frozen, and even the sea at Venice.

The year 1608 was uncommonly cold, and snow lay of immense depth even at Padua. Wheat rose, in the Windsor market, from 36s. to 56s. a quarter.

In 1621 and 1622, all the rivers in Europe were frozen, and even the Zuyder Zee. A sheet of ice covered the Hellespont; and the Venetian fleet was choked up in the Lagoons of the Adriatic.

In 1655, the winter was very severe, especially in Sweden. The excessive quantity of snow and rain which fell did great injury to Scotland.

The winters of 1658, 1659, and 1660, were intensely cold. The rivers in Italy bore heavy carriages; and so much snow had not fallen at Rome for several centuries. It was in 1658 that Charles X. of Sweden crossed the Little Belt, over the ice, from Holstein to Denmark, with his whole army, foot and horse, followed by the train of baggage and artillery. During these years, the price of grain was nearly doubled in England, a circumstance which contributed, among other causes, to the Restoration.

In 1670, the frost was most intense in England and in Denmark, both the Little and Great Belt being frozen.

In 1684, the winter was excessively cold. Many forest trees, and even the oaks in England, were split by the frost. Most of the hollies were killed. Coaches drove along the Thames, which was covered with ice eleven inches thick. Almost all the birds perished.

In 1691, the cold was so excessive, that the famished wolves entered Vienna, and attacked cattle, and even men.

The winter of 1695 was extremely severe and protracted. The frost in Germany began in November, and continued till April; and many people were frozen to death.

The years 1697 and 1699 were nearly as bad. In England, the price of wheat, which, in preceding years, had seldom reached to 30s. a quarter, now mounted to 71s.

In 1709, occurred that famous winter, called by distinction, the *cold winter*. All the rivers and lakes were frozen, and even the seas, to the distance of several miles from the shore. The frost is said to have penetrated three yards into the ground. Birds and wild beasts were strewed dead in the fields, and men perished by thousands in their houses. The more tender shrubs and vegetables in England were killed, and wheat rose from £2 to £4 a quarter. In the south of France, the olive plantations were almost entirely destroyed; nor have they yet recovered that fatal disaster. The Adriatic Sea was quite frozen over, and even the coast of the Mediterranean about Genoa; and the citron and orange groves suffered extremely in the finest parts of Italy.

In 1716, the winter was very cold. On the Thames, booths were erected and fairs held.

In 1726, the winter was so intense, that people travelled in sledges across the Strait, from Copenhagen to the province of Scania in Sweden.

In 1729, much injury was done by the frost, which lasted from October till May. In Scotland, multitudes of cattle and sheep were buried in the snow, and many of the forest trees in other parts of Europe were killed.

The successive winters of 1731 and 1732 were likewise extremely cold.

The cold of 1740 was scarcely inferior to that of 1709. The snow lay 8 and 10 feet deep in Portugal and Spain. The Zuyder Zee was frozen over, and many thousand persons walked or skated on it. At Leyden, the thermometer fell 10 degrees below the zero of Fahrenheit's scale. All the lakes in England froze, and a whole ox was roasted in the Thames. Many trees were killed by the frost, and postillions benumbed on their saddles. In both the years, 1709 and 1740, the General Assembly of the Church of Scotland ordained a national fast to be held on account of the dearth which then prevailed.

In 1744, the winter was again very cold. The Maine was covered seven weeks with ice; and at Evora in Portugal, people could hardly creep out of their houses for heaps of snow.

The winters during the five successive years of 1745, 1746, 1747, 1748, 1749, were all of them very cold.

In 1754, and again in 1755, the winter was particularly cold. At Paris, Fahrenheit's thermometer sunk to the beginning of the scale; and, in England, the strongest ale exposed to the air in a glass, was covered in less than a quarter of an hour with ice an eighth of an inch thick.

The winters of 1766, 1767, and 1768, were very cold all over Europe. In France, the thermometer fell six degrees below the zero of Fahrenheit's scale. The large rivers and the most copious springs in many parts were frozen. The thermometer laid on the surface of the snow at Glasgow, fell two degrees below zero.

In 1771, the snow lay very deep, and the Elbe was frozen to the bottom.

In 1776, much snow fell, and the cold was intense. The Danube bore ice five feet thick below Vienna. Wine froze in the cellars, both in France and in Holland. Many people were frost-bitten; and vast multitudes, both of the feathered and the finny tribes, perished. Yet the quantity of the snow which lay upon the ground had checked the penetration of the frost. Van Swinden found, in Holland, that the earth was congealed to the depth of 21 inches, on a spot of a garden which had been kept cleared, but only nine inches at another place near it, which was covered with four inches of snow.

The successive winters of 1784 and 1785 were uncommonly severe, insomuch that the Little Belt was frozen over.

In 1787, the cold was excessive; and again in 1795, when the republican armies of France overran Holland.

The successive winters of 1799 and 1800, were both very cold.

In 1809, and again in 1812, the winters were remarkably cold.

The years which were extremely hot and dry will be more easily enumerated.

In 763, the summer was so hot that the springs dried up.

In 870, the heat was so intense, that near Worms, the reapers dropt dead in the fields.

In 993, and again in 994, it was so hot, that the corn and fruit were burnt up.

The year 1000 was so hot and dry, that in Germany the pools of water disappeared, and the fish being left to stick in the mud, bred a pestilence.

In 1022, the heat was so excessive, that both men and cattle were struck dead.

In 1130, the earth yawned with drought. Springs and rivers disappeared; and even the Rhine was dried up in Alsace.

In 1159, not a drop of rain fell in Italy after the month of May.

The year 1171 was extremely hot in Germany.

In 1232, the heat was so great, especially in Germany, that it is said that eggs were roasted in the sands.

In 1260, many of the Hungarian soldiers died of excessive heat at the famous battle fought near Bela.

The consecutive years, 1276 and 1277, were so hot and dry as to occasion a great scarcity of fodder.

The years 1293 and 1294 were extremely hot; and so were likewise 1303 and 1304, both the Rhine and the Danube having dried up.

In 1333, the corn fields and vineyards were burnt up.

The years 1393 and 1394 were excessively hot and dry.

In 1447, the summer was extremely hot.

In the successive years, 1473 and 1474, the whole earth seemed on fire. In Hungary, one could wade across the Danube.

The four consecutive years 1538, 1539, 1540, and 1541, were excessively hot, and the rivers dried up.

In 1556, the drought was so great that the springs failed. In England, wheat rose from 8 shillings to 53 shillings a quarter.

The years 1615 and 1616 were dry over Europe.

In 1646, it was excessively hot.

In 1652, the warmth was very great, the summer being the driest ever known in Scotland; yet a total eclipse of the sun had happened that year; on Monday the 24th of March, which hence received the appellation of *Mirk-Monday*.

The summer of 1679 was remarkably hot. It is related that one of the minions of tyranny, who in that calamitous period harassed the poor presbyterians in Scotland with captious questions, having asked a shepherd in Fife, whether the killing of the notorious Sharp, archbishop of St. Andrew's, (which had

happened in May,) was murder; he replied, that he could not tell; but there had been fine weather ever since.

The first year of the 18th century was excessively warm; and the two following years were of the same description.

It is a singular coincidence that, in 1718, at the distance, precisely, of one hundred years from the present, the weather was extremely hot and dry over all Europe. The air felt so oppressive, that all the theatres were shut in Paris. Scarcely any rain fell for the space of nine months, and the springs and rivers were dried up. The following year was equally hot. The thermometer at Paris rose to 98 degrees by Fahrenheit's scale. The grass and corn were quite parched. In some places, the fruit-trees blossomed two or three times.

Both the years 1723 and 1724 were dry and hot.

The year 1745 was remarkably warm and dry; but the following year was still hotter, insomuch that the grass withered, and the leaves dropped from the trees. Neither rain nor dew fell for several months; and, on the Continent, prayers were offered up in all the churches to implore the bounty of refreshing showers.

In 1748, the summer was again very warm.

In 1754, it was likewise extremely warm.

The years 1760 and 1761 were both of them remarkably hot; and so was the year 1763.

In 1774, it was excessively hot and dry.

Both the years 1778 and 1779 were warm and very dry.

The year 1788 was also very hot and dry; and of the same character was 1811; famous for its excellent vintage, and distinguished by the appearance of a brilliant comet.

On glancing over these slight notices, it is obvious that no material change has taken place for the last thousand years in the climate of Europe. But we may conjecture, from the facts produced, that it has gradually acquired rather a milder character; at least its excessive severity appears, on the whole, to be of rarer occurrence. The weather seems not to affect any precise course of succession, although two or three years of remarkable heat or cold often follow in a cluster.

Yet there can be no doubt that series of atmospheric changes,

however complicated and perplexing, are as determinate in their nature as the revolutions of the celestial bodies. When the science of meteorology is more advanced, we shall, perhaps, by discovering a glimpse of those vast cycles which result from the varied aspects of the sun, combined with the feebler influence of the moon, be at length enabled to predict, with some degree of probability, the condition of future seasons. The intermediate period of nine years, or the semi-revolution nearly of the lunar nodes and apogee, proposed by Toaldo, seems not to be altogether destitute of foundation. Thus, of the years remarkably cold, 1622 was succeeded, after the interval of four periods, or 36 years, by 1658, whose severity lasted through the following year. The same interval brings us to 1695, and five periods more extends to 1740, a very famous cold year. Three periods now come down to 1767; nine years more to 1776; and eighteen years more to 1794, the cold continuing through 1795. Of the hot years it may be observed, that four periods of nine years extend from 1616 to 1652; and three such again to 1679. From 1701 to 1718, there was an interval of 17 years, or very nearly two periods; while three periods reach to 1745; another period to 1754; and one more falls on 1763; and from 1779 to 1788, there are just nine years. The present year would, therefore, correspond to 1701, 1719, and 1746; and consequently, very nearly to 1718. Again, the years 1784, 1793, 1802, and 1811, at the intervals of successive periods, were all of them remarkably warm.—*Edinburgh Review*, June, 1818.

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NOTE V. Page 41.

In this letter, Laidlaw remarks, "that 1802 was remarkable for a certain species of *grubworm* eating the grass; and except in some kind of boggy land; the grass was almost totally consumed. They were so thick on the ground, that one would have covered 10 of them with the palm of the hand. I fed a few of them by desire of the late Dr. Mungo Park, in a crystal bottle. After undergoing the usual metamorphosis into a chrysalis, they em-

erged beautiful butterflies, laid about 100 eggs, and died. I do not know to what species they belonged. They were only found in Yarrow-head, part of Tweedsmuir, and part of Etterick, and only happened once before in the memory of the oldest inhabitants. I have seen them rarely since, and only a few at a time."

A. LAIDLAW.

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NOTE VI. Page 83.

*Quarterly Report for Tweeddale, Farmer's Magazine,  
May, 1818.*

"Our mountains have been covered with snow; and, in some instances, completely *plated* over, since the 1st December last.

"Stock has suffered severely, not so much from the quantity of snow that has fallen at any one time, as from the continuance of blasty, barren weather, which has not in the least abated to this day; and now that the lambing-time has set in, the loss of lambs must be very great; as there is, as yet, no vegetation, the ewes, in their reduced state, can have no milk. It may be said, that, in such cases, hay or turnip should be provided, to prevent distress and loss of stock. This may *sound very well in theory*, but *in practice* it will be found *difficult*. In barren springs, during the months of March and April, feeding mountain-sheep by the hand is practised with great advantage in *some* situations; and it ought never to be omitted, when necessary, by *those who have it in their power*. But these, comparatively speaking, are but *few*. On many farms there are scarcely 10 acres of arable for 1000 acres of pasture; and, on some farms of this description, not one acre of meadow or of bog-hay. In these situations, feeding by the hand, for any length of time, is *quite out of the question*. Viewing the feeding of mountain-sheep by the hand, late in March or April, in the most favourable light, it may be called the *last shift*. To collect a flock, say of 30 score of ewes, heavy with lamb, or dropping

their lambs, into one place, (and they will collect, of their own accord, if fed by the hand,) is a measure that I believe every practical store-master will avoid, unless compelled by necessity."—28th April.

How different are the views of the Tweeddale reporter from those of Messrs. Hogg and Laidlaw !!!

NOTE VII. Page 97.

This plan refers particularly to the raising of wool from the merino breed, at a distance from *fat markets*, and appears to be admirably adapted to such remote districts, wherever turnips can be raised.

VIII  
NOTE ~~IX~~ Page 99.

On the 3d of November last, (1821) early in the morning, a sudden and heavy snow-drift arose, but of short duration, extending across a great proportion of the "pastoral division,"—at a time when part of the flocks were lying in a scattered state throughout their whole range of pasture, and the shepherds employed in the annual operation of "smearing." It is quite impossible to calculate the actual loss that occurred over the whole country; but, from the best authority, we are enabled to state the deaths, in the parish of Etterick, to have amounted to 125; and that about 2500 sheep were rescued from the snow by the diligence of the shepherds and the sagacity of their dogs. Three farms in Eskdale Muir lost about 15 sheep each, and one near the head of Yarrow 12. There were only four farms in Etterick parish which had no sheep killed, one of which was Thirlestane, but the number rescued from the drift was 90, and 5 of them from under the shelter of the march-dike. Such of the sheep as happened to be in the immediate neighbourhood of an occasional "stell," found a ready or a safe asylum; but those which were scattered about the "heights," or widely dispersed, narrowly escaped the common catastrophe; and had the



drift continued through the whole of the day, which was extremely possible, it is very probable that three-fourths of the whole stock in the country would have been destroyed, as well as many of the shepherds. Hence the necessity of a "system of stells, widely extended and easily approached."

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NOTE IX. Page 214.

Although the mountainous district of Etterick Forest is but thinly inhabited, and no great improvement adopted except upon particular spots in the immediate vicinity of the residence of the various proprietors; and although so much remains yet to be done, such is either the present apathy, or want of means among proprietors and farmers, that there are at this time several instances of industrious men scarce able to acquire a tolerable proportion of work, for the support of their families; at least such appears to be the complaint; and, to the credit of a poor but industrious family, of real Scottish independence, and for the benefit of Irish beggars, and the independent pot-brawlers of England, who receive half their sustenance from the parish, I willingly note the following circumstance: On riding up the Etterick lately about the "gloamin," on a "bonny summer's night," I was stopped at the door of a miserable hovel at the road-side, by a stout elderly matron, surrounded by a group of children and a pig, whose habiliments corresponded exactly with the miserable appearance of her habitation; and, advancing a little in front, she exclaimed, "Captain, an' it please ye, can ye no get us a little wark—we're like to starve—the guid-man and the auldest lad hae baith been away seeking wark this fortnight, and they're no like to get ony—they're now up amang some o' your folk, and there's naething doing in the country; we canna tell what 'ill come o' us and our bairns?" Knowing that the miserable abode had not been tenanted some time before, and wishing to learn from whence the people came, I unguardedly demanded—"What parish did you come from?"—"What parochen, do ye say? na, na, we're no seeking ony thing frae the parochen—we'se no be behalden to ony ane but

ourselves—gin ye could get us a little wark to haud us gaun, we wad be muckle obliged."

Do not people of this description deserve the countenance of the proprietors? and how different would be the state of Ireland, were the rents circulated amongst her inhabitants, and how much more respectable would be the character of the English labourer, if he always acted upon the principles of this poor woman! Although this spirit almost universally continues to exist, yet the border proprietors would do well to pay more *personal* attention at kirk-sessions and heritor meetings, to check the progress of a wrong feeling which has made its way from England, and which, in time, may be attended with the worst of consequences.

#### POSTSCRIPT.

SINCE the foregoing pages were sent to the press, the different banks have commenced discounting bills at four per cent. which, with the still further depreciation of mountain produce, operates in some measure to derange the profits arising out of our former calculations. We may remark, however, that the value of labour as well as of material, has also declined; and the very highest prices having been set against the improvements, we have no doubt, but, in most situations, they might be acquired, especially when the inclosures are laid together, at little more than *one half* of the sums proposed. Upon the whole, therefore, the diminished return will be balanced by the saving of expenditure, and we have still before us the *hope* of better prices, although the prospect undoubtedly is bad. Nothing at present is more worthy of our serious consideration than the sudden and unexpected fall in the price of wool. It is allowed on all hands, that, during these last two years, the manufacturers have been constantly employed at comfortable wages; and, although the profits of management have not been very great, or even granting them to have been very small, it must be allowed, with fully more justice, that the profits of the farmer, com-

paratively speaking, have been reduced to a mere cipher; and how the woolstaplers have been enabled to command so great a reduction of price in the value of that commodity, when distress bears harder upon the farmer than the manufacturer, is a subject worthy of the fullest investigation, not only upon the principle of self defence, but with the view to future justice and preservation. If this should prove to be the effect of combination, as many are of opinion, farmers must be more upon their guard for the future; but if it merely results from further depreciation throughout every ramification of the trade, from the raw material to every article of manufactured produce, farmers as well as landlords must just patiently submit to their own and *just proportion* of the common distress, and endeavour, in the mean time, to submit to the legislature such plans as will tend rather to protect the growth of the home material, upon which the prosperity of nine-tenths of the nation depends, than to encourage the importation of similar commodity from foreign states, to the ruin of the proprietors of the soil, and all those depending upon the value of its produce for the daily support of their families and themselves.

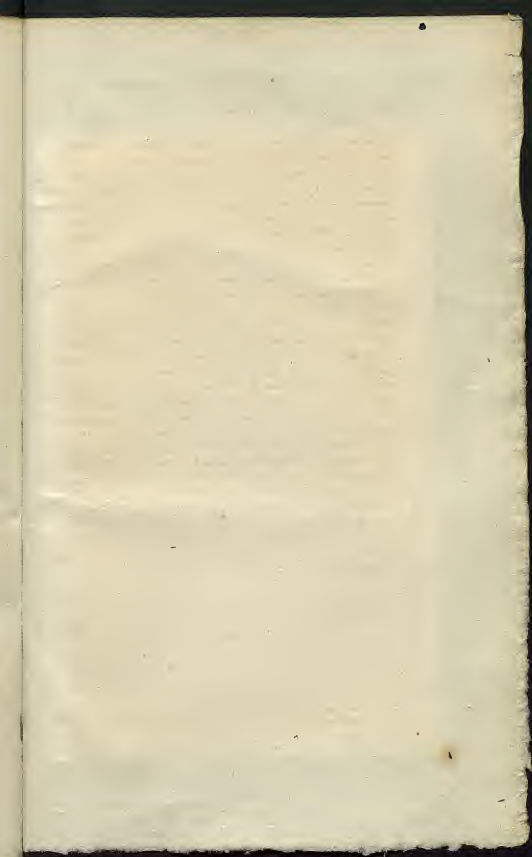
We fearlessly assert, in spite of the manufacturers—and we wish them every reasonable success—that as long as the duty upon the raw imported material is so low *as not to give a very decided preference* to the growth of our own country, that the best interests of proprietor, farmer, and peasant, are sacrificed to the weavers, whose numbers or whose importance are of small interest compared with that of the proprietor who upholds the dignity of national character and of the crown;—of the farmer, who directs the toil of the husbandman;—and of the peasant, whose strength and honest industry provides for us the bread of life; and from which three classes united, arise our statesmen, our soldiers, our sailors, and, above all, our COUNTRY GENTLEMEN—a denomination of resolute and patriotic men, unknown among the baser herds of Continental Europe; and that these, or any one of these, should suffer for the sake of eating foreign grain at a low rate, or of working up foreign wool, both of which are a drug in their respective countries, and thereby maintaining an unnatural proportion of manufacturers—we fearlessly assert, again, that for such purpose the best interests

of the nation are SACRIFICED. Where is the benefit of collecting the whole fleeces of the world, and returning them in the shape of cloth, to the destruction of our own proprietors? It is a well known fact, that the prosperity of the kingdom depends upon the amount of its *own home consumption*, and that this consumption, again, depends upon the quantity of money circulating through every rank or gradation in society; and that this quantity, again, depends upon the *amount, in pounds, shillings, and pence*, of the value of the produce of the soil. If the country is inundated with corn or wool from other shores, then does the produce of our own country become a *drug*;—the farmer gets nothing for his crop, the proprietor gets nothing for his land, and the peasant may sit counting his fingers, and his children at his door, with little hope of work, and less chance of reward. Under such circumstances, the inevitable consequence of *free trade*, or even an approximation to free trade, before we recover from the tempest of the late mighty conflict in which we were engaged,—there must be a suspension, when the landed interest suffers, of that home consumption which forms the very basis of our national prosperity.—Hence desertion by the “lords of the land,” with the little they have left, to foreign climes—and hence a natural demoralization and prostration of that national character, and that home-bred feeling, which have hitherto exalted the character of a Briton above the conception and beyond the understanding of other states around.

W. J. N.

*Thirlestane, 6th Sept. 1822.*

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