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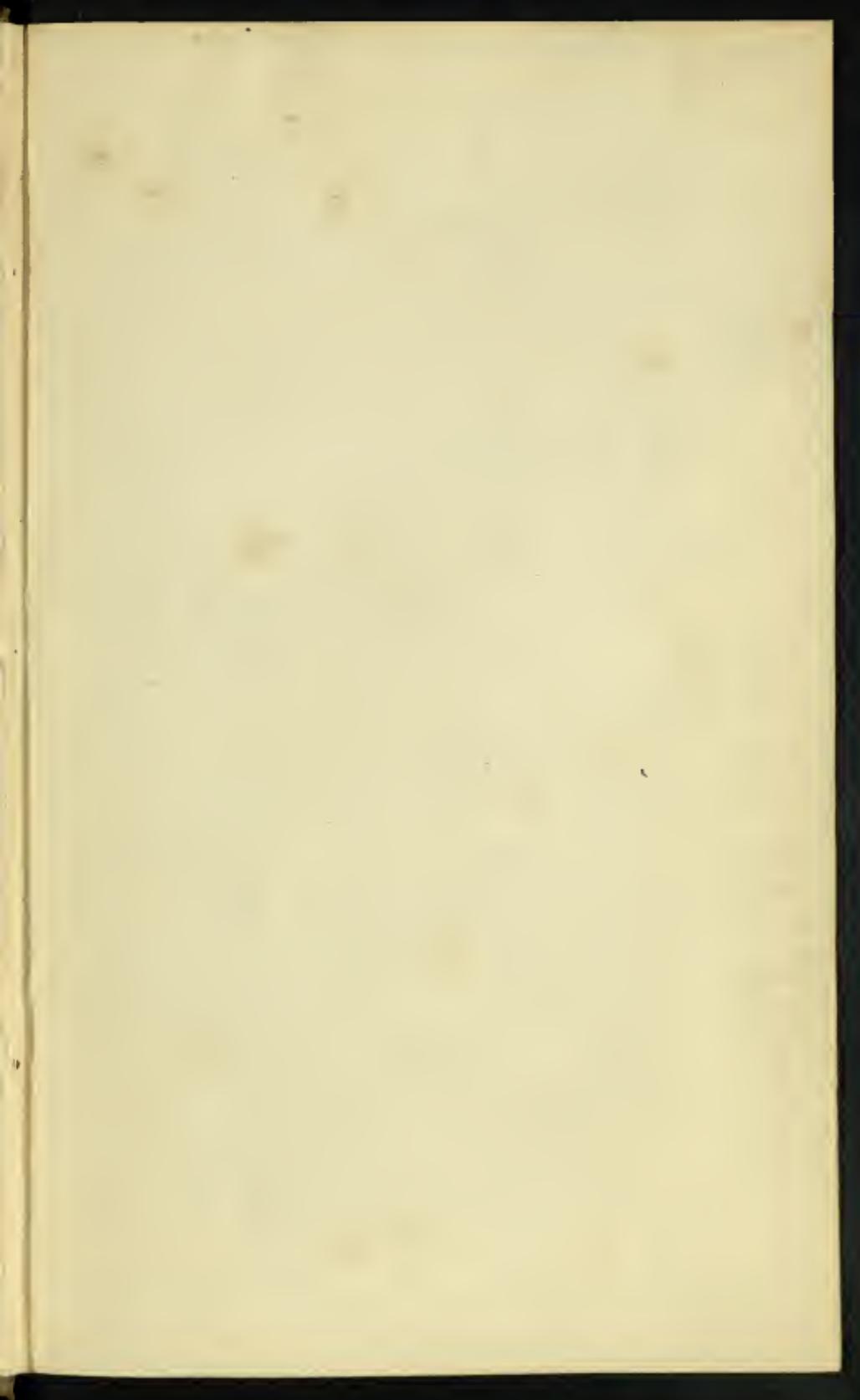
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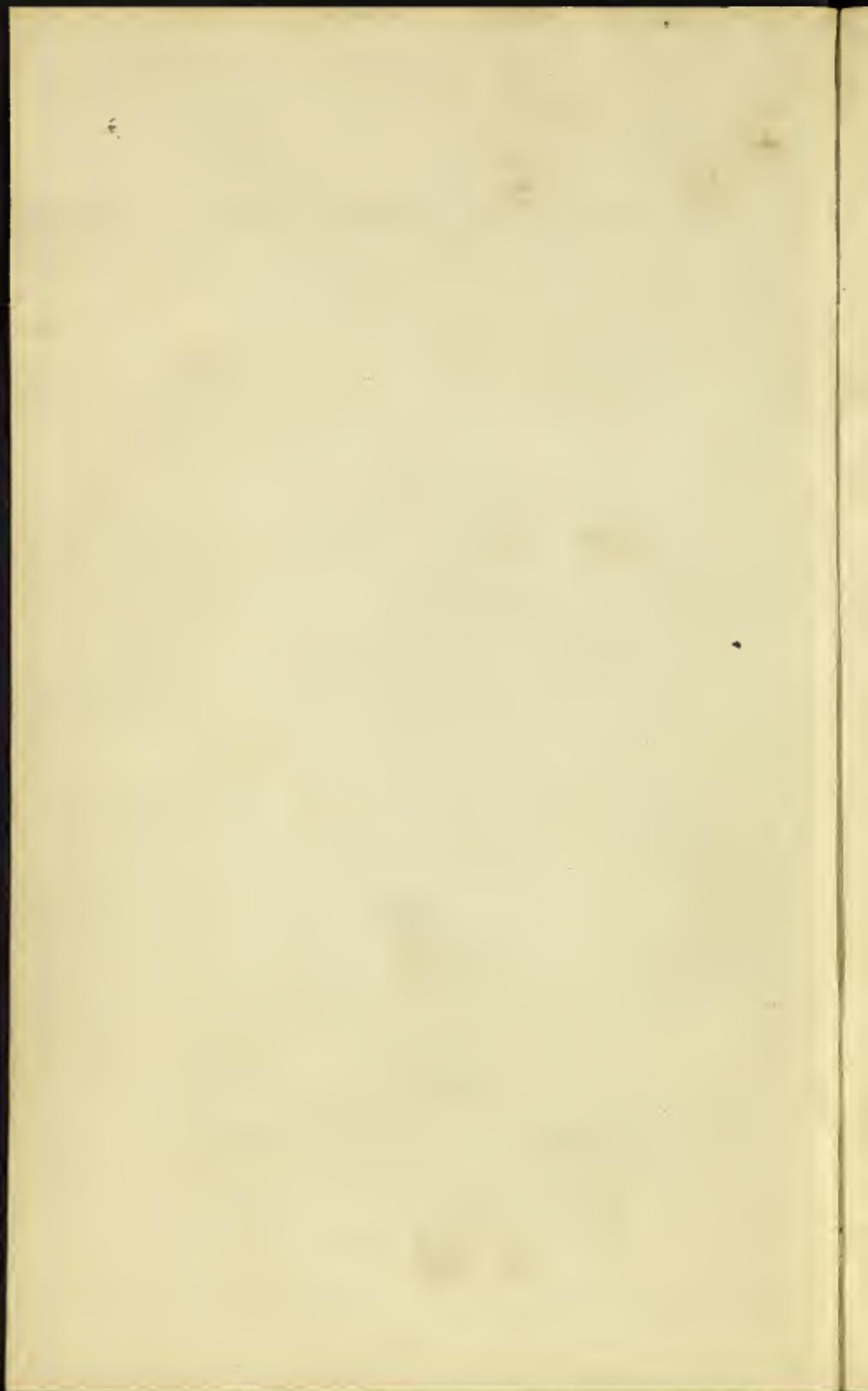
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With the Authors Comments —

W. Potter.

TREATISE ON SHEEP,

ADDRESSED TO

THE FLOCK-MASTERS

OF

AUSTRALIA, TASMANIA,

AND

Southern Africa,

SHOWING

**THE MEANS BY WHICH THE WOOL OF THESE
COLONIES MAY BE IMPROVED,**

AND

SUGGESTING IDEAS FOR THE INTRODUCTION OF OTHER

LANIGEROUS ANIMALS,

**SUITED TO THE CLIMATE AND CALCULATED TO ADD TO
THEIR AGRICULTURAL RESOURCES.**

BY

THOMAS SOUTHEY,

WOOL BROKER.

LONDON :

SMITH AND ELDER, CORNHILL; YEGG, CHEAPSIDE; AND CROSS,
HOLBORN.

1840.

✓

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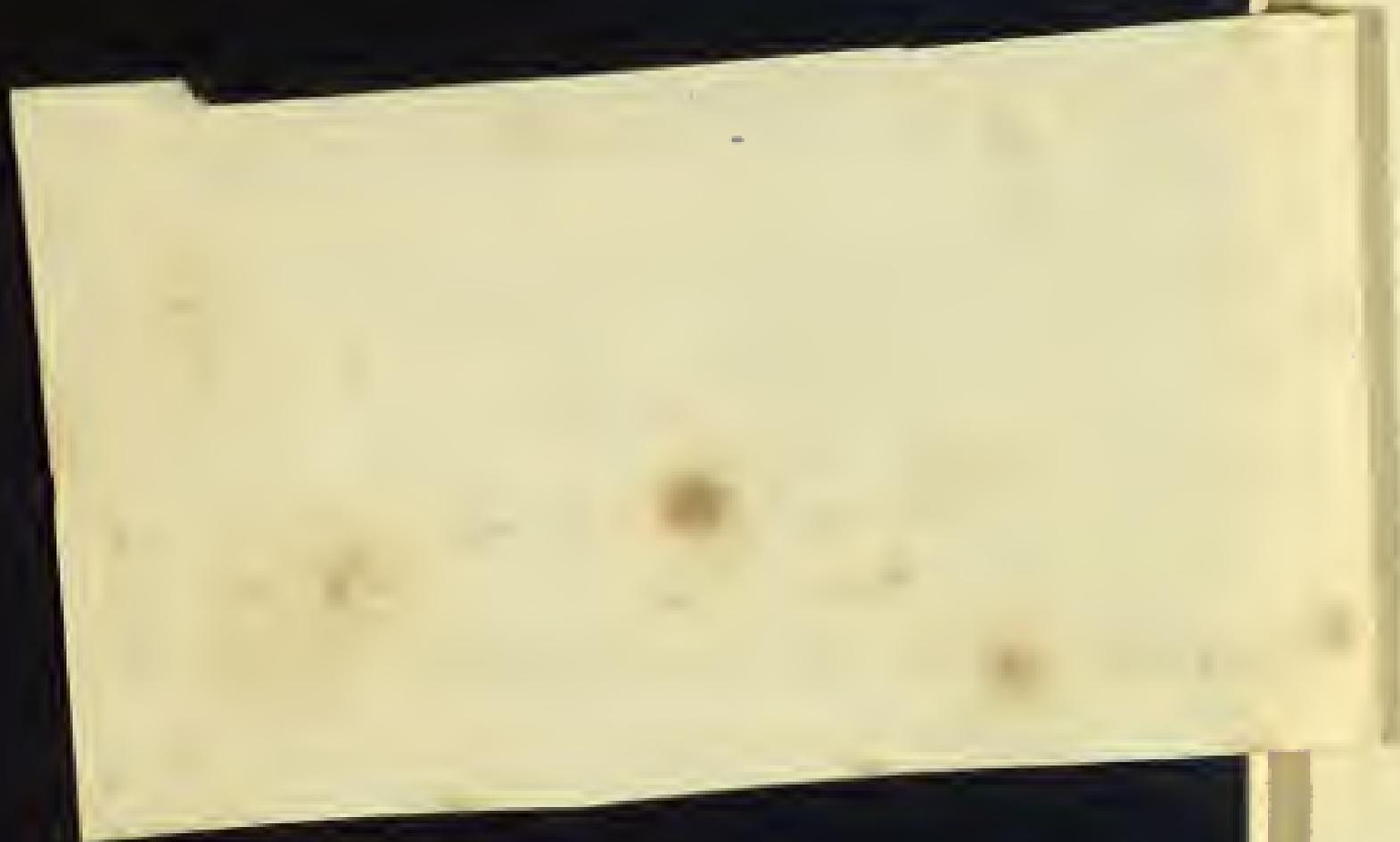
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ERRATA.

Page 25—12th line from bottom—for “*Sydney*,” read “*Sydney and
Tasmania.*”

Page 57—12th line from top—for “*Sidney*,” read “*Sydney.*”

Page 82 11th line from Top for Barnes, Read Burnes,



INTRODUCTORY REMARKS.

IN the little pamphlet which I had the honour of addressing to the flock-masters of Australia and Tasmania, in 1831, I endeavoured to show that the defective method practised in the washing, classing and packing their wool operated to the disadvantage of the grower, by confining its consumption to a narrow circle of purchasers. Convinced of this fact, I pointed out the means by which it might be improved and rendered more marketable, suggesting that it would be advisable to prepare it, in such a manner as to be more useful to the generality of manufacturers.

My first effort having been favourably noticed in the Australian Journals and several extracts made from it in publications relating to New Holland, I considered my labours adequately rewarded, the

more so as I met with the approbation of distinguished individuals to whom that pamphlet was my only introduction.

Since the period at which I wrote, a new scope has been opened to the enterprise of settlers, established in our grazing Colonies, more particularly as regards the article of wool. The few copies printed of the original pamphlet have in the interval been exhausted, the demand for them has increased and I have been solicited to undertake a new edition. The hope of still being useful has therefore induced me to enter on the task, and by altering the arrangement and classifying the subject under different heads, for the greater facility of reference, as well as by various corrections and additions, I have endeavoured to render the present publication more acceptable.

To make it as complete as my proposed limits would allow, I have availed myself of various authorities, by selecting extracts from established works not within the reach of the general reader, either in confirmation of my own opinions, or as elucidating the topics under consideration.

If I feel more than an ordinary interest in the welfare and prosperity of those Colonies to whose agriculturists these pages are addressed, I must attribute it to early associations. It happened that towards the year 1807, or 1808, when the late Captain

M'Arthur was in England, he sought information relative to the breed of sheep and cattle, best suited for Australia, and among others he was introduced to me. Our conversation extended some length, as is known to the present Major M'Arthur, then a youth.

About the year 1813, or 1814, a mercantile house in London received a letter from Australia, containing a variety of queries on the best description of stock and the management of sheep, all which I answered to the best of my judgment, but heard nothing more from the parties till within fourteen or fifteen years ago, when the late Alexander Riley Esq. of Raby, in Australia, called on a friend and requested an introduction to me, for the purpose of personally offering to me his acknowledgments for the information which I had furnished so many years previously.

He subsequently invited me to inspect the goats, of various breeds, which his son had purchased from M. Polonceau at Versailles, and intended for Australia. This little herd consisted of the original stock introduced from Angora and Cashmere, with their respective crosses. Among the latter were some whose wool was free from hairs, really resembling down, and consequently capable of being spun into very delicate yarn, adapted for superior shawls. The quantity however produced was so very light, and the wool so short and delicate, that I fear the labour of spinning

and manufacturing this quality would be too tedious and expensive for the British operative.

I am therefore inclined to think that the cultivation of cross breeds will not adequately recompense the enterprising individuals who may be disposed to incur the expence and trouble of the experiment. Mr. Riley, the younger, nevertheless accompanied the goats in question to Australia, and probably in consequence of his death they may be dispersed among a few persons in the Colony, who will have an opportunity of solving the problem.

In my former treatise I ventured to express a hope that the time would arrive when the pure wool of the Angora goat would be spun by the British manufacturer. It has become a source of pleasure to me to know that this desirable object has at length been obtained, and I rejoice to add that British Angora goats' wool yarn is now more esteemed than that of Asia Minor. The means by which this improvement was attained I will briefly relate, not for the gratification of any personal vanity, but in order to show that small means often produce great results.

Impressed with the idea that Angora wool could be spun in England, I took a small sample of it, together with some yarn of the same material, with me when about to visit a friend at Thetford, to whom I communicated my wishes and he gave me a letter to

his agent at Norwich. After some preliminary conversation the latter replied that, if the undertaking could be accomplished, he would see that it was done.

In the course of a fortnight afterwards, a person came to town with a letter from my friend's agent and purchased two bales of Angora wool, which I learnt were forwarded to Bradford, in Yorkshire. Thither I proceeded on my return from Scotland, with a view to ascertain what parties were consuming the article, and I was not long in discovering the residence of the fortunate person who accomplished this laudable object of the manufacturer's ambition.

The use of Angora wool has since extended, and I have reason to believe that both the original purchaser and manufacturer alluded to have realized a considerable sum by their discovery. To this cause the diminution in the importations of Angora wool yarn may be attributed. It is known to the Greek merchants, who were in the habit of importing mohair yarn, that the demand for it ceased as soon as British manufacturers began to spin the raw material, and the stock of yarn then on hand was re-shipped to Holland and other parts of the continent, where, since its introduction, English spun yarn of the same class is preferred.

In the absence of practical information I was, in

my first essay, necessarily compelled to confine my remarks on the Angora goat to such extracts as I had it in my power to glean from the most distinguished writers, who had visited that unfrequented portion of the globe during the early part of the last century.

Desirous of stimulating the exertions of my countrymen, in an age when there is scarcely an obstacle that is not overcome through the ardour and ingenuity of man, besides retaining my previous extracts, I have now introduced the researches of a recent traveller, who a short time ago addressed a Report on the subject to the Asiatic Society. This is the most able treatise that has yet appeared in England on the Angora goat, and I feel gratified in thus being enabled to bring it into general notice, the more so as I have the pleasure of a personal acquaintance with the author, with whom, previous to his departure from England, I had various conversations regarding the properties of an interesting animal that now partly contributes to our clothing.

It needs no apology on my part to state that Australian wool has progressively improved in condition, since its introduction into our markets, and the sheep-owners will do well to increase their flocks, especially as regards combing wool, always bearing in

mind that fine qualities can be raised from inferior ewes, by supplying them with a succession of fine-woolled rams.

This improvement is material, for although during the last year and up to the present period the demand for combing wool has not been so brisk as could be wished, this description is nevertheless often preferred by clothiers; at the same time the Australian farmer will see that quantity, rather than quality, is the surest means of obtaining an adequate remuneration. When in request for fancy goods, combing wool nevertheless commands prices exceeding the expectations of the consignee, and indeed generally will prove as valuable as short-grown fleeces.

The wool imported from Port Philip has been prepared in a manner equal to my most sanguine expectations, which leads me to infer that the districts round that place will ultimately rise into importance through the quality of their fleeces. The flocks of Van Dieman's Land also yield admirable combing wool, clearly evincing that the land at Launceston and in its neighbourhood is peculiarly suitable for the pasturage of sheep.

It has equally been a source of gratification to me to notice the rapid progress made by the agriculturists of Southern Africa in the condition of their

wools; and if the same attention is hereafter paid to the improvement of their flocks and action given to all the springs of rural industry connected with the breeding of sheep, I make no doubt that wool will, ere long, become a large and valuable export from that thriving Colony, for the farmer must not be unmindful that what is done for the land, the land will return a hundredfold.

COLEMAN STREET, LONDON,

May 1, 1840.

TREATISE ON SHEEP, &c.

CHAP. I.

PASTURAGE.

IT is well known to English wool collectors and manufacturers of cloth, that pasturage has a powerful influence on the nature and properties of the fleece. This fact is indeed evinced in every process of consumption, or manufacture, and under this head I therefore deem it requisite to offer some general observations, with a view to aid the judgment of the inexperienced sheep owners on a subject in which their interest is materially concerned.

In order to convey my meaning with greater accuracy and precision, I shall remind the reader of the experiments made on sheep pasturage in England, and in the way of illustration endeavour to show to the Colonial sheep masters the bad effects produced on wool when the sheep are fed in chalky districts, contrasted with a portion of the same flock pastured on land more congenial to the growth of soft wool.

From this circumstance the advantages may easily be deduced which will result to those who make a judicious choice of reserved land on which their flocks can feed a month previous to the shearing season, as by this means the bad effects of any late herbage will be counteracted, the fleeces of their flocks will handle soft, and increase in weight and consequently in value.

By way of example we will suppose half a flock of Southdown sheep reared in the centre of the South Downs (known to be calcareous and chalky land) and the other moiety transferred to some of the rich land found in the neighbourhood of Pevensey level, near Lewes. The contrast that would be perceptible in the fleeces of these two portions of the same flock, when shorn, is inconceivable to those who have not had an opportunity of witnessing the powerful influence of a change in pasture on the wool of sheep.

Both the temperature of climate and herbage have an evident effect on wool, as may be seen in England on that of those flocks pastured within a few miles of the sea coast, beginning with the Isle of Sheppy, round the coast of Kent, Sussex, Hampshire, &c. The wool of flocks which are fed within 10 miles of the sea coast, generally possesses a longer staple and more pliancy of texture, and consequently it is better adapted to the use of the spinner than the produce of the same flock pastured further in the interior, on similar soil. This difference I am disposed to impute to the exhalations arising from the sea, which, like the smoke of London, extend inland at least 10 miles, thus operating on the herbage, as well as on wool.

I am the more inclined to draw this inference from conversing with an enlightened gentleman, well acquainted with the cotton plant in the United States and with cotton wool in general, who states that the sea air has the same influence on the cotton plant as on the wool of sheep. The sea island cotton is the longest and strongest, and consequently best suited for spinning, and when the plant is removed from its favourite soil and transferred to the interior, the wool becomes tender and of a different quality. It may almost be added that the change produces another species of cotton wool. But, to return to the effect produced on sheep's wool by the nature and quality of the land on which they pasture.

Herbage grown on chalky land being dry and less succulent than that produced on a loamy soil, it is consequently less nutritious and the animal is thus deprived of the means of affording the requisite yolk to fill the pores of the fibre, which operates to nourish and soften the hairs of the fleece; while at the same time the small particles of chalk dust, which abound on the first class of land, raised by the wind, or by the movements of the flock, intermingle with the fleece and absorb that portion of the yolk which nature designed to support, soften and nourish the fibres of which the fleece is composed.

In order to counteract this objectionable property, the Colonial sheep-master will find it to his interest to keep a reserve of superior land, into which his flocks may be driven a short time previous to the season of shearing. This change of pasturage will enable his sheep to afford to the fleece the required yolk, or nutriment, of which it had been deprived

while feeding on a scanty sheep walk of calcarious land. The benefits which he will derive by adopting the method here recommended are palpable. The fleeces will become softer, heavier and consequently more valuable, and the owner will be thus recompensed for the increased trouble and attention he may devote to this branch of rural economy. Before I bring this part of my subject to a close, it may not be amiss to suggest that, wherever the land will admit of irrigation, the utmost efforts should be resorted to in order to carry into effect so valuable and essential an improvement to a farming establishment, more especially in those warm climates inhabited by that class of persons to whom these pages are principally addressed.

An eminent botanist, who perused my former treatise on Sheep, in which salt is recommended to be placed within the reach of the animals, asked me what was the use, or benefit, of salt so administered. Being unable to give an answer satisfactory to myself, otherwise than by referring to the general custom adopted by sheep-masters on the European Continent, who usually place this mineral in those situations where the sheep can have access to it, I sought further information through the medium of books, and the following is the result.

Salt is the only mineral substance consumed with, or for food, by animals. This fact would render it possible, if not certain, that its action on the constitution is entirely chemical and not nutritive; that is, the salt either operates and produces some change in the organic matter, or when taken into the stomach causes the fluids to become more readily and

more completely converted into chyle; or else, that by mixing with the juices secreted from the organs of digestion it increases their energy.

Parkes states that "horses are very fond of salt, and cows give more milk when supplied with it." Dr. Mitchell relates that, in the back settlements of America, wherever salt abounds, thither the wild beasts of the forest assemble to regale themselves, and that some of these places are so much frequented that the ground is trodden to mud by them. The natives call these spots Licks, or Licking places, and it is also recorded in the History of America, that both sheep and cattle resort to clay salt pits, in herds innumerable, and in their efforts to approach these pits, some of them are frequently overpowered and trodden to death.

In some parts of Africa large herds of cattle travel to great distances, at stated seasons, to enjoy the marine plants which grow on the coast and are saturated with sea salt. The fattening properties of our own salt marshes are well known to graziers and farmers. It is ascertained that some horses, when turned into a pasture, are difficult to be caught, and that various stratagems are resorted to in order to secure them when required. Grooms occasionally give horses of this kind a small quantity of salt with their corn in the manger, and when turned into a paddock tempt them with a bait of the like mixture, which proves sufficiently enticing to cause them to be easily haltered.

Pliny also recommended the giving of salt to cattle. It may perhaps be thought less needful in England and Holland than in most other countries, owing to

the succulent nature of the verdure, humidity of the air and proximity to the sea, in consequence of which the land imbibes a large portion of saline substances, or saline manure, nevertheless this mineral is generally administered to sheep in the United Provinces, although rarely in England, notwithstanding it is allowed to possess fattening qualities and acts as a partial antidote against the rot. For ages the Chinese are universally allowed to have devoted their best attention to agriculture, and it is well known that they apply salt as manure to their land, by thinly sprinkling it over the surface.

In those situations where pure and wholesome water cannot be procured, a small portion, or admixture of salt produces a favourable effect, by making it more palatable. I have perhaps dwelt longer on this part of my subject than may be thought requisite by many of my readers; but I was prompted to do so from a thorough conviction that the value of this needful mineral is not sufficiently appreciated by the generality of sheep-masters and agriculturists, even in England, and who might derive very essential advantage by causing a due quantity of salt to be interspersed through their hay stacks, when erected in what is called "catching weather," as the stack is then composed of variable qualities of hay and not sufficiently dry.

In the first place, it would be the most likely means of preventing ignition, at such periods; and secondly, it would cause the hay to become more palatable to the poor animals destined to consume it. We may therefore infer that a portion of salt sprinkled with the chaff of hay, or straw, in the mangers of sheep or

cattle, would tend to render the fodder palatable to the animals, and consequently they will eat it with greater relish and avidity.

In vol. 1, page 124, of his *Travels in Southern Africa*, Barrow has the following passage. "In endeavouring to account for the great accumulation of pure crystalized salt at the bottom of this lake, I should have conceived the following explanation sufficiently satisfactory, had not some local circumstances seemed to militate strongly against it. The water of the sea on the coast of Africa contains a very high proportion of salt. During the strong South East winds of summer, the spray of the sea is carried to a very considerable extent into the country, in the shape of a thick mist. The powerful and combined effects of the dry wind, and the sun, carry on a rapid evaporation of the aqueous part of the mist, and of course a disengagement of the saline particles; these, in their fall are received on the ground, or on the foliage of the shrubbery. When the rain commences they are again taken up in solution and carried into the salt pan, towards which the country on every side inclines. The quantity of salt thus separated from the sea, and borne upon the land, is much more considerable than at first thought it might seem to be. At the distance of several miles from the sea coast, the air, in walking against the wind, is perceptibly saline to the lips. It leaves a damp feel upon the clothes, and gives to them also a saline taste."

It is somewhere recorded that when the Romans had the sovereignty of our country, they imposed a tax on the Droitwich mines, by which means they were enabled to pay their troops, and hence it may be

concluded that salt was, at that distant period, considered an essential mineral by the ancient Britons.

Lord Somerville, in his work on sheep and wool, addressed to the Board of Agriculture in 1800, speaking of the management of Merino flocks in Spain, asserts that the superior quality of the fleece is partly attributable to the use of salt. "This," he adds, "is spread on tiles, or slates, among which the sheep are driven, and allowed to take as much as they require; but when grazing on limestone soils they require none. It is supposed, and with great truth, to correct any acidity in the stomach, a disorder common to sheep even in that climate (Spain) but of a much more serious nature in the damp climate of Great Britain, more particularly when stocked on green floaty food, such as turnips, vetches and young clover."

In conclusion, I shall introduce the following lines, selected from Virgil's *Pastorals* by Dryden, as they clearly evince that, in his days, this mineral was known to be of inestimable value in agricultural purposes.

" If milk be thy design ; with plenteous hand,
Bring clover grass ; and from the marshy land
Salt herbage for the fodd'ring racks provide,
To fill their bags and swell their milky tide ;
These raise their thirst, and to the taste restore
The savour of the salt, on which they fed before."

CHAP. II.

SHEEP AND THEIR UTILITY.

AMONGST the numerous animals formed by the Creator of the universe for the use and benefit of the human race, sheep appear to be justly placed in the first rank in regard to general utility. We indeed find that they were the first quadrupeds taken under the protection of man, as may be seen in the fourth chapter of Genesis, "And Abel was a keeper of sheep." And again, in the days of Abraham, until the time of Mesha, King of Moab, Holy Writ informs us that Patriarchs, Princes and Kings were shepherds and sheep-masters. Ancient History also adds—"The riches of kings, as well as of private men, in the early ages of the world, consisted chiefly in sheep and cattle, to which goats may be added."

That sheep were extremely numerous in the land of Moab, may be inferred from their being substituted as tribute-money, during the subjection of that country under the kings of Israel. Vide the 4th verse of the 2nd Kings; "And Mesha, King of Moab, was a sheep-master, and rendered unto the King of Israel an 100,000 lambs and 100,000 rams (or wethers, as stated in Ancient History) with their wool." Thus we perceive that these valuable animals in those days answered the purpose of a circulating medium, and it will not be thought presumptuous to conclude, that they proved a more inestimable treasure to the Israelitish nation than if the tribute had been paid in the precious metals, as their wool afforded an increased

occupation to the inhabitants of Judea, and at the same time became a general source of wealth to the country.

I shall now endeavour to pourtray the extreme utility of sheep as regards the British Nation, and although I fear that it may appear rather irrelevant even to introduce this subject into an address offered to flock-masters in the British Colonies, yet, I am warranted in thinking that some advantage may result from showing that the flocks of British sheep have contributed more towards the advancement and prosperity of the United Kingdom than any other animal, and further, that their wool has afforded more occupation to our poorer brethren than the use of any other member of the brute creation.

English History shows that, until the commencement of the present century, the cotton manufactories were a secondary branch of industry to those of wool, and consequently the fleeces of our flocks afforded more employment to the inhabitants of England than any other production, to which I am almost tempted to add, happiness; being of opinion, that occupation and happiness are nearly synonymous.

I shall now proceed to offer a few remarks on the advantages derived from the wool of this inestimable quadruped, and endeavour to prove that sheep have afforded more comfort and riches to our farmers and manufacturers than any other kind of stock. From this the Colonial flock-master may draw the flattering inference, that by due attention to the cultivation of the breeds of sheep and their wool, he also may acquire a proportionate accumulation of wealth, improve his lands, and besides promote the interest of

the parent state. This will appear evident from the number and variety of the articles into which woollen yarns are introduced, from the coarse hose, blankets, flannel and carpets, to the various grades of cloths, stuffs, bombazeen, &c. in addition to the more delicate texture of *Mousseline de Laines*, &c.

Were it not for sheep, a large portion of the hilly districts of the United Kingdom would have remained barren wastes—unproductive and uncultivated. The steepest ascents and most mountainous districts are traversed by this little animal, who there feeds without the aid of culture, or the support of man, whilst flocks fertilize and improve the land on which they pasture, and thus augment its produce, at the same time that the enlightened and scientific agriculturist, through the operation of folding, conveys by their aid manure to lands inaccessible to a dung cart, and thus causes them to become fruitful and yield an increase of grain for the use and benefit of the human race.

Again the experienced agriculturist applies the services of sheep, at certain seasons of the year, to early corn crops when in too forward a state. At such periods these useful animals are commonly turned into those fields which appear too luxuriant, and by nipping the too early plants check their growth, whilst their little feet break and pulverize the clods of earth, and by gentle pressure contribute to the defence of the tender roots from the winter's frost. Their manure also serves to fertilize the land, by causing the plants to fructify and the produce to increase. Such are the uses and advantages of sheep, as applied to agriculture.

There are other objects to which the flock-master would do well to direct his attention, and particularly the safe keeping of his sheep, rendered more difficult in a new country, where inclosures are not yet general. The Spaniards were always much admired for their management of sheep, and many of their practical results deserve notice. With them 10,000 sheep usually form a flock, which is divided into ten tribes of 1000 each, with five shepherds to each tribe, and a superintendant over them, who is a man of skill and authority. Each tribe has five dogs, of a peculiar breed and well trained, on whose vigilance the safety of the sheep chiefly depends, during the night time, in the secluded regions through which they wander every season in search of food, where the wolf and the bear are not unfrequent. These dogs are intelligent and watchful, as will be seen by the subjoined extract from Murray's "Summer in the Pyrenees." *Mont Perdu*, or as the Spaniards call it, *Monte Perdido*, is one of the highest elevations in Aragon.

"The shepherds of Mont Perdu are particularly careful of their flocks, whose docility is remarkable. Not less so is the good understanding subsisting between the sheep and the dogs. The celerity with which the shepherds of the Pyrenees draw their scattered flocks around them is not more astonishing than the process by which they effect it is simple and beautiful. If they are at no great distance from him he whistles upon them, and they leave off feeding and obey the call; if they are afar off and scattered, he utters a shrill cry, and instantly the flock are seen leaping down the rocks and scampering towards him. Having waited until they have mustered round him,

the shepherd then sets off on his return to his cabin or resting place, his flock following behind like so many well-trained hounds. Their fine-looking dogs, a couple of which are generally attached to each flock, have nobler duties to perform than that of chasing the flock together and biting the legs of stragglers: they protect it from the attacks of the wolves and bears, against whose approach they are continually on the watch, and to whom they at once offer battle. So well aware are the sheep of the fatherly care of these dogs, and that they themselves have nothing to fear from them, that they crowd around them, as if they really sought their protection: and dogs and sheep may be seen resting together, or trotting after the shepherd in the most perfect harmony."

In order to show the great increase that has taken place in the importations of wool into British ports from Australia, as well from Southern Africa, within ten years ending with 1838, I subjoin a list of the respective quantities imported, taken from the Tables of Revenue, Population and Commerce of the United Kingdom, together with a per centage calculation exhibiting the progressive rise in each year.

	SYDNEY. <i>Woolmania</i>		SOUTHERN AFRICA.	
	lbs.	per cent.	lbs.	per cent.
1829	— 1838642	—	— 37619	—
1830	— 1967309	— 7	— 33407	— Decrease 12 $\frac{2}{8}$
1831	— 2493337	— 35 $\frac{1}{2}$	— 47868	— Increase 27 $\frac{1}{4}$
1832	— 2377057	— 29 $\frac{1}{2}$	— 83257	— „ 121 $\frac{1}{2}$
1833	— 3516869	— 91 $\frac{1}{2}$	— 93325	— „ 140 $\frac{7}{8}$
1834	— 3558091	— 93 $\frac{7}{8}$	— 141707	— „ 276 $\frac{5}{8}$
1835	— 4210310	— 129	— 191624	— „ 409 $\frac{3}{8}$
1836	— 4996645	— 171 $\frac{3}{4}$	— 331972	— „ 755 $\frac{7}{8}$
1837	— 7060525	— 284	— 468011	— „ 1146 $\frac{3}{4}$
1838	— 7837423	— 326 $\frac{1}{4}$	— 422506	— „ 1023

CHAP. III.

THE LAMBING SEASON.

AMONG the anxious solitudes which claim the fostering care of a good shepherd is to be numbered the lambing season, a period of sheep husbandry affording scope for one of the chief qualifications requisite to establish the character of the superintendant of a flock, from the due performance of which his reputation will be estimated.

Since, therefore, both merit and discredit await the result of this period, it may be presumed that all those on whom the care of a large flock devolves, and who feel the laudable ambition of being esteemed as first-rate shepherds, will be unremitting in their diligence and watchful care over their flocks, both by day and by night, during the whole of the lambing season. It is also reasonable to infer that the shepherd will endeavour to select an associate, who may be adequate to supply his place, and be his substitute during those hours when relaxation from duty is required.

At the approach of this season an appropriate station should be selected. The ewes ought then to be timely collected together, and every needful requisite anticipated and provided. Nothing indeed ought to be wanting, and every thing kept ready to administer to the wants of the exhausted ewes and feeble lambs. The shepherd will attentively watch and carefully afford succour to the distressed among all the objects of his assiduous care, and by due attention and ju-

delicious management administer seasonable aid to the helpless lamb and the debilitated ewe, by giving them warm milk, nourishing cordial and such like restoratives, while they are yet in a feeble state, and by so doing will often afford relief to many among the flock that would otherwise have been sacrificed through neglect and inattention.

The English sheep farmers generally possess spacious yards, with sheds, into which the breeding ewes are driven during a very hot, wet, or extreme cold season. There they remain so long as the unfavourable weather lasts, or while the lambing period continues. This kind of accommodation would prove of equal advantage to the Colonial sheep owners, as the sheds might afford shelter from the sun's rays, which would otherwise prove injurious to both the dams and their offspring.

The Colonial flock-master will therefore see the necessity of contriving the means of affording shade and shelter to the breeding flocks at this particular period, at the same time that he would do well to keep in mind the absolute necessity of having his flock driven into the shade at *all times during the hours of excessive heat*, or he will find himself exposed to severe losses from the effect of the sun's rays. This suggestion alone, it is to be hoped, will prompt the reflecting flock-master to guard against an evil which must inevitably be attended with the loss of property, besides adding to the catalogue the cruelty of exposing an helpless animal to the rays of a vertical sun.

A thoughtful owner of a breeding flock will take care to have a reserve portion of land, into which he will do well to have the ewes driven a few days pre-

vious to the commencement of lambing. Such a precaution will cause them to produce a greater portion of milk than they otherwise would, if compelled to traverse a wide extent of country for food. At the same time the usual pasture ranges will be ready for the occupation of the ewes and lambs, when in a fit state to be fed on them, both of whom should be well fed until the lambs are strong enough to follow their dams while in pursuit of scanty pasturage. This is a subject of great importance to the Colonial flock-master, and I have accordingly thought it expedient to lay more than ordinary stress upon it.

Having had the opportunity of submitting the foregoing pages to the perusal of an extensive and enlightened sheep-owner in England, I avail myself of his suggestion to add the following remarks, which I conceive deserve the particular attention of the pastoral colonist, being the result of experience and minute observation.

It is recommended that a flock should not exceed 500, and especially at the approach of the lambing season. At this period unnatural dams will often be found among the flock, and which, in the language of the shepherd, "will not take to their lambs." In such cases it is recommended to adopt the following method, which usually succeeds. Put the ewe with the lamb into a small pen and sprinkle the lamb with salt, which will entice the dam to lick her offspring, and thus raise in her breast a feeling of affection as tender and lasting as if it proceeded from a natural cause.

It may however occasionally happen that this process will not answer, and in that case the following

stratagem may be resorted to, and doubtless will produce the desired effect.—Secure two stakes in the ground, as near each other as to admit the neck of the ewe, and fasten the stakes near her neck with pliable twigs. When in this position she can feed, and may so remain without injury for several days. Should she prove obstinate and exercise her hind legs against her lamb, the shepherd may hold her legs during the time the lamb sucks. By this means as she derives relief she will ultimately take to her offspring, but at first care must be taken to supply her scantily with fodder. I need hardly mention that as the lambs drop, the ewe and her progeny ought to be removed from the rest of the flock, in order that both the shepherd and the ewe should know the affinity between the dam and the little stranger.

This is an important and an interesting moment for the owner of a flock, and I cannot resist the temptation of introducing to his notice the subjoined extract from Dyer's "Fleece." It describes that part of the rural economy of sheep under immediate consideration in so simple, feeling and yet graphic a manner, that such a picture cannot fail to be acceptable to the general reader.

Ah, gentle shepherd, thine the lot to tend,
 Of all that feel distress, the most assailed,
 Feeble, defenceless : lenient be thy care ;
 But spread around thy tenderest diligence
 In flowery spring-time, when the new dropt lamb,
 Tottering with weakness by his mother's side
 Feels the fresh world about him ; and each thorn,
 Hillock, or furrow, trips his feeble feet ;
 O guard his meek sweet innocence from all
 The innumerable ills that rush around his life ;

Mark the quick kite, with beak and talons prone,
 Circling the skies to snatch him from the plain ;
 Observe the lurking crows ; beware the hake,
 There the sly fox the careless minute waits ;
 Nor trust thy neighbour's dog, nor earth, nor sky ;
 Thy hosom to a thousand cares divide—
 Eurus oft slings his hail ; the tardy fields
 Pay not their promis'd food ; and oft the dam
 O'er her weak twins with empty udder mourns,
 Or fails to guard, when the hold bird of prey
 Alights, and hops in many turns around,
 And tires her also turning : to her aid
 Be nimble, and the weakest, in thine arms,
 Gently convey to the warm cote, and oft,
 Between the lark's note and the nightingale's,
 His hungry bleating still with tepid milk ;
 In this soft office may thy children join,
 And chaitable habits learn in sport :
 Nor yield him to himself ere vernal airs
 Sprinkle thy little croft with daisy flowers.
 Nor yet forget him : life has rising ills ;
 Various as ether is the pastoral care ;
 Through slow experience, by a patient breast,
 The whole long lesson gradual is attained,
 By precept after precept, oft receiv'd
 With deep attention.

CHAP. IV.

THE AGES OF SHEEP.

THE proprietors of sheep and other domestic stock usually estimate their respective breeds according to their ages. It is therefore essentially requisite that the buyers of live stock should possess some general principle of knowledge on this subject, in order to protect themselves from the machinations of those who too frequently resort to frauds, in order to deceive the credulous and unwary. I shall, however, in the present instance confine my remarks to the ages of sheep, and endeavour to trace some general outline, by the aid of which attentive settlers may be enabled to form a tolerably correct judgment of the ages of their stock and thus prevent any material deception from being practised upon them.

I am the more anxious to press these remarks on the attention of my readers, as I lately accompanied a friend to inspect some Saxony rams, bought in that country at a high price for the purpose of being shipped to one of the British Colonies ; and on inspection they proved to be aged sheep, which was clearly demonstrated by their incisors, or front teeth being broken, as well as by other tokens of age. They are thus rendered unfit for grazing on the short, dry and scanty herbage commonly found in the Colonies, or browsing on the shrubs to which sheep and cattle are frequently compelled to have recourse during a dry season.

It is a very general custom in England to calculate

the age of sheep from the shearing season, as for instance, the chief flocks in the United Kingdoms are lambled between the end of January and March, and shorn in June and July. Our owners estimate the ages of their flocks from the latter period, as may be seen from the following terms by which the ages of sheep are calculated.

During the time the lambs run with their dams, the male is called either a "tup lamb," or "ram lamb." From the period of his being weaned to the shearing season, he is classed under different denominations, such as a "tup hog," or "teg hog," and when deprived of his fleece he is very generally distinguished by the term "shearling tup, shearling hog, or shearling teg." After being shorn a second time, he is called a "two-shear tup, two-shear hog, or two-shear teg," and when a year older he bears the above names with the addition of another year to his age.

The ewes are called "ewe-lambs" until weaned, and after that period "shearling ewes, two-shear ewes, and three and four shear ewes," &c. Sometimes the ages of sheep are ascertained by their teeth, a theory that well deserves the attention of those persons on whom the charge of selecting sheep may devolve, as by this means the buyer will be enabled to adopt a system of "double entry," as applied to book-keeping, by first hearing the report of the owners or sellers of sheep regarding their ages, calculated from the shearing seasons, and then examining the mouths of the animals, so as to deduce from the state of their teeth whatever confirmation may be required.

Wishing to convey all the information I could upon

this point, in the scantiness of my materials I was induced to resort to books for authorities, and the following are the extracts which I have thought acceptable. The first is from an old author, who lived towards the end of the 17th century and whose name is not recorded. The second is taken from a modern publication.

“ If you will know the age of your sheep, look in his mouth, and when he is one shear, he will have two broad teeth before; when he is two shear, he will have four broad teeth before; when he is three, he will have six; and when he is four shear, he will have eight; and after these years his mouth will begin to break. For touching the evenness and unevenness of the mouth, it is uncertain, and faileth on many occasions. So their broad teeth, I say, a sheep puts up sooner or later, as they are bad, or well kept. If kept well, they put them up sooner, if bad, later.”

“ The age of sheep may be known by examining the front teeth. They are eight in number and appear during the first year, all of a small size. In the second year the two middle ones fall out and their place is supplied by two new teeth, which are easily distinguished by being of a larger size. In the third year, two other small teeth, one from each side, drop out, which are replaced by two large ones; so that there are now four large teeth in the middle, and two pointed ones on each side. In the fourth year the large teeth are six in number, and only two small ones remain, one on each side of the range. In the fifth year the remaining small teeth are lost, and the whole front teeth are large. In the sixth year the whole begin to be worn, and in the seventh, some-

times sooner, some fall out or are broken."—*Mountain Shepherd.*

These few rules may suffice for general purposes. Observation and practice are however essential to those who are desirous of becoming familiar with the ages of sheep; nor is there any indication in the appearance of the teeth that ought to be overlooked. This study, I may venture to add, is a pleasing one, and will well repay the toil of the individual who may devote his time to it. In this I speak from experience. Besides my general attention to wools, I have supplied both sheep and shepherds to various parts of the globe, and in no one instance have I received complaints, either as regarded the age and breeds of the sheep selected, or the parties to whom I recommended that their care should be confided.

CHAP. V.

WASHING THE FLEECE ON THE SHEEP'S BACK.

WHEN the season arrives for the flocks to be disburthened of their fleece, an inclosure should be assigned, into which the sheep should be driven preparatory to the commencement of the operation of washing. This place should be carefully cleared of thistles, burs and dead grass, indeed of every thing liable to adhere to the fleece. In Saxony it is cus-

tomary to immerse the sheep into water the day previous to washing, which is done for the purpose of damping the fleece and rendering it more accessible to the operation of the fluid; although it must be acknowledged that this process is likely to occasion cold to the animals, which might probably be avoided by the adoption of another method.

Suppose, for example, the sheep intended to be washed were confined within a narrow circle, so as to render it possible to sprinkle them regularly over with a small engine, or watering pot. By this simple process the wool would be sufficiently saturated with water, so as to enable the shepherd to proceed to the next stage of washing, which in hot climates should be carried on in the shade, or under a temporary awning, excessive heat having in numerous instances proved injurious both to the shepherd and the objects of his care. The persons employed can besides do more labour whilst thus protected from the vertical rays of the sun.

In the way of contrast it may be proper to explain the mode of washing sheep, practised by English farmers, which varies according to the locality, or custom of the country in which they reside. In some counties tubs are used, and this method is very generally adopted in districts where ponds and streams are not at hand; indeed when the natural advantages of flowing water do present themselves, the artificial substitute of ponds and tubs is often preferred, being found to answer every purpose of cleaning the wool. Experience has often shewn that wool washed in pond water, of rather a dirty appearance, is preferable the generality of streams. Those more especially

which contain a carbonate of lime should be avoided, as the application of such water decomposes the yolk of the wool, besides counteracting the soapy properties and oily matter found in the fleeces, thus rendering the wool harsh to the touch, a property which extends to any cloth made of the material so prepared, and consequently deteriorates its value.

The author has consulted persons who have superintended the washing of some of the most esteemed flocks in Saxony, and ascertained that there the farmers give a decided preference to pond, or tub washing. They assign the same reasons as the English farmer, alleging that the animal grease which escapes from the wool produces the same effect on the water as soap, and tends to soften it, thus enabling the washer to perform his task with greater facility.

This idea may not be altogether correct; but the great *desideratum* avowedly is, to obtain water of the softest quality, or, in other words, such as is most divested of all particles of metallic salts, which are easily detected by ascertaining whether soap curdles when thrown into the fluid. Spring water, which is besides of a colder nature, ought consequently to be avoided.

At Tetney, near the sea coast in Lincolnshire, the farmers, for a considerable distance round, wash their sheep in a small river falling into the Humber, which, although derived from a mineral origin, flows through an immense tract of boggy land, and thus increases its stream by an accumulation of stagnant, or soft water, which entirely counteracts the primitive defect. While the washing season lasts, it is noticed that the fishes frequently die near the spot where the

process is carried on, doubtless owing to the acidity communicated to the water from the perspiration, or excretion by the cuticular pores of the animal immersed.

Spring water, I repeat, is objectionable, and the injunction thus conveyed is perhaps the more imperative on persons established in new countries, where agriculture has not yet compelled the farmer to resort to the arduous expedient of draining lands; or where the power of nature, in her metallic operations within the bowels of the earth, has imparted to the rippling stream a noxious quality, against which the flock-master is perhaps alone invited to guard. It would be unnecessary to add that ponds, derived from rain water, would be preferable to all others, for the reasons before alleged.

Presuming the sheep to have been properly washed, they are next to be turned out into suitable inclosures, where they should remain three or four days, in order that nature may restore to the fleece a portion of the animal yolk, of which it had been deprived by the process of washing. This precaution will besides enable the wool to retain its quality for a longer period than if perfectly freed from the oleaginous property, and it will also work softer and mill better; at the same time that the wool ought not to be allowed to remain longer than a few days on the sheep's back, after washing, as it soon regains the yolk of which it had been for the moment deprived.

From these observations it will be seen that the owner is to exercise his own judgment on such occasions; and if, at the period of washing, the weather should prove wet, or damp, a longer time will be

requisite to dry the wool on the sheep's back ; but, in the opposite case, should dry and hot weather succeed, a shorter interval will consequently suffice.

It will scarcely be deemed necessary to add that a difference, as regards time, is to be made between a short fine-woolled sheep and those which produce combing wool. The one will obviously require a longer time to dry than the other, and the flock-master must therefore use his discretion in these cases, it not being possible to adduce any specific directions for his guidance.

It may not, however, be out of place to offer one more suggestion to sheep-masters whose flocks are numerous, and especially those who feel the laudable ambition of improving their fleeces and establishing their reputation in the markets to which their produce may be sent for sale. In the interval that occurs between the washing and shearing, or as soon as the fleece is dry, I recommend a careful examination of it while yet on the sheep's back, and whenever the wool is deteriorated by the mixture of any coarse and inferior quality, or when dead, black or grey hairs are interspersed in the fleece, it would be advisable to separate sheep of this class and dispose of them to the best advantage, as their retention might prove injurious to the rest of the flock.

There is still another improvement which it may not be amiss to suggest. If the owner again examines the wool of the remaining portion of his flock, he will be in a situation to divide and class them into two kinds, viz., long woolled and short woolled sheep, taking care to provide them with a superior woolled tup, of a pure race, selected from such breeds as

suit the nature of the pasturage and the taste of the owner.

I cannot conclude this division of my subject better than by quoting the annexed lines from Dyer's "Fleece."

" Shear them the four or five return of morn,
Lest touch of busy fly-blows wound their skin ;
Thy peaceful subjects without murmur yield
Their yearly tribute ; 'tis the prudent part
To cherish and be gentle, while ye strip
The downy vesture from their gentle sides
Press not too close ; with caution turn the points ;
And from the head in regular rounds proceed :
But speedy, when ye chance to wound, with care
Prevent the wingy swarm and scorching heat ;
And careful house them, if the lowering clouds
Mingle their stare tumultuous through the gloom,
Then thunder oft with ponderous wheels rolls loud,
And breaks the crystal urns of heaven ; adown
Falls streaming rain."

CHAP. VI.

SHEEP SHEARING.

WE learn from Strutt that there were two festivals observed annually by farmers in England, regularly in the spring and at the end of summer, or the beginning of autumn, but not confined to any particular day. The first is Sheep-shearing—the second Harvest Home. Both of these periods were, in ancient times,

celebrated with feasting and a variety of rustic pastimes. "At present," he adds, "excepting a dinner, or more frequently a supper, at the conclusion of the Sheep-shearing and the Harvest, we have little remains of these former customs."

That the custom of shearing the fleece was adopted in the earlier ages may be seen by referring to Holy writ, where in the 31st chapter of Genesis, 19th verse, it is said—"And Laban went to shear his sheep." That the period of sheep-shearing was also held as a season of festivity may be seen in the 35th chapter of the 1st book of Samuel, 4th verse—"And David heard in the wilderness that Nabal did shear his sheep;" and in the 10th and 11th verses, "And Nabal answered David's servants and said, who is David? and who is the son of Jesse? There be many servants nowadays that break away every man from his master. Shall I then take my bread and my water and my flesh, that I have killed for my shearers and give it unto men whom I know not whence they be?" And, again in the 2nd of Samuel, 23rd verse, "And Absalom came to the king and said, behold now thy servant hath sheep-shearers, let the king I beseech thee and his servants go with thy servants."

These extracts clearly show that the season of sheep-shearing was considered by the Jews as a period of gladness and gaiety, when the sheep-owners and the shepherds mingled and rejoiced together; nor can we withhold the conjecture that, on such occasions, when a numerous assemblage of spectators was collected, some feat of superior skill in the rustic art of shearing was displayed. It is not indeed unlikely that a corresponding reward was then bestowed

upon those who excelled in the process; nay, it is only reasonable to suppose that the shepherds, charged with the superintendance of the flocks, and who in the performance of their duties had evinced more than ordinary care in pasturing their sheep, as well as in protecting them from the "beast of the field and birds of prey," received from the master that meed of praise and remuneration due to their merits.

From these natural conjectures I shall proceed to suggest the following observations on shearing the fleece, and although I am aware that sheep-masters in the British Colonies must have numerous difficulties to contend with in this branch of husbandry, owing to the scarcity of experienced hands, still it may be useful to point out the injury which wool sustains by being shorn either unskilfully, or too early in the season, that is, before the wool has arrived at a state of maturity.

The unskilful operator impairs the fleece by not shearing close to the pelt, or skin, which reduces the value of the wool and often renders it unfit for the purposes to which it would otherwise have been adapted. For instance—long wool, suitable for spinning, if not shorn close to the skin is materially impaired in value for combing, or if applied to that purpose is bought at reduced prices, in consequence of its being injudiciously shorn. The great art of shearing is mainly confined to that of clipping as near the pelt as possible, without snipping the skin, and when that does perchance occur, an approved unguent should be at hand, in order that it may be applied to the part injured.

It is comimon in Germany to fold the sheep after

they have been deprived of their fleeces, a custom worthy of imitation in all variable climates, as it affords them the means of huddling together and by so doing prevents their taking cold, which often happens after they have been shorn.

To this sheep-owners in the British Colonies may perhaps reply that, with them, there is no necessity to use any such precaution, or to resort to the expedient of folding their flocks after shearing, as they live in a temperate clime. Caution and foresight are nevertheless equally required. Let a considerate person only figure to himself the distressed state of animals, just deprived of their covering, and then exposed to the rays of a vertical sun. Such an exposure, if attributable to neglect, would not bear reflection.

It would therefore be advisable for sheep just shorn in Australia, Tasmania and Southern Africa, to be folded and placed in the shade, or under a covering, and retained there during the heat of the day. By having recourse to these salutary precautions, the health and lives of a large portion of them would be preserved from diseases, to which inattention too often exposes them.

It may therefore be of consequence to those persons whose flocks are numerous, to take this suggestion into their serious consideration, and ascertain whether it would not prove to their advantage to have their sheep shorn after the following manner.—In the first place, to shear from either the lambs, or sheep, all the coarser parts of the fleeces, such, for example, as are produced on the hinder quarters and known by the name of breech, and afterwards that from the tail, which being coarser and inferior than what is pro-

duced on either the back, or sides, it might easily be kept separate and packed into bales by itself. The wool shorn from the back and sides would, by this exclusion, be materially enhanced in value.

Both kinds should then be packed in separate bales and marked accordingly. It would also be desirable to have the teg fleeces, that is, the produce of unshorn lambs, and such as are of a long staple and adapted for spinning, kept distinct from the shorter qualities, as it would afford the clothier (who is the consumer of short wool) the means of selecting such as he may require, without being encumbered with a description of wool, more valuable if applied to combing purposes, and *vice versa*.

The advantages likely to result from some arrangement of this kind are not wholly confined to the remarks above penned. Its beneficial influence would be further extended to both classes of buyers, particularly during the inspection of the various sorts previous to the public sales, as the competitors would thereby be enabled to examine the wool with greater accuracy and less trouble than at present. They would not have to extract from the bags so large a proportion of their contents as is now found necessary, in order to ascertain what portion of the bale contains wool for clothing, or combing purposes.

On this subject I have no hesitation in affirming that the system here suggested deserves the most serious consideration.

The custom of shearing the breech and tail, early in the season, or as soon as the warm weather commences, is also worthy of imitation, as it contributes to keep the animals both cool and clean.

It is equally desirable that strict attention should be paid to the packing of the fleeces. They should not be pressed too hard in the bale, so as to prevent the extraction of a fair sample, when required; and whenever there is any necessity to pack two descriptions of wool in the same bale, as for instance, "washed fleeces" with those which are "unwashed," a red or black line should encircle the bag, indicating the quality of the wool which it contains. The Germans adopt the method of marking the weight of the tare at a corner of the bag, a practice certainly worthy of imitation; but there should always be a liberal allowance, as in the course of transit an increase of weight usually follows.

In order to convey to the mind of the inexperienced settler the array attendant on English sheep shearing, I shall here insert the following extract, taken from a late number of the Quarterly Journal, as it represents the process with admirable spirit and fidelity.

"A barn, or shed, into which plenty of light can be admitted near the shearers, should be selected, and a part of the floor covered with a large canvass sheet, on which two shearers can operate. The sheet should be nailed down, and a little straw placed under it to soften it, as a cushion. The floor of the barn should be swept out quite clean, and a light broom should be at hand to sweep the sheet when necessary.

"Every thing being arranged, the shearer seizes a sheep, and sets it on its rump, and keeps it in this position by resting the back against his own legs. He removes all straws, thorns, burs, &c. that may have adhered to the wool, and whilst thus held, the wool is removed from the head and neck so far as the

shoulders, and also from the belly, the *scrotum*, and the edge of the thighs. The head of the animal is then bent down, sideways, and the shearer, placing a leg on each side of the neck of the sheep, pushes out the opposite ribs by pressing his knees gently against the ribs that are nearest to him.

“ He next shears the wool from the far side with his left hand, from the belly to the middle of the back and as far down as the loins. The sheep is now turned and the right hand employed to shear the wool from the near side. The sheep is then laid flat on its side, and kept down by the shearer with his face towards the rump of the sheep, resting his right knee on the ground, or behind, or below the poll; the head or neck of the sheep is thus confined by his right leg, while he uses his right hand to shear the wool from the hind quarter.

“ In this way the clips of the shears will appear in concentric rings round the body of the sheep. The dirty portions of wool about the tail are then removed by the shears, and kept by themselves. The outside of the fleece is folded inwards, beginning at the sides and narrowing the whole fleece into a stripe, about two feet wide. This stripe is then rolled firmly up from the tail and towards the neck, the wool of which is stretched out and twisted into a rope, and wound round the fleece to give it a cylindrical shape.”

During the operation of shearing an amusing scene is presented to the admirers of nature and the lovers of pastoral scenery, by witnessing the ewes, when deprived of their fleeces and restored to their lambs. The former bleat plaintively and as if fully sensible of the injury sustained, while the latter, responding to

the call of their dams, hesitate to approach on beholding them in so new and strange a form. This scene is admirably described in Cuvier's "Animal Kingdom" by Griffiths, vol. iv. page 315, in these words.

"He who, in shearing time, when the lambs are put up separately from the ewes, witnesses the correct knowledge these animals have of each other's voices; the particular bleating of the mother, just escaped from the shears, and the responsive call of the lamb, skipping at the same moment to meet her; its startling attitude at the first sight of her altered appearance, and the re-assured gambol at her repeated voice and well-known smell; he who observes them, at these moments, will not refuse them as great a share of intelligence as their ancient subjugation, extreme delicacy and consequent habitual dependance on man's will allow."

Whilst the flock is undergoing the operation of shearing, a man should be in attendance to receive the sheep from the shearer, when stripped of its fleece. This person should inspect the animal minutely, for the twofold purpose of seeing if he can discover insects' eggs on any part of the body, especially at the roots of the horns, and by the aid of a suitable brush the eggs, or insects, may be easily dislodged and destroyed. He must also ascertain whether any injury has been inflicted by the shears, which occasionally happens to the most careful and expert shearers, owing to the struggle of the victim while under the operator's grasp, as well as through other incidental causes, and wherever a snip of the skin occurs, a mixture of rosin and linseed, or any other more approved preparation, should be at hand and applied to the injured part.

This timely application will preserve the animal from the torture to which it would otherwise be subjected, if suffered to waver under a vertical sun, surrounded by myriads of flies and other insects. Timely attention in this respect will be amply recompensed to the owner of the flock. Reason indeed will lead the reflecting mind to infer that those flocks must thrive best which are most at their ease.

Wishing to obtain practical information regarding the marking of sheep, I some time ago addressed inquiries to an eminent owner of flocks in Sussex, and I here present the result in his own words.

“It has been the general practice in Sussex to mark our sheep with pitch, which I know to be injurious to the wool, as well as giving trouble to the sorter. I have known red ochre mixed with tar to be used, which I believe is equally as injurious as pitch, and does not make so neat a mark, and it besides smears the wool, and I suppose is as difficult to wash clean as pitch.

“I do not know that the red ochre, if used at the time of shearing, is nearly or quite washed out by the next clipping time, and I suppose it does not hurt, or discolour the wool. I gave my lambs a particular mark in the ear, by which means I could make twenty different marks; but ear marks are not to be seen except you are near the sheep, but always may be observed on close inspection and never wear out. I would recommend marking either with red ochre, or pitch, not as is frequently done with the latter, by making a broad mark, but a small dot, or spot, on the wool at some particular part of the sheep. If done with pitch, I used to make the spot with a stick,

rounded at one end to about one inch in diameter, and dip this end into melted pitch, which makes a neat spot that can be cut off without much injury to the fleece. If marked with red ochre, a similar spot may be made."

To the same respectable authority I am indebted for the subjoined remarks on the clipping of lambs.

"Many Southdown farmers are of the same opinion about clipping their lambs as those in Herefordshire, who think the lambs do not do so well unclipped as when clipped. The reason given is, that the spiry top of the lamb's wool imbibes the wet and dirt, and that they are more troubled with the fly than when clipped."

Having entered thus minutely into the washing and shearing of sheep, I cannot close this part of my labours better than by selecting the following inimitable lines from Dyer's "Fleece." They are extremely applicable, and at the same time highly creditable to the feelings and discernment of the poet. It would in fact be desirable to have a cheap edition of Dyer's rural poems published for the use of shepherds and agriculturists in England, as well as in our grazing Colonies.

"Sheep no extremes can bear; both heat and cold
 Spread sores cutaneous; but, more frequent, heat;
 The fly-blown vermin, from their woolly nest,
 Press to the tortured skin, and flesh, and bone,
 In littleness and number dreadful foes.
 Long rains in miry winter cause the halt;
 Rainy luxuriant summers rot your flock,
 And all excess, e'en of salubrious food
 As sure destroys, as famine, or the wolf
 Inferior theirs to man's world roving frame,
 Which all extremes in every zone endures."

CHAP. VII.

S K I N W O O L .

As these pages may probably be perused by persons who are desirous of making themselves acquainted with the method practised in England in the extraction of wool from the skins of slaughtered sheep, or those that have died a natural death, I sought information on the subject from individuals conversant with this branch of business, known under the denomination of fellmongers, and the following is the result.

The skins should be obtained as soon as possible after the death of the animals, when this process is usually adopted. The first operation is to place the skins, one by one, on a flat stone and to beat the parts round the head with a wooden mallet, for the purpose of loosening any clots, or tufts of coagulated blood adhering to them. The skins thus prepared are then thrown into a vat of water to soak, in order to soften any substance, or concretion, which might attach to the wool. After remaining immersed from 10 to 12 hours, the operation of washing commences by the following method.

This process is accompanied by beating the skin with a pole, while in the water, which is done for the purpose of removing any dirt which the wool may still retain, it being desirable that it should be made as free from impurities as possible. When this operation is concluded, the skins are placed one upon another, to the number of 20 or 30, for the purpose of

draining, and when this is accomplished they are laid, one by one, on a table, with the flesh or pelt side uppermost, when a strong solution of lime and water should be applied to the fleshy side of the skin.

The brush used on such occasions is similar to the one which whitewashers work with in colouring rooms, and when thus properly smeared over by one person, another should be in attendance to fold the skins, one by one, taking care that the pelt sides are placed inwards, and so soon as this is done they are put on poles and laid about six deep, one above another. This mode is adopted for the purpose of causing the skins to heat, preparatory to the wool being pulled, as the process operates in such a manner as to open, or loosen the pores of the skin, by which means the wool is more readily drawn from it.

The day after the skins have undergone the operation of liming and washing, they are taken down from the pole, to shake off any water from the extremity or points of the wool, which if suffered to remain would tend to discolour it. The skins however remain on the poles until the pores are partially relaxed, which may be ascertained by trying to separate the wool from the skin, as it will leave the pelt when in a proper state of preparation. The skins are then placed in an enclosed shed, or warehouse, from which the air is excluded, and each skin suspended by the nostril, or nose, to afford greater facility in the operation of pulling. Before this commences, a lad is usually employed to cut off the pitch, or any hard substance that may adhere to the skin, taking care not to shorten the wool.

Previous to the operation of pulling being com-

menced, the skins should be inspected and assorted, somewhat after the following method. Those which are found deteriorated with kemp or dead hairs intermixed with the wool, or marked with party colours, should be laid aside by themselves and kept separate from those which are entirely white. It would in fact be advisable, where the skins are numerous, to separate those which produce long wool from others of a shorter growth, as each class of wool is by the manufacturer applied to different purposes.

There are very few party-coloured sheep in English flocks, and not many interspersed with dead, or kemp and black hairs. When any perchance do appear, they should be separated from the rest and their wool kept distinct, any intermixture being extremely detrimental to the consumer, who carefully avoids buying objectionable wool, except at low prices, and to this particular minute attention should be paid by all those who aim at producing skin wool of an approved quality. The coarse hairy parts about the legs should in like manner be first withdrawn and thrown aside, being entirely useless to the English manufacturer and injurious to his interest.

When the skins have been properly limed and folded, in the course of two or three days, when the weather is warm, they are generally in a fit state to be pulled, which being done, the wool should be placed in a loft, or open warehouse, and exposed to a free current of air, to dry and become fit for packing, as otherwise it might be discoloured by heat, or even ignited, of which I have myself seen a most remarkable instance, by which means a considerable amount of property was destroyed.

During a wet season, or in the winter months, the skinner usually has recourse to an enclosed warehouse, heated by iron pipes raised perpendicularly from the floor, in which a large fire is made of coke. These pipes are passed through the several floors where wool is exposed for drying, and at periods when the sun does not afford sufficient warmth to the atmosphere, it is customary to place the skins in an artificial heat of this kind, which proves a substitute for the sun's rays and prepares the skin for the process of being pulled.

The English fellmonger draws out the wool from the pelt by hand, the men placing the skins before them on an inclined board; but it occasionally happens that the surface will not afford the requisite facility for the extraction of the whole, without the aid of an implement, called a pulling knife, which the operator uses in order to assist him in removing the wool from those parts of the skin which have not been sufficiently decomposed, owing to their not being so equally saturated as the rest.

The skins, after being divested of their wool, are usually placed in a pit, or vat, filled with lime water, of a moderate degree of strength, compared with that usually applied to skins with the wool attached to them. There they remain two or three days, for the purpose of extracting any portion of the grease usually found attached to the pelt. Thence they are removed by long iron tongs to a stronger solution of lime water, and daily drawn up and exposed to the air, for several hours during the day, but out of the sun's rays in hot weather. They are then again thrown into the prepared liquid, care being taken to

stir up the water previous to their immersion. In this state they continue three or four weeks, or are disposed of in the intermediate time to leather-sellers, parchment makers, or glue manufacturers, according to their various sizes and condition.

I may still be allowed to say a word or two on the best method of preserving the skins of sheep that may die in secluded parts of the country, afar from the busy haunts of man. In these situations, where conveyances cannot easily be obtained, it may be desirable to know what mode should be adopted in order to preserve the skins from injury until they can be conveniently forwarded to their intended destination.

The skin ought to be taken from the animal as soon as dead, and while in a green state, that is, before it shrivels and contracts, it should be stretched out on the ground in the shade, with the fleshy side uppermost, and fastened with wooden pegs at the extremities, as when dried smooth it will keep for months without injury. The same method may be pursued by simply fastening the skin round a tree with nails at the extremities, which would answer every purpose.

The names given to the various kinds of wool obtained from slaughtered sheep, when prepared for the consumer and usually known in the London market under the denomination of "Skin Wool," are technically as follows—

Best quality . . . Super Comb	} 3 Inches in length and upwards.
Second ditto . . . Fine ditto	
Third ditto . . . Kindly ditto	}
Lusty	
Lusty small	

The following are the names of the wools produced from down skins, chiefly applied to clothing purposes.

Super Head.....	}	from an inch to 1½ inch in length.
Fine ditto		
Kent ditto ...	}	longer, and until fit for combing.
Broad ditto		
Ordinary	}	from the breech and other inferior parts of the skin.
Super Grey		
Fine ditto		coarse.
Shank, or Leg Grey.		

Before I close my remarks on the management of sheep in reference to the Colonies, it may not be amiss to offer a few suggestions on what in England is called a *homestead*, or, in Colonial idiom, a *station*, that is, the farm-yard and out-houses for sheep, cattle, &c. together with the other buildings requisite for the accommodation of the colonist's family, or the superintendant of his stock.

Those persons who have attentively noticed the homesteads of various farms in England and Scotland, will have observed that many farmers' dwellings are situated on elevated spots, while we see others standing at the very bottom of a hill, where the drainage is difficult and the situation consequently unhealthy both to man and beast. Were an inquiry instituted, it would probably be found that most of these buildings were erected by the farmer's ancestors, otherwise it is only reasonable to suppose that a more preferable locality would have been selected, either near the bottom of the hill, or on the declivity, where drainage might be managed with greater ease and yet accessible to a plentiful supply of water.

The colonial settler may derive advantage from past

errors by taking all these points into his serious consideration, before he fixes his intended abode and erects a station. Above all things the spot should be chosen with due regard to convenience. The margin of a river, when it is attainable, is the most eligible, as the settler so located will possess one of the chief advantages, essential, it may be said, to a farm-house, that is, a plentiful supply of water. At the same time it must be borne in mind that in tropical climates large rivers are liable to be overflowed, and on this account more than ordinary caution ought to be observed in the choice of a building spot. I shall however refrain from offering any advice on the description of structure that may be required, as a person embarking in such an undertaking as this will be influenced by the number of his stock, as well as the means at his disposal, but in all instances economy ought to be the order of the day.

Before I close this part of my subject, it may not be amiss to suggest that the watering places in the sheep-runs ought to be paved, or gravelled, so as to render it impossible for the sheep to stir up the water with their feet and make it muddy. Naturally they are extremely clean, invariably refraining from drinking when the fluid is mixed with impurities, and this precaution is the more necessary in a country where lagoon, or pond-water is chiefly used. In some parts of England, where the ground is soft and miry, the sheep-ponds are bedded with chalk; but, even with us, this nicety has not received all the attention which it deserves.

It may be proper to add, that I have often felt surprised on observing that the productive vegetable,

known by the name of Lucern, is not more generally cultivated near the homestead of the English farmer. It is a prolific and nutritious plant, well calculated for the food of cattle and horses, and my attention was more particularly attracted to it, from having recently noticed a paddock, perhaps of not more than an acre and a half, adjoining a friend's house in Oxfordshire, which supplied fodder for two cows and as many horses during a period of six months, that is from April to October.

This plant is not usually given to cattle the day on which it is cut, but left to the following one. Both kinds of stock are exceedingly fond of it, and it has been ascertained that cows supplied with it give an increased quantity of milk. Horses, subsisting on this food, will perform a moderate share of work without the addition of corn.

Lucern requires a good loamy soil and proper management, particularly careful weeding. As soon as it is cut, the leaf reappears and the plant is again soon covered with a luxuriant vegetation. It is well adapted to our grazing Colonies, and as the roots extend to a considerable length downwards, it suffers less from a continuance of drought than most other plants. Lucern is besides a durable vegetable, and although it usually requires to be resown every six or seven years, there are instances of its lasting ten, and even twelve years.

Although the interior of Australia has not yet been minutely explored, and roads do not yet connect the scattered population of a region so broken and extended, the expedition of Major Mitchell to the rivers Darling and Murray, followed up by subsequent re-

searches, has made the Colonist acquainted with the surface and qualities of the land best adapted for the pasturage of sheep. The Major indeed performed his task with a scientific eye, and it would only be common justice to him to extract from his interesting narrative a few of the many valuable remarks which he was enabled to make on the capabilities of the Colony for grazing and agricultural purposes, the courses of the principal rivers and the properties of the soil. The work itself is too voluminous and expensive to be generally found on the farmer's table.

“ Land near Sidney has always been preferred to that which is remote, where the quality may have been equal, yet throughout the wide extent of twenty-three millions of acres, only about 4,400,000 acres have been found worth having, while the owners of this appropriated land within the limits, have been obliged to send their cattle beyond them for the sake of pasturage.

“ From the labour necessary to form lines of communication across such a country, New South Wales still affords an excellent field for the employment of convicts, and although some of the present colonists may be against the continuance of transportation, it must be admitted that the increase and extension of population and the future prosperity of the country depends much upon the completion of such public works.

“ This colony might thus extend northward to the tropic of Capricorn, westward to the 145th degree of east longitude; the southern portion having for boundaries the Darling, the Murray, and the sea coast. Throughout the extensive territory thus

bounded, one third, probably, consists of desert interior plains; one fourth, of land available for pasturage or cultivation; and the remainder, of rocky mountain, or impassable or unproductive country. Perhaps the greater portion of really good land within the whole extent will be found to the southward of the Murray, for there the country consists chiefly of trap, granite, or limestone. The amount of surface comprised in European Kingdoms, affords no criterion of what may be necessary for the growth of a new people in Australia. Extreme differences of soil, climate and seasons, may indeed be usefully reconciled and rendered available to one community there, but this must depend on ingenious adaptations, aided by all the facilities man's art can supply in the free occupation of a very extensive region. Agricultural resources must be ever scanty and uncertain in a country where there is so little moisture to nourish vegetation. We have seen, from the state of the Darling, that all the surface water flowing from the vast territory west of the dividing range and extending north and south between the Murray and the tropic, is insufficient to support the current of one small river. The country southward of the Murray is not so deficient in this respect, for there the mountains are higher, the rocks more varied, and the soil consequently better; while the vast extent of open grassy downs seems just what was most necessary for the prosperity of the present colonists, and the encouragement of emigration from Europe.

“ Every variety of feature may be seen in these southern parts, from the lofty alpine region on the east, to the low grassy plains in which it terminates

on the west. The Murray, perhaps the largest river in all Australia, arises amongst those mountains, and receives in its course various other rivers of considerable magnitude. These flow over extensive plains in directions nearly parallel to the main stream, and thus irrigate and fertilize a great extent of rich country. Falling from mountains of great height, the current of these rivers is perpetual, whereas in other parts of Australia the rivers are too often dried up, and seldom indeed deserve any other name than chains of ponds.

“ Hills of moderate elevation occupy the central country between the Murray and the sea, being thinly or partially wooded, and covered with the richest pasturage. The lower country, both on the northern and southern skirts of the hill, is chiefly open, slightly undulating towards the coast on the south, and in general, well watered.

“ The grassy plains which extend northward from these thinly wooded hills to the banks of the Murray, are chequered by the channels of many streams falling from them, and by the more permanent and extensive waters of deep lagoons, which are numerous on the face of these plains, as if intended by a bounteous providence to correct the deficiencies of a climate otherwise too dry for an industrious and increasing people, by preserving in these abundant reservoirs the surplus waters of the large river, and indeed a finer country for cattle stations than this can scarcely be imagined.

“ In the western portion small rivers radiate from the Grampians, an elevated and isolated mass, presenting no impediment to a free communication through the fine country around its base. Hence that enor-

mous labour necessary in order to obtain access to some parts, and for crossing continuous ranges to reach others, by passes like those so essential to the prosperity of the present colony, might be in a great degree dispensed with in that southern region.

“ Towards the sea-coast on the south, and adjacent to the open downs between the Grampians and Port Philip, there is a low tract consisting of very rich black soil, apparently the best imaginable for the cultivation of grain in such a climate. On parts of the low ridges of hills near Cape Nelson and Portland Bay, are forests of very large trees of stringy bark, iron bark, and other useful species of eucalyptus, much of which is probably destined yet to float in vessels on the adjacent sea.

“ The character of the country behind Cape Northumberland affords fair promise to a harbour in the shore to the westward. Such a port would probably possess advantages over any other on the southern coast, for a railroad from thence along the skirts of the level interior country would require but little artificial levelling, and might extend to the tropic of Capricorn, or even beyond it, thus affording the means of expeditious communication between all the fine districts on the interior side of the coast ranges, and a sea-port to the westward of Bass's Straits.

“ The Murray, fed by the lofty mountains on the east, carries to the sea a body of fresh water sufficient to irrigate the whole country, and this is in general so level, even to a great distance from its banks, that the abundant waters of the river might probably be turned into canals, for the purpose either of supplying natural deficiencies of water at particular places,

or of affording the means of transport across the wide plains.

“ The high mountains in the east have not yet been explored, but their very aspect is refreshing in a country where the summer heat is often very oppressive. The land is, in short, open and available in its present state for all the purposes of civilized man.

“ We traversed it in two directions with heavy carts, meeting no other obstruction than the softness of the rich soil, and in returning over flowery plains and green hills fanned by the breezes of early spring, I named this region *Australia Felix*, the better to distinguish it from the parched deserts of the interior country, where we had wandered so unprofitably and so long.

“ This territory, still for the most part in a state of nature, presents a fair page for any geographical arrangement, whether of county divisions, lines of communication, or scites of towns, &c. &c. The growth of a colony there might be trained according to one general system, with a view to various combinations of soil and climate, and not left to chance, as in old countries—or, which would perhaps be worse, to the partial or narrow views of the first settlers. The plan of a whole state might be arranged there like that of an edifice before the foundation is laid, and a solid foundation seems necessary where a large superstructure is likely to be built.

“ The accompanying sketch of the limits I would propose for the colony of New South Wales, is intended to show also how the deficiencies of such a region might be compensated, and the advantages combined for the convenience and accommodation of

a civilized and industrious people. The rich pasture land beyond the mountains is already connected by roads with the harbour of Sydney, and the system, though not complete, has been at least sufficiently carried into effect, to justify the preference of that town and port as a capital and common centre, not only for the roads, but for steam navigation around the coasts, extending in each direction about 900 miles.

“The coast country affords the best prospects for the agriculturist, but the arable spots being of difficult access by land, his success would depend much on such immediate means of communication with Sydney by water, and on the facility his position would thus afford, of shipping his produce to neighbouring colonies.

“It would be establishing a lasting monument to the beneficial influence of British power and colonization, thus to engraft a new and flourishing state on a region now so desolate and unproductive; but this seems only possible under very extensive arrangements, and with such means as England alone can supply.”

“Here the great mistress of the seas is known,
By empires founded, not by states o'erthrown.”

CHAP. VIII.

THE MANAGEMENT OF SHEEP IN SPAIN.

TILL the discovery of South America, a large portion of the Spanish population was engaged in pastoral pursuits. From a very remote date the tending of sheep indeed seems to have been a favourite occupation of the Peninsular tribes, and hence its pleasures and its advantages were sung by some of the earliest Iberian poets. At Rome the wools of *Betica* and *Cantabria* were esteemed for their fineness, their length of fibre and colour. *Martial*, in the first book of his *Epigrams*, observes that the one was the colour of a young maiden's hair, that is, auburn, while the other partook of a darker hue.

The *Goths*, during their dominion in Spain, preferred the care of flocks to the cultivation of the soil, but the *Moors* did not set an equal value on this branch of rural economy. Towards the beginning of the 14th century, the breed of sheep in Spain accordingly degenerated, although it afterwards revived through an incident, rather interesting to Englishmen. In 1394, *Henry III.* of Castile espoused *Catherine*, daughter of *John of Gaunt*, Duke of Lancaster, who took over with her from England a numerous flock of peculiarly fine sheep, which prospered and spread to various parts of Spain.* So

* I do not pretend to say that the merinos are descended from this stock. The Spaniards themselves think otherwise; but the stationary sheep in Catalonia, Andalusia, Basque Provinces, &c. are a fine race. Some Spanish writers are of opinion that the merinos were originally brought from Africa.

rapidly did this branch of commerce at that time increase, that in 1419 the deputies of the kingdom requested that the introduction of foreign woollen cloths might be prohibited, not to interfere with home manufactures.

There are two kinds of sheep bred in Spain, the one called merinos, or *transhumantes*, owing to their being erratic and periodically traversing a wide extent of country in search of food, while the other race remains stationary. So great was the encouragement given in former times by Castilian monarchs to the breeding of this animal, that a society was formed, chiefly consisting of rich nobles, the heads of a few monasteries and other influential persons, all proprietors of flocks, who finding it to their advantage to feed their sheep at the public expence obtained a royal grant, whereby they were allowed to enter the pasturage of any farmer in the kingdom, excepting Galicia, Asturias and Basque provinces, and there graze on the payment of a trifling tribute. This society had a Board, held in Madrid and called the *Consejo de Mesta*, which took cognizance of all matters relating to sheep, wools, shepherds, pastures, &c.

This grant was intended as a protecting regulation, but evidently founded on the very worst principles. Being obtained in favour of a few powerful individuals, and supported by royal ordinances, as well as by court favour, it operated as a destructive monopoly and led to incessant turmoils. In vain did the laughing philosopher, Cervantes, raise his voice against the national nuisance.* In vain did writers on political economy denounce its ruinous effects.

* Part I. Book 3, Chap. iv. of Don Quixote. I am assured by a

The travelling flocks usually consist of 10,000 head of sheep each, provided with shepherds, who are armed in their own defence, and a competent number of dogs and mules. As the cold season approaches they migrate to a warmer climate, and to this change of air and pasture the fineness of merino wool has been partly attributed. If such is the case, the improvement was obtained at a great sacrifice, for where is the peasant who could repress his indignation on beholding, in the month of October, millions of sheep descending from the mountains of Castile into the plains of Estremadura, Andalusia, or Leon, where they passed the winter and did not return till the following May. The *Mesta* is however now abolished, but so great is the scarcity of food in the central provinces that, under new regulations, the flocks are still conducted to the waste lands abounding in other parts.

The largest Spanish proprietor of sheep, previous to the French invasion, was the Duke del Infantado, whose flocks were estimated at 40,000 head. The Count de Campo Alanje had 30,000, and the Marquis de Perales and the Duke de Bejar each nearly a similar number. The Pualar, Escorial and Guadalupe convents were also rich in flocks. Ustariz, writing in 1724, expressed it as his opinion that four millions of sheep passed every winter from the mountains into Estremadura, and that the number of men required to tend them was 20,000. He calculated the number

gentleman, well versed in Spanish literature, that this singular adventure of the knight-errant with a flock of sheep has not been properly understood by any of our translators.

of stationary sheep at as many more, which would give a total of eight millions, affording employment to nearly 50,000 individuals.

The first person who wrote a descriptive account of the management of sheep in Spain was Mr. William Bowles, an Englishman, whose "Introduction to the Natural History and Physical Geography of Spain" was published at Madrid, in 1775. His remarks on sheep were much esteemed, and in a reduced form printed in the Gentleman's Magazine for 1764. Mr. Dillon, in his "Travels through Spain," published in the year 1782, adopted and enlarged them; but, within the last few years, inquiries have been pushed much further. Indeed this has always been a subject of the deepest interest to every enlightened traveller, and so early as the close of the 17th century it attracted the attention of our own government.

In a Collection of Letters, written by the Earl of Sandwich, the Earl of Sunderland and Sir William Godolphin, during their embassies in Spain,* there is a curious Memoir by the latter on Spanish wools, from which it appears that this article was at that time deemed so valuable to our manufacturers, that our envoy received special instructions to obtain the best information he could upon it, and to negotiate for an exclusive supply to England, in exchange for a similar one of tin. Sir William observes that the quantity of wool exported from Spain, in his time, amounted to about 40,000 bags, one half of which were shipped at Bilboa, principally to Holland and Hamburg.

* *Hispania Illustrata*, or Maxims of the Spanish Court and most Memorable Affairs, from the year 1667 to the year 1678. London 1703.

These few introductory remarks on the early history of Spanish wool may suffice. I shall therefore proceed to describe the treatment of sheep in Spain, availing myself of such authentic information as I have been able to collect, chiefly derived from a friend, familiar with the habits and customs of most of the Spanish provinces.

The Spanish shepherd is a being of a hardy and abstemious race. He is usually placed as an attendant on the *mayoral*, or head shepherd, at an early age, and rises according to merit. He goes forth dressed in a jacket of black sheep skin, breeches made of the same material, a red silken sash tied round his waist, long leather gaiters, a slouched hat, a staff with an iron point in his hand, and a *manta*, or brown blanket, slung over his left shoulder. If his fowling piece, or his dog, does not supply him with a meal, his fare is of the scantiest kind, while water is almost his only beverage. A few heads of garlic, a little tobacco, an extra shirt and a supply of ammunition are the only contents of his wallet.

Debarred from all the conveniences of life and during eight months in the year exposed to the rigours of heat and cold—ill fed and often worse clad, the desert usually serves him as a lodging-place, the rock as his pillow and his dog as a companion. The extent of territory which he traverses in the course of a season it would be difficult to calculate. Chance commonly guides his steps, although his track lies across the most secluded and often the most rugged parts of the country. Want alone drives him to the busy habitations of man, and yet the earnings of the head shepherd, or *mayoral*, do not amount to

£20. per annum, and those of his underlings to no more than a fourth of that sum. This race of men and smugglers formed the best guerrilla soldiers, during the French invasion. Often they traversed the enemy's camp, undiscovered, as spies.

The *mayoral*, or head shepherd, is a man of some education and importance, and it is essential that he should be acquainted with the various kinds of pasturage, as well as with the treatment of diseases incidental to sheep. He is allowed a mule, or a horse, for his own use, and if he has 10,000 sheep under his care he is provided with fifty assistants, divided into four classes. The privilege of keeping a few sheep of his own is granted to each shepherd, but these he cannot alienate unless it is for their flesh, nor can he sell their wool to any other person than the proprietor of the flock. He can however milk as many sheep as he pleases, a privilege of some value in a country where a great part of the cheese is made from this kind of milk.

Each season the *mayoral* is allowed at the rate of 25 quintals, or 2,500 lbs. of salt for every 100 sheep, and when he reaches the spot where he proposes to graze his flock and erect his own hut,* his earliest care is to distribute a ration of salt to his sheep. If he can find no slabs of slate in the neighbouring rivulet, or no flat surfaces of rocks on the grazing-ground, bared by the drippings of the mountain torrent, he provides himself with tiles, boards, platters, or pieces of cloth. On these he scatters the pulverized salt and

* The shepherd and his dog frequently find quarters in the hollow trees abounding in Spain.

disperses the sheep in such a manner as that each may, as near as possible, have an equal share. This corrective is not administered when the sheep pasture on a calcareous soil, but if after partaking of it they are removed to argillaceous ranges they eat voraciously.

In September the sheep are ochred, their backs and loins being rubbed with red ochre, or ruddle, dissolved in water. No very satisfactory reason can however be ascribed for this practice. Some shepherds suppose that the ochre, combining with the oily matter of the fleece, forms a kind of water-proof and thus protects the animal from the inclemency of the weather. Others pretend that the ochre keeps the wool short, but the best solution to the problem perhaps is, that the absorbent properties of the red earth counteract the effects of perspiration, which would otherwise render the wool harsh and coarse.

They do not always wash their sheep previous to the operation of shearing, which, weather permitting, commences about the first week in May. The shearers are extremely dexterous in handling their implements, although more accidents happen among them than with us, probably owing to their greater irritability of temper. In Spain this is equally a season of festivity, and in order to witness it the large proprietors of flocks quit their splendid palaces in Madrid, and, with a numerous retinue of guests and attendants, gaily attired, hurry to the spot. The harvest and the vintage have nothing in them so solemn, or so joyous as sheep-shearing in Spain; nor is there any other country where the arrangements made for it are on so large a scale.

Washing and shearing being the two principal

operations, care was taken that they should be performed with economy and effect. For this purpose two great depôts were established for the central parts of the kingdom, the one at Segovia, in Old Castile, and the other at Soria, the capital of a small province bearing the same name on the confines of Aragon and Navarre. These depôts also served as fairs. Thither capitalists formerly resorted from the neighbouring shipping ports, as well as France and Holland, and among them a large proportion of Jews, who bought up the wool in the fleeces, or after it had been washed.

In ancient times the province of Segovia was one of the richest in Spain, chiefly owing to its superior breed of sheep and trade in wool. Its several districts are fertilized by small streams, the waters of which are supposed to be peculiarly well adapted for the washing of wool. The Spaniards, who as their proverbs testify, adopt experience as their guide, even in the humblest pursuits of life, in opposition to theories, have an idea that the quality of some waters diminishes the weight of wool, in a sensible degree, while that of others bleaches and renders it more flexible, with only a trivial loss in weight.

It is only when the fleeces are in a very dirty condition that the sheep are immersed in water, two or three days previous to shearing, as the wool afterwards goes through another cleansing process. The shearing day is ushered in with the ringing of bells and the roaring of cannon, and after the undertaking has been blessed by a church ceremony, the work commences. Shearers hasten to the spot from the neighbouring provinces, and 125 of them are usually allotted to the shearing of 1000 ewes, and 200 for the

same number of wethers. The gipsies are the cleverest shearers. Their constant use of the shears, which they carry hung behind them under a leathern girdle, renders them extremely expert in this calling, and their slang, odd sayings and buoyant spirits greatly add to the hilarity of the scene. Gipsies trim all kinds of cattle in Spain, and are usually called in to cure distempers prevailing in the herds and flocks.

It has already been noticed that one half of the Spanish flocks are migratory, and as the shearing season commences, the *mayorals* are seen gradually leading their sheep destined to Segovia, for example, to a central point, so as to be on, or near the spot at a given time. In 1825, the sheep belonging to the province of Segovia alone, were estimated at 490,500,* but the number brought there to be washed and shorn every season, is nearly as many more.

The total produce of the flocks in the same year was estimated at 90,210 *arrobas*, or 2,255,250 lbs. of fine wool; 21,112 *arrobas*, or 527,800 lbs. coarse, and 6,493 *arrobas*, or 162,325 lbs. of red (*rubia*) wool.

At Ortijosa, near St. Ildefonso, there is another washing-place on an improved plan. Usually as many as 10,000 quintals, or one million lbs. of wool are annually washed on this spot. The number of sheep shorn here is by no means so great as at Segovia, but a large quantity of wool in its rough, or clotted state, is brought here from 20 to 30 leagues round, for the sole purpose of washing.

* In that year the other returns of stock were, goats, 19,720; horned cattle, 29,400; pigs, 13,910; asses, 13,800; horses, 5,700; and mules, 6,400.

As soon as the wool is emptied from the bags, it is thrown on large tables and assigned to the *apartadores*, or sorters, who divide it into three distinct classes, and so much accustomed are these people to this kind of occupation, that at the first glance they distinguish the quality and by the appearance can tell from which part of the animal it was cut. Each heap is then separately scattered about and the wool beaten with long twigs, to break the tufts, or clots, as well as to clear it from earth and any pieces of bramble which may have adhered to it.

The second and third qualities are then washed in the lake, but the superior wool is thrown into large vats, three or four feet deep, built up with masonry. The lake water is raised up into these vats by means of a pump, and mixed with hot water brought in tubes from large cauldrons, prepared hard by. Should the water not be considered soft enough, clean wood ashes are thrown into it. Men are then employed with poles to stir the wool, and when the operation of washing is completed, it is carefully taken out and spread on hurdles, to drain and dry, in which the Spaniards are very particular, being convinced that wool packed up, whether in the fleece, or sorted, with the slightest dampness about it is apt to rot.

CHAP. IX.

MANAGEMENT OF SHEEP IN GERMANY.

THE economist, who may feel disposed to refer to the Agricultural History of Germany, will find that within the last half century a few merino sheep, obtained, almost it might be said smuggled, from Spain, have caused a complete revolution in the flocks of the Germanic empire. Bourgoing, in his "Modern State of Spain," published in 1807, observes that in Saxony, Wirtemberg, Denmark and Sweden, these sheep had been naturalized with success. He says that "at Fredericksburg, a palace of the King of Denmark, he saw a flock of Spanish breed, which was in the fourth generation and had not degenerated." He adds "that the original flock was chosen in Spain by a Dane, well versed in agriculture."

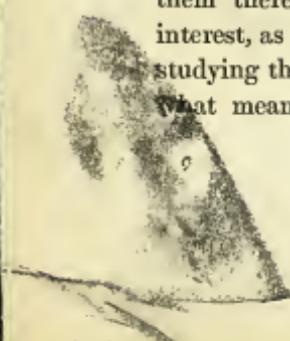
From very small stocks in various parts of Germany, and more particularly in Saxony, it is now an established fact that a race of sheep has been bred, producing wool of a more delicate texture and finer fibre than any other class of the same animal in Europe. This astonishing change has even been effected within very few years, and it may therefore be presumed that in the development of their industry our grazing Colonies will endeavour to rival the persevering and scientific exertions of the Northern States, and from their example derive such encouragement as may

induce them to attend to the improvement of their flocks, well assured that an ample remuneration awaits them.

It thus appears that the introduction of fine-woolled sheep into the German States has proved a source of substantial wealth to their agriculturists and manufacturers; and it requires no prophetic spirit to foresee that the Germans will, ere long, be enabled to meet not only their own demand for cloth, but also compete with us in foreign markets.

The introduction of this small stock of sheep has consequently conferred an inestimable blessing on the people among whom they were naturalized, inasmuch as their cultivation has already afforded a sufficient quantity of fine wool to supply their own manufactories, and besides greatly contributed to the improvement of the land over which they are spread. Like a navigable river, which daily fertilizes and augments the wealth of the countries through which it flows, this new source of agriculture and industrial wealth has spread plenty around.

Having already stated that the German wool possesses a finer fibre than is found in that of any other European flocks, it may naturally be inferred that unremitting care, minute attention and scientific knowledge must have been devoted to this subject by the flock-owners of these enlightened States, in order to attain so rapid and valuable an improvement in the breed of sheep. The system and methods adopted by them therefore have become topics of the deepest interest, as it is only by watching their progress and studying the results of practice that we can learn by what means our neighbours were able to improve



their flocks and raise their wool so high in public estimation.

It is scarcely necessary to remark that it will not be requisite that every branch of the system, practised by the German sheep-owners, should be adopted in the Colonies of Australia, Tasmania and Southern Africa. Ordinary reflection will shew that much of the care and caution, required in Northern climes, is not equally needful in countries possessing other distinct properties. To render the subject more familiar I shall, in the first instance, enumerate the various kinds of fodder provided for the winter sustenance of flocks, as this is a point which ought to engage the first attention of the farmer in every country. . . .

The judicious sheep-owners in Prussia, Saxony and throughout the Germanic Empire, cultivate an ample supply of the following vegetables for the winter support of their sheep, viz. clover, trefoil, vetches or lintels, beet root, carrots, turnips, potatoes, peas, oat or rye straw, lucern, saintfoin, &c. &c. Chesnuts are usually cut into pieces, which it would be dangerous to neglect, as they might otherwise stick in the throats of the sheep. It is also customary to mingle salt with dry leaves and other chopped dry food, and partitions are made in the mangers in which the sheep feed, in order to prevent the most ravenous of them from taking more than their due share, a practice evidently worthy of imitation.

In my last treatise on the management of sheep, published as far back as 1831, I had occasion to refer to Dr. Bright's Travels from Vienna through Lower Hungary, published in 1818, and from his instructive work I transcribed several passages. My object being

to convey information, derived from the best authorities, I cannot do better than present to the reader the practical results obtained by the same writer, more particularly as the system pursued by Baron Geisler and described by Dr. Bright, is entitled to every consideration.

"It is," says the author above-named, writing in 1818, "about fourteen years since the first Spanish sheep were introduced upon the Hunyadi estates, from Moravia, where Baron Geisler had been many years employed in improving the breed; since that time, the Graf has exercised unwearied assiduity in crossing and recrossing, and introducing more perfect merinos. By keeping the most accurate registers of the pedigree of each sheep, he has been enabled to proceed, with a mathematical precision, in the regular and progressive improvement of the whole stock.

"Out of 17,000 sheep, comprising his flock, there is not one whose whole family he cannot trace by reference to his books; and he regulates his yearly sales by these registers. He considers the purity of blood the first requisite towards perfection in the fleece; but he is well aware that little can be done, unless the sheep are kept in health and condition. He further adds, that the sheep are driven under sheds when it rains, or the heat is oppressive, and they always lamb in the house; the ewe being placed where she remains unmolested. The number of shepherds employed is about one man to every 100 sheep."

In the same volume the following may be found among the regulations adopted in the care of the flocks of Graf Hunyadi. "Sheep ought not to be exposed to rainy weather. The dew and hoar frost

in the morning are injurious to them, occasioning coughs, colds and diseases of the lungs, and therefore they should not be taken to the pasturage until the dew is gone off. In the summer months, when the heat is intense, the sheep should be conducted to some shady place. It is indispensably necessary that the sheep should have water twice a day. The rams should not be kept in the same house with the ewes, nor the young with the old. For fourteen days before the coupling season, the rams should be daily fed with oats, and this food should be continued not only during that particular period, but for fourteen days after, and one ram will thus be sufficient for 80 ewes, provided great care and attention is paid to him in every other respect during the whole of the season.

“ During the lambing period, a shepherd should be constantly day and night in the cote, in order that he may place the lamb, as soon as it is cleaned, together with its mother, in a separate pen, which has been before prepared. The ewes which have lambed should, during a week, be driven neither to water nor to pasture; but low troughs of water for this purpose are to be introduced into each partition, in order that they may easily and at all times quench their thirst.

“ It is also very useful to put a small quantity of barleymeal into the water; for by this means the quantity of the ewes' milk is much increased. When the lambs are so strong that they can eat, they are to be separated by degrees from their mothers, and fed with the best and finest hay and a few oats, being suffered at first to go to them only three times a day—early in the morning, at mid-day and in the evening,

and so to continue till they can travel to pasture and fully satisfy themselves."

And in page 409, the same author further adds, that "Baron Geisler, on his estate at Hoslitz, near Cremsir in Moravia, pays the most minute attention to the progress of his flock, keeping accurate registers of their pedigree, accompanied with annotations referring to their different qualities and imperfections, both as to their fleece, their mode of feeding and their care in rearing their lambs; with a view to which each sheep had formerly a mark hung around the neck by plaited cord, with a wire in the middle to secure it from breaking; but this has latterly been changed for a mark upon the face.

"The lambs have hay, or the dried branches of the oak, or lime, with the leaves, which, in August, or the beginning of September, are cut for this purpose and dried in the air. The sheep eat this dry food in wet weather with great alacrity, although in dry weather they refuse it. He never gives his sheep chopped straw mixed with rye, or barleymeal and salt, because when once accustomed to this they are unwilling to eat the long straw. If any of the ewes fail in their milk, they have meal and salt* given in water."

Such is the method practised by experienced flock-masters in the Austrian States, by which means they have succeeded in bringing their wool to a state of the highest perfection. It is not unusual for sheep farmers

* Earl Spencer has recently given notice to farmers, that since he placed lumps of rock salt on his pasture lands, he has not had an instance of premature calving among his cows.

in those countries, as well as in Bohemia, to wash their sheep twice during an interval of ten days, or a fortnight, previous to shearing, and more particularly the lambs, by which expedient they produce wool in a higher condition than that generally imported from Germany.

CHAP. X.

INDIAN WOOL.

MY attention was directed to the wool of India by the following circumstance. Towards the year 1834, a sample was sent from the India House to the Society of Arts, which was afterwards submitted to my inspection and upon its value I offered an opinion. Since that period annual importations from the same quarter have taken place, and the supply of this article now forms a new feature in our commercial relations with the empire of India.

In the year 1835, no less than 773 bags of Indian wool were imported into London and 624 into Liverpool, which at public auction sold at from $4\frac{1}{2}$ d to 10d. per lb. although a few bags obtained $14\frac{1}{2}$ d. This species of wool is particularly white and washed clean, which renders it useful in several branches of our manufactures of white goods, although it contains a proportion of dead hairs interspersed through the

fleece, a defect which diminishes the value and yet by a little attention might effectually be remedied.

Desirous of obtaining information regarding the breed of the sheep producing this wool, I sought it in various channels, but was not altogether fortunate in my endeavours. In vain had I recourse to the pages of Oriental travellers. I opened communications with officers who had held commands in our Indian provinces, and was favoured with the friendly answers of several leading members of the Asiatic society, as well as of gentlemen belonging to the India House, to whom I avail myself of this opportunity of offering my grateful acknowledgments.

Notwithstanding these advantages, I regret to say that I was not able to satisfy myself thoroughly upon the subject, although I have arrived at the conclusion that the principal flocks which supply this wool must be bred and pastured in Afghanistan and Scinde, and that, previous to the opening of the navigation of the Indus, it passed through Guzerat and Cutch, on its way to Bombay, whence it was shipped to England. It is now conveyed direct down the Indus to Bombay, where, I am given to understand, it is sorted and repacked.

That this is a new trade will be seen from the following passage, taken from Lieut. Arthur Conolly's *Journey to the North of India, overland from England, through Russia, Persia and Afghanistan*, vol. 2.

“When I travelled through Afghanistan in 1830, none of the native merchants, whom we consulted, seemed to think that wool could be profitably exported from their country. Since that period, however, Colonel Pottinger has effectually opened the Indus,

and opened to the Afghans, as well as to the Beloches, means of easily reaching a near great market, where they may exchange as much of the raw material as they can produce, for the manufactured goods into which we will work it up.

“A decided trade in the wool of sheep pastured in those parts of India bordering on the Indus, commenced at Bombay in 1833, when 69,944 lbs. were exported. It has since increased to an extraordinary rate, no less than 2,444,091 lbs. having been exported from Bombay in the official year of 1837.

“The European demand for this article being unlimited, how earnestly should we endeavour to facilitate the means of its transport by the Indus, so as to enable even the far Nomade tribes to send their fleeces, at some profit, to a market from which they will take our various manufactures in return. It must be British vigour that will really keep this fine river open, and if private enterprise is not strong enough to make a good beginning, the British Government should encourage it.

“I may here note a remarkable fact, to show how much we and the Afghans are mutually interested in making the Indus a cheap channel of trade. Syud Keramat Ali, in 1834, got from merchants with whom he was intimate, musters of all the manufactured ‘Russian goods’ imported via Bokhara, and were then selling at the usual good profit in the Cabhul bazaar. I lately gave a set of these to a gentleman, interested in our trade with the East, when he ascertained from an experienced merchant, to whom they were forwarded, that more than two thirds of them were of Glasgow and Manchester make.”

That the members of the Bombay Chamber of Commerce are actively engaged in inquiries not only to extend our navigation in the Indian Seas, but also to increase and improve the various articles of commerce with which our possessions in that quarter abound, appears from their quarterly reports, particularly that for 1838—39, in which wool is repeatedly mentioned.

In the one for the second quarter, the Committee state "that they had been favoured with eight samples of wool, procured from Cabhul and Boekhara by Sir Alexander Barnes, and that they would be forwarded in a few days to Messrs. Gladstone and Co., of Liverpool, for opinion and sale."

In the "Report on the Commerce of Bombay," compiled from official returns under the joint direction of the Reporter General on External Commerce and the Committee of the Chamber of Commerce, is the subjoined passage—"The rapid increase of wool from Scinde was noticed in a former report, and the favourable accounts received from home of this article, are likely still further to augment its production and transmission."

To render this chapter as complete as I can, I shall here subjoin an account of the wools imported into and exported from Bombay, (its subordinate ports in the Concan and Guzerat not included) in the official year above mentioned of 1838—39, taken from the Report already alluded to, and designating places.

Imported into Bombay from its subordinate ports in the Concan and Guzerat, wool 943,981 lbs.; from the Persian Gulf 12,012 lbs.; from Cutch and Scinde, 1,390,043 lbs. and from Guzerat 343,981 lbs.

Exported to Great Britain, wool, 1,882,285 lbs.; to

France 57,713 lbs., to Ceylon 11,296 lbs. and to the subordinate ports aforesaid 202 lbs.

Total imports 2,089,917 lbs.

Total exports 1,951,496 lbs.

CHAP. XI.

GOATS AND GOATS' HAIR.

THAT the nations, dwelling on the southern coast of the great Peninsula of Arabia, had intercourse with the opulent regions of the East, even in the very earliest ages, is attested in the pages of sacred history. From the book of Job it appears that the Arabians had made great progress in fisheries, manufactures, commerce and navigation, and in the 37th chapter of Genesis mention is made of a commercial adventure conducted by them. When Joseph's brethren conspired to put him to death and had already cast him into the pit, "they lifted up their eyes and looked, and, behold, a company of Ishmaelites came from Gilead, with their camels, bearing spicery, and balm and myrrh, going to carry it down to Egypt," Embarrassed and dreading to have the sin of Joseph's death upon them, the conspirators sold him to the Ishmaelites for twenty pieces of silver, who carried him with them into Egypt, where we are told he prospered and became powerful.

The voyages of these enterprising men, David Mac-

pherson says, "most probably extended to Coromandel, Ceylon and even to the Spice Islands, from which they seem to have imported the spices of superior quality, which, together with other magnificent gifts, were presented by their queen to Solomon, the wise, pacific and commercial king of Israel."*

The above is perhaps the first instance on record of the manner in which communications were carried on from the Western part of our globe with the early civilized Orientalists, and it is most probable that this kind of traffic continued in the same channel, till the overwhelming power of the Romans reduced Egypt to the condition of one of their own provinces. Alexandria then became the emporium of Oriental trade, and soon rivalled the Imperial city itself in opulence.†

Anterior to the discovery of a route to India by the Cape of Good Hope, several European nations were in the habit of obtaining articles of Asiatic growth and manufacture in the upper part of the Mediterranean sea, which the French shipped principally to Marseilles, where they had established woollen manufactures. This exchange of commodities was called the Levant trade, and so important was it deemed by

* Chronicles, book 2, chap. ix. Vide "The History of European Commerce with India," &c. by David Macpherson, London, 1812.

† Through their conquests on the opposite side of the Mediterranean, it is probable that the Romans improved their manufactures. In Reece's Encyclopedia, Art. "Woollen Manufactures," are these remarks. "Pliny informs us, that in his time, the price of wool had never exceeded 100 sesterii the libra, or pound; now the Roman sestertius being about 8d. of our money, and the libra about 5245 grains, it follows that an avoirdupois pound, or 7008 grains, would have cost about £1. 2s. of our money.

the kings of France that they protected and encouraged it by a series of treaties and royal ordinances.*

Among the articles acquired in this manner was a limited quantity of gogram, or mohair yarn, that is, goats' hair, spun, or twisted; but whether this commodity was grown on the Asiatic side of the Archipelago, or obtained from a more distant quarter through the agency of Armenians, who imitating the Arabians by means of *kafilas*, or trading caravans, traversed the whole of Asiatic Turkey into Arabia, Persia, and even as far as the Indies, is not clearly established.

According to the notions of modern merchants, the best kind, if not the largest quantity, of goats' hair obtained through the old Levant Trade, was produced in Anatolia, or Asia Minor, particularly in that district now known by the name of Angora and called *Ancyra* by the ancients, where we still find it in perfection, as it is more than probable that in its raw state this article would not have borne the heavy expences of a land conveyance over the deserts, although the shawls made from it in Cashmere and other parts of Hindostan were deemed as great luxuries in the seraglio of Constantinople, as they were at the court of the Persian monarchs.

There are in fact two kinds of goats' hair known in the markets of Europe, grown in distinct parts of the globe, but not equally fine and woolly. The one is the production of Hindostan, while the other is

* Vide Savary's Universal Dictionary of Trade and Commerce, enlarged by Malachy Postlethwayt, Art. Levant Trade.

obtained from Asia Minor, and under these two heads I shall class them.

The first English traveller I have met with, who speaks of the goats fed on the Himalaya mountains as producing the fine hair, or wool, used in the manufacture of the Asiatic shawls generally called Cashmeres, is the lamented Bishop Heber, in his valuable work on India. When describing his journey from Calcutta to Bombay, and more particularly the route from Meerhut to Delhi, the nominal capital of Hindostan, in his 19th chapter, he expresses himself in these words—

“After breakfast, we went to see a shawl manufactory, carried on by Cashmerian weavers, with wool brought from Himalaya, in the house of a wealthy Hindoo merchant. I did not think the shawls which were shown very beautiful, and the prices of all were high. I was entreated to accept a splendid nuzzur of shawls, &c. to the value of 1000 S rupees, which of course I did not choose to accept.”

Probably the Bishop judged more from the pattern than the quality of the article, or the specimens exhibited to him were not the best Cashmere, as on the fineness and beauty of the shawls of this class all intelligent manufacturers are agreed, and hence they have been imitated, as closely as was possible, both by the French and ourselves.* This authority may how-

* Reece, in his Encyclopedia, Art. “Woollen Manufactures,” seems to think that the Romans were among the imitators of Asiatic shawls. The learned compiler is however mistaken in supposing that the “shawl cloths of India” are manufactured from wool, properly so called, although the material of which they are made certainly deserves that discriminating term, or even that of down, owing to its superior

ever suffice to point out the spot whence the wool with which these shawls were manufactured was supplied, the object which I had in view in quoting it.

Although the shawls of Cashmere are in Europe considered the best, valuable ones are nevertheless manufactured in other parts of India, much depending on the goodness of the material used. This the Cashmerians grow themselves. Their country, part of the province of Hindostan, is a high central valley, or basin, surrounded by mountains, which, like those of Himalaya, are capped with snow. It is well watered, although not exposed to the heavy rains which deluge other parts of India, and the soil being extremely rich and the climate good, its productions resemble those of the temperate zone.

In this elevated and luxuriant valley, which one would feel inclined to liken to some parts of Australia; on the adjoining mountains of Himalaya and Thibet, where regions of perpetual snow may be seen,

quality. "From the intercourse with Persia and the East, the Romans would become acquainted with the shawl cloths of India, and would naturally wish to imitate so beautiful and delicate a fabric. These are made from very soft fine short wool, and not from the combed wool, as has generally been supposed in this country. The existence of that manufacture in Hindostan for many ages, is a proof of the high degree of perfection to which the fabrication of woollen cloth had been carried in former times. For shawl cloth is only woollen cloth, woven with a twill and unmilled, but it is spun to a great degree of fineness, and from wool so peculiarly soft, that it has never been rivalled by any European nation. The perfection of the colours, and the skill displayed in the weaving, we have no reason to believe are greater now than in the time of Alexander the Great, and if these manufactures were successfully imitated by the Greeks or Romans, or even distantly approached in the manufacture of their fine cloths, we may form some idea of the perfection to which they had arrived."

and lastly in some districts of Asia Minor, fine goats' hair is produced;* and antiquarians contend that these very same countries originally furnished to Europe those superior breeds of sheep, now so generally naturalized, and which from the new stock have at length spread to one of the remotest regions bearing the British flag. This idea on the origin of sheep is beautifully expressed by Cuvier, in his "Animal Kingdom," vol. 4, in these words.

"The high western basin of Cantal Kanti; or Cashmere; the secondary valleys of ancient Taurus and Caucasus; the Chorassan and Caramania, and at length the environs of Angora, or central basin of Asia Minor, about the sources of Halys and Sekaria, may be considered as the favourite nurseries from whence the improved fleece-bearing animals have gradually spread over the rest of the world. It was at the foot of Caucasus that Jason obtained his celebrated spoils."

I shall conclude these remarks on the goats' hair of India, with the subjoined extract from Moorcroft's Travels in the Himalayan Provinces of Hindostan, Pandab, &c. Vol. 1.

"One of the most important articles of the trade of Ladakh is shawl wool, of which it forms in some

* The French call it *poil de chèvre*, as we do goats' hair, but, owing to the fineness and elasticity of the fibre, doubtless attributable to the climate, it might more properly be called wool. Raw goats' hair coming from the Levant, according to the Arrêt of December 22, 1750, in the ports of France paid 20 per cent. duties on a valuation of 300 livres per quintal, and the same on that of 800 livres when spun and not arriving direct from the Levant. *Vide Recueil Alphabetique des Droits, &c. Avignon, 1786.*

degree the source, but in a still greater the entrepôt between the countries whence the wool is chiefly supplied, Rodakh and Chaw, than that in which it is consumed, Kashmir. The wool is that of a domesticated goat, and consists of the under fleece, or that next the skin, beneath the outer coat of hair. The breed is the same in Ladakh as in Lassa, great Tibit and Chinese Turkistan, but the wool is not so fine as in the breeds of the districts on its eastern and northern frontier.

“The fleece is cut once a year and the wool, coarsely picked, either in the place from whence it comes, or at Lé, is sold by the importers to the merchants at that city by whom it is sent on to Kashmir. The Raja and Khalun deal extensively in this trade, but it is also shared by merchants both from Kashmir and Turran. About 800 loads are annually exported to Kashmir, to which country, by ancient custom and engagements, the export is exclusively confined, and all attempts to convey it to other countries are punished by confiscation.

“In like manner it is considered in Bodokh and Chau-than, as illegal to allow a trade in shawl wool except through Ladakh; and in the latter country considerable impediments are opposed to the traffic in wool from Yarkand, although it is of superior quality and cheapness. The hair of the goat, after it is separated from the wool, is made into ropes, blankets and bags, for home use, and as wrappers for bales of merchandise.”

No traveller has described the white-haired goat of Angora so well as Lieut. Arthur Conolly, a spirited and enterprising officer belonging to the Bengal

cavalry, to whom I alluded in my Introductory Remarks, and whose Memoir on the subject was read before the Asiatic Society in London, on the 18th of last January. It is an interesting and useful paper, more particularly so at the present moment, when information respecting this animal is sought after with avidity. His details were obtained in the course of a recent excursion through part of Asia, accompanied by a friend who spoke Turkish and Armenian perfectly. Their accuracy may therefore be relied upon, and in performing the remaining part of my task in reference to "goats and goats' hair," I cannot do better than make my reader acquainted with such parts of the Memoir as relate to this subject.

"The goat of the first race, peculiar to the province of Angora and certain adjoining districts, is *invariably white*, and its coat is of one sort, viz. a silky hair, which hangs in long curly locks.*

"The greater part of the area described above, (that on which the Angora goat is found) consists of dry chalky hills, on which there are bushes rather

* It is remarkable that wherever these goats exist, the cats and greyhounds have long silky hair also; the cats all over their bodies, the greyhounds chiefly on their ears and tails. Some of the natives would refer this peculiarity to their "air and water," but are perplexed to account for the nonparticipation of other animals who eat and drink the same fluids. A similar difficulty attends those who would attribute the peculiarity to diet; as sheep's food differs entirely from that of cats and dogs. Possibly hares and other furry animals in this region, have their coats altered also, more or less. Our native friends did not seem ever to have inquired. The sheep dogs are fine animals, with thick shaggy coats, but we did not think their hair unusually fine.

than trees, and those chiefly of the dwarf oak, or else of valleys lying from 1500 to 2500 feet above the level of the sea, which are quite bare of trees, and but scantily covered with grass. In this expanse of country there are spots which produce finer fleeces than others, *e. g.* Ayash, Beybazar and Yoorrook. These are districts where the goats are mostly kept on hills, and the natives attribute a general superiority to mountain flocks, which have, first, a rarer atmosphere; secondly, more leaves and a greater choice of herbs, for which, nevertheless, they are obliged to range widely, and so are kept in health, on which the quality of their coats mainly depends. The finest fleeces in the aforesaid country are said* to come from the *Yoorrooks*, roving tribes who keep their flocks out day and night throughout the year, except when an unusual quantity of snow falls, so that not being enclosed and crowded together, they do not soil their coats by the heat and dirt of each others' bodies. The latter flocks too are more or less kept upon fresh food in winter, as they are then led down from the mountain heights to the tops of the lower hills, from which a little herbage can be gleaned, as the strong winds that prevail at this season drive the snow off them, while the plain flocks must be folded and fed upon hay and branches.

"The fleece of the white Angora goat is called '*Tiftik*,' the Turkish for goats' hair, in distinction to '*Yán*,' or '*Yapak*,' sheep's wool. After the goats have completed their first year, they are clipped annually, in April, or May, and yield progressively, until they attain full growth, from 150 drachms to 1½

'oke'* of Tiftik. The female's hair is considered better than the male's, but both are mixed together for market, with the occasional exception of the *two-year-old she-goat's* fleece, which is kept with the picked hair of other white goats (of which, perhaps, five pounds may be chosen from a thousand) for the native manufacture of the most delicate articles; none being ever exported in any unwrought state. An oke of good common Tiftik of this year's shearing, is now selling in the Angora bazaar for nine piastres, or about 1s. 8½d. and the finest picked wool of the same growth is fetching fourteen piastres per oke.

"A curious statement made to us at Angora was, that only the white goats which have horns, wear their fleece in the long curly locks that are so much admired; those which are not horned, having a comparatively close coat. We were at Angora shortly after the shearing season, so could not observe the difference stated, which our informants seriously attributed to the circumstance of the animal's continually combing itself with its spirally twisted horns. A merchant, not of Angora, remarked, that probably there, as elsewhere, the finer the fleece naturally is, the more readily it curls, and he added, that good flock-masters keep their goats' hair as fine as possible, by carefully washing it, and combing out all impurities.

"Surplus he-goats, and barren females, are killed in the beginning of winter, when their flesh is par-

* A weight of 400 Turkish dirhems, or drachms, equal to about 2½ lbs English.

fried, and potted by the poorer classes as a store for the cold season. The skins are sold to curriers, who, after removing the hair by a preparation of lime, cure them for export to Constantinople, where they are dyed of different colours, and chiefly used for the manufacture of Turkish boots and slippers. The fleece is then five or six inches long, but as it is 'harsher' than that which is shorn in spring, and is thought to be more or less damaged by the currier's lime, it is sold at an inferior price, under the name of *deri*, or *skin* Tiftik, a term answering to what English staplers call dead wool.

"The hair of the Tiftik goat is exported from its native districts raw, in yarn, and in the delicate stuffs for which Angora has long been famous. The last are now chiefly consumed in Turkey; a little yarn, and a large quantity of the raw material goes to Europe. A few well-cured entire skins, with the curly fleece upon them, are used in Turkey as seats by religious doctors and chief derwishes, and others are exported to Europe, where they are fancied as rugs and saddle cloths. A fine skin of this sort costs one hundred piastres (or *1l.*) at Angora, and one hundred and fifty at Constantinople.

"When the Tiftik fleeces have been shorn in spring, women separate the clean hair from the dirty, and the latter only is washed, after which the whole is mixed together and sent to market. That which is not exported raw, is bought by the women of the labouring families, who, after pulling portions loose with their fingers, pass them successively through a large and fine toothed iron comb, and spin all that they thus card into skeins of yarn, called *iplik*, (the common

Turkish word for all thread) of which six qualities are made. An oke of Nos. 1 to 3, now fetches in the Angora bazaar from twenty-four to twenty-five piastres, and the like weight of Nos. 3 to 6, from thirty-eight to forty piastres. Threads of the first three numbers have been usually sent to France, Holland and Germany; those of the last three qualities to England.

“The women of Angora moisten their carded goats’ hair with much spittle before they draw it from the distaff, and they assert that the quality of the thread much depends upon this; nay more, that in the *melon* season their yarn is incomparably better, as eating this fruit imparts a mucilaginous quality to the saliva. ‘Divide (said they) a quantity of Tiftik into two parts; let the same person spin one half in winter and the other in the melon season, and you will plainly see an important difference.’ In winter (they added) the thread cannot be spun so fine as in summer, since, owing to the state of the atmosphere in the cold season, it becomes more harsh (crisp).

“Before this yarn is used by the weaver, it is well saturated with a glutinous liquor called *Chirish*. This is made from a root like a radish,* which comes to Angora from the neighbourhood of Konia. It is dried and pounded, mixed with water, and well shaken in a bag. Then the liquor is strained off, and

* A medical friend describes it as a plant of the *Asphodoly* family, which grows on all the high table lands of Armenia. Shoemakers are said to use the dried flour as *size*, where the plant is common; but I found a different article in use at all the shoemakers’ bazaars in Constantinople.

small skeins are steeped in it, while large hanks are watered by the mouth when they have been spread out, according to the following process, which I may describe as witnessed by us at Angora.

“ We found the workmen before sun-rise on a level space by the banks of the Angora stream. Upon a centre and two end cross trees, was rather loosely stretched a double web of yarn, 70 feet by 7, which was kept extended and separate by sliding cross sticks. Two men walked up and down the sides of this frame at the same time, nearly opposite to each other, holding bowls of Chirish liquor made into a thin yellow mucilage: of this they continually squirted, or rather blew out, mouthfuls in alternate showers,* all over the web, while others followed them to press the threads together for a moment, and then to change their position relative to each other, by means of the sliding cross bars mentioned, so that all might be equally moistened, as well as to rebind any threads that had given from the tension. The Chirish liquor had a sweetish and not unpleasant taste, but the squirts complained that it totally destroyed their teeth, and showed bare gums in proof. They distributed their jets with singular dexterity, in broad casts of the minutest drops, and expressed doubts whether, considering the clammy nature of the liquor used, any watering pot could be made to do their work as well, and save them from its inconvenient effects.

“ This operation is repeated several times: † the

* Tobacco for the Turkish pipe is damped by a similar process.

† Moorcroft shows that the preparers of goats' wool and yarn for the Cashmere shawl manufacture, take pains to impart mucilage to

work is always commenced in the cool of the morning, so that it may be completed ere the heat of the sun can operate to dry the thread quickly. A long web, like the one described, having been sufficiently moistened, its threads are divided into breadths of the sizes ordered; the weaver sends his comb that one end of a portion may be fitted into it, and carries the rest away rolled up on a stick, to be drawn out as his work advances.

“The women of Angora knit gloves and socks with the Tiftík yarn, working them both furry and plain, and making some socks of the latter sort so fine as to cost one hundred piastres the pair. The surplus of their yarn they sell to native weavers of stuffs. The weaver seeks threads of equal thickness and takes the skeins that he matches back to the women spinners, who reel them into one thread, assisting this operation with Chirish mucilage. The connected thread being returned to the weaver in large hanks, he, with a hand wheel, winds off small portions through a pan of water on to bits of reed cut to fit his shuttle.

“The cloths woven from Tiftík at Angora, are of two kinds, Shalli and Sôf, or twilled and plain cloth, and the manufacture of these is confined to men. The weaver sits with nearly half of his body in a small pit, at the bottom of which he works two or four treadles with his feet, according as he wishes to make plain or twilled cloth. Part of this loom is fixed to the floor before him, and the rest is suspended nearly over it from the ceiling. He contracts to work

each; first kneading the cleaned wool with damp rice flour, and afterwards dipping the yarn into thick boiled rice water.

a piece of thirty *Piks*, or rather more than twenty-one yards, for a sum which varies according to the texture required, from fifteen up to one hundred piastres, and by working steadily he may finish a piece of this regular measure in six days.

“These stuffs are dyed at Angora. Indigo and Cochineal, with tartar, nitric and sulphuric acids, were mentioned as articles imported from Constantinople and Smyrna. Yellow berry grows to perfection in the neighbourhood, and some spoke of a grass yielding the same colour as indigenous to the soil. Coffee colour, a favourite among the Turks, they obtain by mixing cochineal with the dried rind of the fresh walnut. They remarked that cloth made of dyed thread keeps its colour till it falls to pieces, while that which is dyed in pieces, fades with comparative quickness.

“Angora has always been the chief, if not the only town in which *Tiftik* has been manufactured into cloth; the other towns of the area described sending their hair to its looms. Now not even thread is spun at the latter places, their goats' hair being exported in a raw state, and Angora itself has, from the latter cause, quite declined, there being perhaps fifty looms where there were one thousand two hundred in the best days of this provincial capital, and not more than from one thousand to fifteen hundred pieces of stuff sent out, instead of twenty thousand that used to be required before the Greek revolution. The citizens take the last event as a point from which to date their decline, remarking that before that period there was a prohibition against the export of *Tiftik* from Turkey, except when wrought, or in the form of *iplik*, or

homespun thread, so that the interests of the native spinners and weavers were protected against the machinery of Europe. Up to that time, however, it would seem that there was little demand for the raw material in Europe.

“Tournafort, indeed, in 1701, speaks of this hair being used in England for *wigs*, and particularly states that it was required unspun. According to the information that was kindly procured for me by an English merchant at Constantinople, when some bales of white Angora goats' hair were shipped thence to England, in 1820, the article was so little appreciated that it brought only 10*d.* per lb.; since that period the English demand for the raw hair has been annually increasing, and the ordinary price for many years has been 18*d.* per lb., though, from unusual causes, it has fluctuated from 27*d.* to 14*d.* Permission is now freely given by the Turkish government to export raw Tiftik, and as European manufacturers find it more convenient to make their own thread by machinery, the demand for Angora handspun yarn has almost ceased, and its value in Turkey has fallen one half. The following list of exports from Constantinople, for the last three years, will show how one article has superseded the other, and what is the present state of the trade

	Mohair Yarn.	Tiftik.
1836.....	bales 538.....	3841.
1837.....	do. 8.....	2261.
1838.....	do. 21.....	5528.

“No yarn has been, and probably none will be, exported this year. 2679 bales of Tiftik have been

already shipped, and it may be expected that fully 3000 more will be exported before the end of the season, from the supply of this year's produce, which is just arriving from the interior. The bales that are brought on horses weigh sixty okes, those that come on camels, one hundred ditto; but the proportion of the latter is small, and seventy okes may be taken as the average weight. My latter informant thought that from 1000 to 1500 bales might be shipped annually for England at Smyrna.

“The native demand for Shalli and Sôf, is said to have decreased since the adoption of an European style of dress by the Turkish grandees, who used to wear full summer robes of these stuffs; but though this change of costume has doubtless had some effect upon the Angora manufactures, they have probably been chiefly injured by the introduction of cheap French and English merinoes into the Turkish bazaars. Owing to these causes and to the recent large European demand for raw hair, the value of Angora shawl stuffs has gone down so quickly, and so completely as to entail great loss upon the wholesale and retail merchants who dealt in them, and little short of ruin upon the weavers, hand spinners, dyers, and others who were connected with the manufacture at Angora itself. But though the city has thus suffered, the province must gain largely by the change, if the Sultan can be made sufficiently aware of his own interest to treat it fairly.”

In another respect the goat is a serviceable animal. In Spain and Portugal its milk is preferred to that of the cow, and the kid considered a delicacy. Sir J. E. Alexander, in his Expedition of Discovery into the

Interior of Africa, vol. 1, observes that "to an African traveller goats are invaluable; they can accompany him every where, and live where cattle would pine away and die;" adding that "each goat gives nearly as much milk as a Namaqua cow, and of a much richer quality."

From various passages in Holy Writ it is evident that in the days of the Patriarchs goats were kept with flocks of sheep, and I cannot help thinking that both the British agriculturist and the farmer in our grazing Colonies would do well to imitate this example. The goat browses on shrubs and brambles, without interfering with the pasture of sheep, and consequently is kept at no expence. The Angora species is the best and besides very prolific, seldom having less than two at a birth.

Two years ago the hair of this animal sold for *2s. 3d.* per lb. although at present it is only worth *15d.* It is however coming more into notice, and used to make twist, or yarn, in which state it is extensively shipped to the continent, particularly France and Holland.

Camlets are made from this article and sent to the United States; it serves also for the manufacture of plush. Moreens are equally made with it, and woven white and then dyed any colour required. The characteristic feature that distinguishes this kind of manufacture is the effect produced upon it by the process of watering, by which means the surface assumes a variety of shades, as if the cloth was covered with a succession of waves, a peculiarity which may be seen in the hangings of some of the oldest, as well as of many modern mansions.

I therefore confidently hope that our Colonists of

Australia will give to this animal all the consideration which it deserves. That their country is well adapted for its procreation, will be readily deduced from the descriptions already given of those regions in which goats are found in the highest perfection, and they certainly would form a most economical stock.

I have already ascertained that their introduction at the Cape of Good Hope has been most successful. Some parcels of goats' hair brought from that quarter lately passed through my hands, and I have no hesitation in stating that, in point of quality and cleanliness, they were equal to any samples of the same article which ever came under my observation. By growing it in our own Colonies, we should besides avoid the injudicious mixture of skin-wool with that which is shorn, an objection noticed in the bags received from Constantinople, and which prevents the material from taking the dye equally. Owing to this defect plush, when manufactured, is disfigured by small spots.

The returns of goats' hair imported into the United Kingdom are, for 1831—331,658 lbs; for 1832—600,636 lbs.; for 1833—351,433 lbs.; for 1834—612,387 and for 1838—942,770 lbs.

The importation of goat skins corresponding to the year 1838, according to official returns were, undressed, 512,518, valued at from 8s. to 54s. per dozen; undressed kid, 115,107, valued from 3*l.* to 10*l.* per 120 skins; and kid dressed 682,403, valued from 8*l.* to 15*l.* per 120 skins.

Of the first the Cape of Good Hope furnished 169,256 skins. Next in the quantity supplied ranks France, then the East India Company's Territories

and Ceylon, and the States of Rio de la Plata; but by ordinary attention to the breeding of goats it clearly results that in ten years we might, at a trifling expence, render ourselves independent of all foreign countries as regards the supply of these skins.

I shall conclude this chapter with the following lines from Virgil's Georgics, Book iii.

" For hairy Goats of equal profit are
With woolly Sheep, and ask an equal care.
'Tis true the fleece, when drunk with Tyrian juice,
Is dearly sold; but not for general use:
For the salacious goat increases more;
And twice as largely yields her milky store,
The still distended udders never fail;
But when they seem exhausted, swell the pail,
Meantime the pastor shears their hoary beards,
And eases of their hair the loaden herds.
Their camelots, warm in tents, the soldier hold,
And shield the shivering mariner from cold.
On shrubs they browse, on the bleaky top
Of rugged hills the thorny bramble crop."

CHAP. XII.

THE ALPACA—THE PALMITE AND CONCLUDING REMARKS.

THERE is still another domestic animal, likely to become a productive stock, and consequently deserving of the Colonists' notice. This is the Alpaca, a native of Peru, and as I mentioned it in my last treatise I ought not altogether to omit it in the present edition.

At the time the Spaniards conquered Peru, they

found the natives in possession of two domestic animals, used as beasts of burden and also valued for their flesh, skins and wool. These animals are the Llama and Alpaca, and they rank as a kind of middle species between the camel and the sheep, partaking of the properties of both. So valuable are their services still considered that, in the interior provinces of Peru, there is scarcely a cottager who does not keep a dozen llamas and as many alpacas. The first serve to carry his corn, his potatoes and his fruit to market, while the wool of the latter clothes his family and the flesh of both, fresh or jerked, affords a wholesome meal. Their skins also serve him for a bed.

Of the two the alpaca is unquestionably the most valuable and the most beautiful, and on this account I venture to recommend its adoption in our grazing Colonies. It is thus described by Mr. Walton, in his "Account of the Four Species of Peruvian Sheep," published in 1818.

"In stature the alpaca is something less than the llama, its ordinary height being 4 feet, and the length of the body rather more. The neck is not quite so long, so slender, or so much arched; and although its general appearance is not so noble as the llama, it is nevertheless more interesting. The bodily construction of the alpaca, when divested of his fleece, resembles that of the llama, and he has the same small tapering waist.

"From its peculiarly long, lank and flaxy fleece, the alpaca constitutes the greatest variety of the four species of Peruvian sheep,* and when this is at

* The huanaco and vicuña are wild, but belong to the same species.

its full length, from being so extremely abundant, he appears twice as corpulent as the others. It hangs in large flakes down the sides, rump and breast, generally 8, 10, and 12 inches long, and we have measured it on the flanks even 16; so that the proportion with the others, in point of fleece, is almost pounds for ounces. The alpaca partakes of more colours; is often party-coloured, and seen more frequently white than the three other species. Hair, as fine and soft as that of the human head, out-tops the wool that is underneath, amongst which it grows; so that the fleece is a combination of wool and hair. The Indians prefer the black alpaca, from that being the colour they use for their clothing, and there are many tribes, such as the Canes in the Intendancy of Cusco, who use no other colour, which gives them the appearance of always being in mourning. The alpacas are also seen brown, cinnamon colour, and every other observable in the llama; but black being the most favourite, in the seroons of alpaca wool which are exported, the proportion of that colour exceeds by nearly nine tenths the other shades.

“The alpaca ruminates in exactly the same way as the llama, and it is remarkable that both generally gape twice, or three times, before they commence this process; but he is the only one of the four species that does not express his resentment by spitting his moist cud. This is an indication that his manners are more soft and his disposition more gentle; he has no antic tricks; neither does he bound, nor leap on his keeper, like the llama.

“The skin of the alpaca, even felt through the soft down that covers the neck, is extremely hard to the

touch and can scarcely be impressed; but this, we have before observed, is the provident gift of nature and serves as a guard against the climate.

“The alpaca is observed not to eat his wool like the llama; nor does he roll in the same way. He is not so voracious of food; nor does he express such resentment if disturbed in his feeding. The same abstinence with regard to drink is however remarkable in him, and although deprived of water for a month, he nevertheless voids a considerable quantity of urine, which in England has been observed to increase by green vetches being given to him. He is not however possessed of such quick movements, or gaiety; nor does he bound with that vigour and agility, remarkable in the llama and huanaco.

“The alpaca is now only occasionally used as a beast of burden, to carry about 75 pounds, and Garcilasso expressly says that it was not formerly used as such, but only esteemed for its flesh and wool.

“They are however bred in herds by particular tribes in Upper Peru, but mostly in those regions belonging to the former Viceroyalty of Buenos Ayres. In consequence of the tracts of country on which they pasture being covered with furze and thorns, a large portion of their wool is lost; and this, together with their not being carefully folded for the night, makes the Spanish American wool so extremely dirty. The herdsman who attends the alpacas has his sling and uses it in the same way as the llamero;* it is

* The person who tends the flocks of llamas.

indeed as characteristic in him as the crook is in our shepherds.

“ Spanish sheep and alpacas are regularly shorn twice a year, in June and at Christmas, at which time they are always brought into the warmer climate of the lowlands ; when the shepherd pays great regard to the most seasonable food, as well as temperature, and this he can at all times vary, by ascending, or descending for a day. The alpaca wool, when shorn, bears an equal value with that of the common sheep, but is much cleaner, and sells for 7 or 8 rials per arroba, (25lbs.) or 4 cents. per pound. The price of a sheep is a dollar, but by being killed, salted, the skin cured, and the whole carried to a neighbouring market, it may fetch three. Two common sheep are generally estimated to be the value of one alpaca.”

At the time our troops attacked Buenos Ayres, in the year 1807, a few bags of alpaca wool were sent to London, and I then saw it for the first time. Since that period it has come more into notice, and now serves for the manufacture of various fancy articles, of a delicate texture, such as waistcoats, and occasionally is mixed with silk. At one time it sold as high as 2s. 3d. per lb., although at present it is not worth more than 15d. Being of an extremely fine and flexible fibre it may be applied to many useful purposes, and should its use become more general, it will no doubt command a good price, as during the wars which have so long desolated the shores of the Pacific the flocks have been much neglected.

Stock of this kind might nevertheless be procured more easily and at less expence to the Colonist than sheep originally were. On the coast of Peru an

alpaca could be obtained for five dollars, about one third of the cost of an ass, and the voyage besides would be less tedious than from Europe. The alpaca is serviceable for at least twelve years, and being hardy and sparing, like the goat requires no care, or attention. It feeds on short moss and rushes, when shrubs, grass, maize, or millet cannot be had. It has been noticed that the few llamas and alpacas brought to England, preferred green rye and carrots to all other kinds of food.

With such a scope as that which they have before them, the extent to which the Australians may hereafter carry their enterprise and industry it would be difficult to calculate. Ships, Colonies and Commerce, as our old adage teaches, bring with them wealth and power, but in proportion as our Colonial productions vary, in the same degree do the settlements in which they are grown become valuable, because they then contribute to that general assortment of commodities necessary for the mutual exchange which takes place between nations. We have Colonies which supply us with sugar, while other British settlements send us cotton, and it is to be hoped that in the course of time our latest conquests in India will provide us with tea. Let then the growth of wool be encouraged in Australia, Tasmania and Southern Africa. There it will not compete with the productions of our other settlements.

On this account, it is, that I am so desirous that the Australians should adopt the several kinds of farming stock, and even the plants suited to their circumstances and procured at no great sacrifice. I

trust therefore that I shall not be charged with being tedious, if I still venture to offer another suggestion.

In a conversation which I lately had with a friend, who has travelled into some of the interior districts of Southern Africa, I was agreeably surprised on learning that there is a plant, indigenous to that country and commonly called the Palmite, which in its close and strong growth forms a hedge, or barrier, so firm and impervious that it actually serves to turn the current of a stream. The assurance of this fact induced me to seek information on the subject from others, who had visited the same region, and they fully confirmed the statement which I had received.

Forcibly struck with the idea that in such a country as Australia, where water must be managed with care, and even with frugality, and where I make no doubt it would flourish, the palmite might be planted in such a manner as to divert the current of a stream so as to form lagoons, I pushed my inquiries still further and consulted several writers who have published their Travels in Southern Africa. I was amply repaid for my pains, and am now able to lay before my readers the following extract, taken from the work of W. J. Burchell Esq., vol. 1.

“ 10th April, 1811. Most of the rivers which we passed in this excursion, are choked up with the plant called Palmite by the Colonist, and from which this one derives its name. Some notion of the appearance of these plants may be gained by imagining a vast number of ananas, or pine-apple plants, without fruit, so thickly crowded together as to cover the sides and even the middle of the stream, standing seldom

higher than three or four feet above the surface, but generally under water, whenever the river swells above its original height. The stem which supports them is of the thickness of a man's arm; black and of a very strong substance, generally simple, though not rarely divided into one or two branches. They rise up from the bottom, not often in an upright posture, but inclined by the force of the current. They have very much the growth of dragon-trees (*dracæna*) or of some palms, from which latter resemblance they have obtained their name."

And by way of note is added the following—

"This is the *Juncus serratus* of Thernberg, and with that genus it agrees in fructification; yet its appearance and habit, together with its gigantic size, would rather refer it to some other family. Hitherto, however, I have not been able to discover any character which might authorize its separation, unless three sessile stigmata can be considered as a sufficient generic difference."

And again in page 140—

"We approached the Berg river with some anxiety, lest it should not be fordable; but found it not yet risen higher than four feet. The ford, which had rather the appearance of a lane, led us through the tall thick palmito with which the river was, in this part, so choked up, that its waters seemed as if struggling to find a passage between their stems. It would be very unsafe, without great care, for a traveller to ford a river of this kind; for should he by the force of the stream be carried into the palmitos, he might find the greatest difficulty in extricating himself or his horse from amongst their entangled trunks. This

ford by turning obliquely, and in different directions, was so lengthened as to occupy us ten minutes in passing through."

I have now closed my labours; but before I take leave of my reader I feel called upon to state that, in the scope and design of the preceding treatise, my aim has been to convey to him that practical information which is requisite for the successful management of sheep, and by means of a methodical arrangement to place before him a comprehensive view of the whole subject. I have been minute in my details and in some instances copious in my extracts, in the first place, because I address myself to parties residing at a great distance from the market for their produce and in want of instruction on topics connected with sheep-husbandry; and, in the second, because in the infancy of our grazing Colonies works of reference can only be accessible to a limited number of persons.

The importance of agriculture and commerce, as sources of national wealth, as well as of individual comfort and distinction, is too generally understood to require any elucidation from me. It is the produce of the soil, procured through the labour of the husbandman, which feeds our commerce and supports our looms, and by this union it is that the energies of the nation are increased and its powers expanded.

At the same time we must not forget that in almost every part of the European continent combinations are forming to rival our manufactures, and by this means deprive us of one great source of strength and prosperity. These combinations cannot be better defeated than by securing within ourselves, and growing under the safeguard of that flag which has so often

“braved the battle and the breeze,” the raw materials necessary for our manufactures. This is the best mode of rendering ourselves independent of other countries. The prices and the quality of our goods will then enable us to retain that preeminence which we have acquired in the foreign market.*

It is calculated that we annually expend three, or four millions sterling in the purchase of foreign wools.† Let us then endeavour to raise the quantity

* Declared value of British woollen manufactures exported from the United Kingdom, in 1839.—Russia, 125,524*l.*; Sweden, 16,266*l.*; Norway, 10,843*l.*; Denmark, 2,072*l.*; Prussia, 646*l.*; Germany, 816,604*l.*; Holland, 317,838*l.*; Belgium, 132,401*l.*; France, 51,492*l.*; Portugal, Azores and Madeira, 194,261*l.*; Spain and the Canaries, 27,523*l.*; Gibraltar, 76,393*l.*; Italy, 223,694*l.*; Malta, 12,210*l.*; Ionian Islands, 1,713*l.*; Morea and Greek Islands, 74*l.*; Turkey and Continental Greece, 22,181*l.*; Syria and Palestine, 1,268*l.*; East Indies and China, 530,687*l.*; New South Wales, Van Diemen’s Land, Swan River and Southern Australia, 131,377*l.*; Cape of Good Hope, 33,652*l.*; Other parts of Africa, 20,349*l.*; British Colonies in North America, 511,190*l.*; British West Indies, 84,833*l.*; Foreign West Indies, 67,443*l.*; United States of America, 2,142,352*l.*; Brazil, 247,869*l.*; Mexico and the States of South America, 431,085*l.*; Isles of Guernsey, Jersey, Alderney and Man, 37,805*l.*—Total 6,271,645*l.*

† The total quantity of Sheep and Lambs’ Wool imported into the United Kingdom in 1839, was, from Russia, 7,966,594 lbs.; Sweden, 1,773 lbs.; Denmark, 634,623 lbs.; Prussia, 64,088 lbs.; Germany, 23,837,805 lbs.; Holland, 299,895 lbs.; Belgium, 259,617 lbs.; France, 83,141 lbs.; Portugal and Madeira, 1,024,994 lbs.; Spain, 2,409,634 lbs. Gibraltar, 482,057 lbs.; Italy, 1,892,057 lbs.; Malta, 32,918 lbs.; Turkey, 1,183,532 lbs.; Morocco, 455,008 lbs.; Sierra Leone and River Gambia, 1,583 lbs.; Cape of Good Hope, 626,214 lbs.; St. Helena, 6,292 lbs.; Mauritius, 2,884 lbs.; East India Company’s territories, 2,103,546 lbs.; New South Wales, 6,621,291 lbs.; Port Philip, 273,572 lbs.; Van Diemen’s Land, 3,212,698 lbs.; Swan River Settlement, 21,213 lbs.; South Sea Islands, 2,473 lbs.; British North

required in our own dominions, and that the Colonists of Australia, Tasmania and Southern Africa, seconded by our countrymen established in India, are in the course of events destined to effect this momentous change in our commercial relations, will appear evident from the outline of their success which my feeble pen has just traced.

It is my confident hope that this great national benefit will be eventually gained, and it is therefore my most earnest wish that our grazing Colonies may rise in public estimation, and command that consideration which they deserve. In England the intelligent part of the community may be regarded as assisting in regulating the affairs of the country, by the influence which public opinion exercises over the proceedings of the government; but in our new and distant Colonies public opinion expressed here has had little, or no control.

There seems indeed to be a prejudice operating against settlements which first came into notice as asylums for the criminal, or the destitute, and besides few persons only are aware of the advantages which we already enjoy and hereafter shall derive from our

American Colonies, 1,579 lbs.; British West Indies, 3,360 lbs.; United States of America, 149,163 lbs.; States of the Rio de la Plata, 236,751 lbs.; Chili, 1,339,569 lbs.; Peru, 2,149,571 lbs.; Guernsey and Jersey, 428 lbs.;—Total Foreign Wool, 57,379,923 lbs.; Produce of the Isle of Man, 16,021 lbs.; Total imported, 57,395,944 lbs. Of this quantity 695,049 lbs. were re-exported, principally to Belgium, United States of America and Holland, at an average price of about 2s. The quantity of British wool exported was 4,603,799 lbs. principally to Belgium and France, and of British woollen yarn 3,320,441 lbs. principally to Germany, Holland, the United States of America, France, Russia and Belgium.

territorial possessions south of the continent of Asia. Lately there are however indications of an increasing interest, manifested in favour of our absent countrymen, and if by my humble labours I can give the slightest impulse to that feeling, I shall congratulate myself on having performed a public service.

Major Mitchell, speaking of the interior and unsettled parts of Australia, in his work already quoted, observes thus—

“It is only where trap, or granite, or limestone occur, that the land is worth possessing, and to this extent every settler is under the necessity of becoming a geologist; he must also be a geographer, that he may find water and not lose himself in the bush, and it must be admitted that the intelligence of the native youth in all such matters is little inferior to that of the aborigines.

“The barren sandstone country is separated from the sea-shore, by a lofty range of trap rock connected with that of Mittagong, and we accordingly find an earthly paradise between that range and the sea-shore. The Illawarra, a region in which the rich soil is buried under matted creepers, treeferns and luxuriant shades of a tropical vegetation, these being nourished both by streams from the lofty range and the moist breezes of the sea. There a promising and extensive field for man’s industry lies still uncultivated, but when the roads, now partially in progress, shall have connected it with the rest of the colony, this must become one of the most certain sources of agricultural produce in New South Wales.

“The dominion of man,” adds the same intelligent officer, “cannot indeed be extended there without

much labour of this description," alluding to that of convicts, a subject on which he expresses himself to this effect.

"It can require no argument to shew how much more pernicious to the general interests of mankind the amalgamation of criminals with the people of a young colony must be, than with the dense population of old countries where a better organized police, and laws suited to the community are in full and efficient operation, both for the prevention and detection of crime: but the employment of convicts on public works is not inseperable from the question of allowing such people to become colonists; and whoever desires to see the noble harbour of Sydney made the centre of a flourishing country, extending from the tropic to the shores of the southern ocean, rather than one only of several small settlements along the coast, will not object to relieve the mother country by employing her convicts, even at a greater expense than they cost the colonists at present.

"With a well arranged system of roads, radiating from such a harbour, even the sand stone wastes, extensive though they be, might be overstept, and the good parts being connected by roads, the produce of the tropical and temperate regions could then be brought to one common market."

Without entering into the question whether the government system, or that of bounties, is best calculated to procure settlers, it may suffice to say that the Committee of the Legislative Council of New South Wales, in their late Report on Emigration, undertaken "with a view of ascertaining the present and prospective demands for labour, and how the same can be

most effectually and economically met," distinctly acknowledge that "the necessity of a continued and extensive introduction of free labourers and mechanics is universally felt and admitted;" adding "that the wants of the colony, with regard to labour, have not been supplied to the extent required."

After this avowal the Committee express their anxiety "to provide a sufficiency of funds, applicable to the purpose of introducing emigrants in regular succession," and then present a return of the arrivals of this class of persons in the year 1838 and three months in 1839,* from which they conclude that "a constant and increasing stream of emigration is nevertheless now setting towards the shores of the Colony."

Our settlements in New Holland and Southern Africa beyond doubt offer a fit and inviting outlet for our surplus population, and in the end there is reason to believe that it will prove more advantageous to the mother country to divert that surplus into this channel than to encourage emigration even to Canada. Besides unemployed field labourers and mechanics, there are many respectable families in the middle ranks of life unable to provide for their children, and the progressive improvements in machinery, together with other inventions, will unavoidably add to the mass of individual distress. For all the extensive and varied regions alluded to afford an ample field, where they can be employed with the prospect of benefit to themselves and to their native land. Thither govern-

* By government ships, 8489; by bounties, 4266; unassisted, 3619; total, 16,404 persons.

ment might also send such persons as are likely to become instruments of mischief.

The true philanthropist and real patriot will, therefore, be disposed to encourage the emigration to our grazing Colonies of young, healthy and useful persons, incapable of earning a competent livelihood at home. But he will not stop here. He will extend his benevolence a step further, and endeavour to see that early instruction, adapted to their respective callings, is instilled into the minds of our field labourers. It is to be feared that generally speaking the plan of rural education in England is defective, and I became the more convinced that this was the case from a circumstance which fell under my own observation.

Some time ago I was requested by a mercantile house in Australia to send out to them a party of shepherds, for the management of flocks. I accordingly procured sixteen from Kent, Wilts and Norfolk, well recommended, no more than half of whom could read and write. On inquiry I learnt that the uneducated parties, when boys, had been occupied in tending flocks, which prevented them from receiving any instruction. Surely, in an age like this, when in large towns institutions are established to instruct the mechanical classes, some method might be adopted to diffuse useful knowledge among our peasantry!

We hear of schools for farmers being established on the European continent, and although this mode of tuition in England might not perhaps produce the effect desired, nevertheless I humbly conceive the object in view might be attained by some other expedient, and it would be to the honour and the credit

of our leading agriculturists to have one devised. They themselves would eventually reap the benefit. A little public spirit is all that is wanting to remove what truly may be called a national calamity, if not a disgrace. Let us therefore begin systematically and see that suitable pocket books, or manuals, are placed in the hands of the several classes of our unlettered peasants.

To have poor children taught to read and write ought to be the bounden duty of the parish overseer, and no parent should be allowed to avail himself of the personal services of any junior member of his family, until this has been accomplished.* Thanks to the generous and benevolent dispositions of our resident nobility and gentry, in no village, or rural district of the kingdom, can poverty be pleaded as an excuse for the omission.

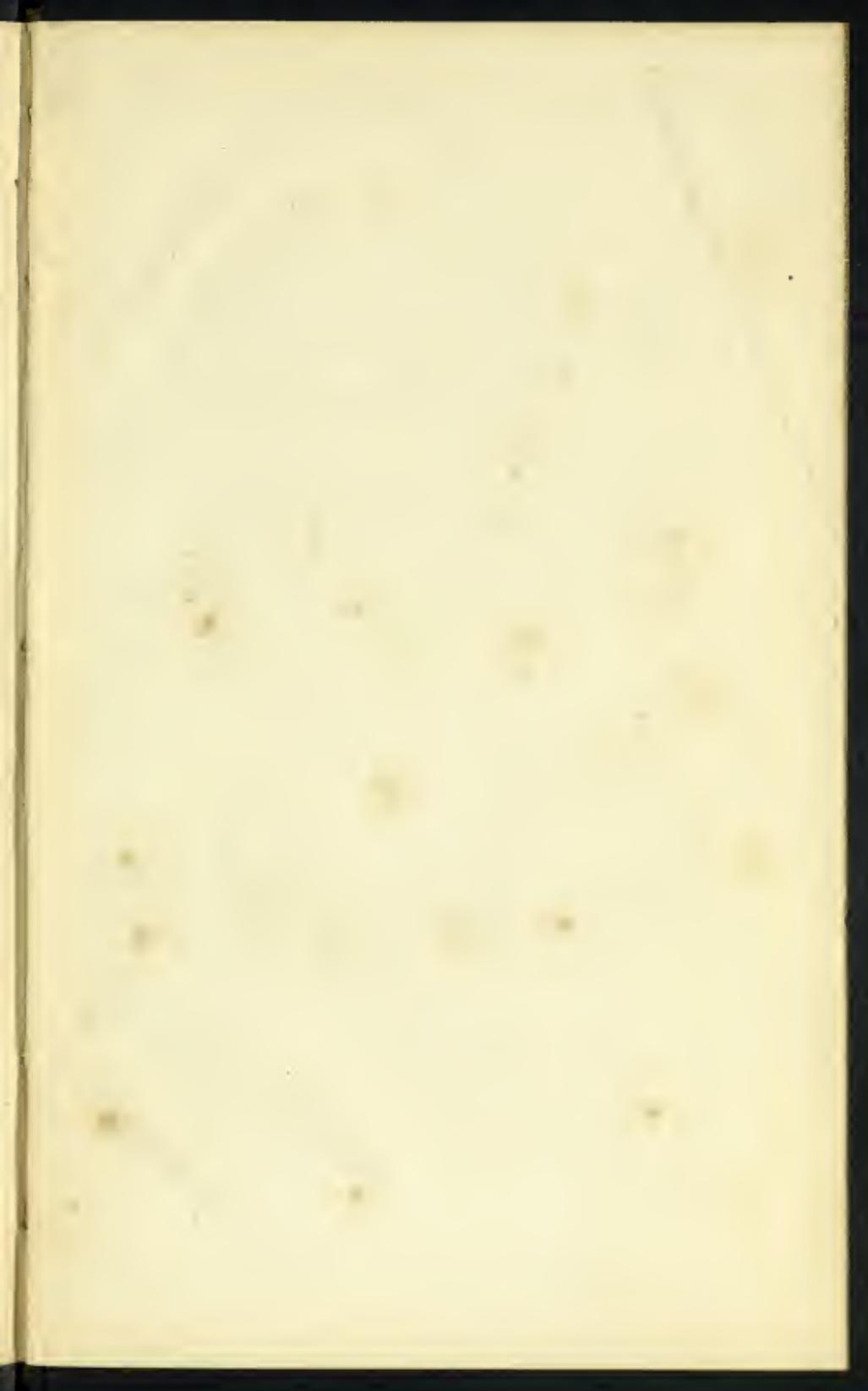
When a peasant boy, for example, has made sufficient progress in the first rudiments and is called upon to earn his livelihood in the open air, either by means of field-husbandry, or tending sheep, he ought to have a portable and strongly-bound tract put in his hand, written in a plain and elementary manner, on agriculture and the management of sheep, and containing lists of the ordinary fruit and forest trees; descriptions of the best methods of draining land, and an enumera-

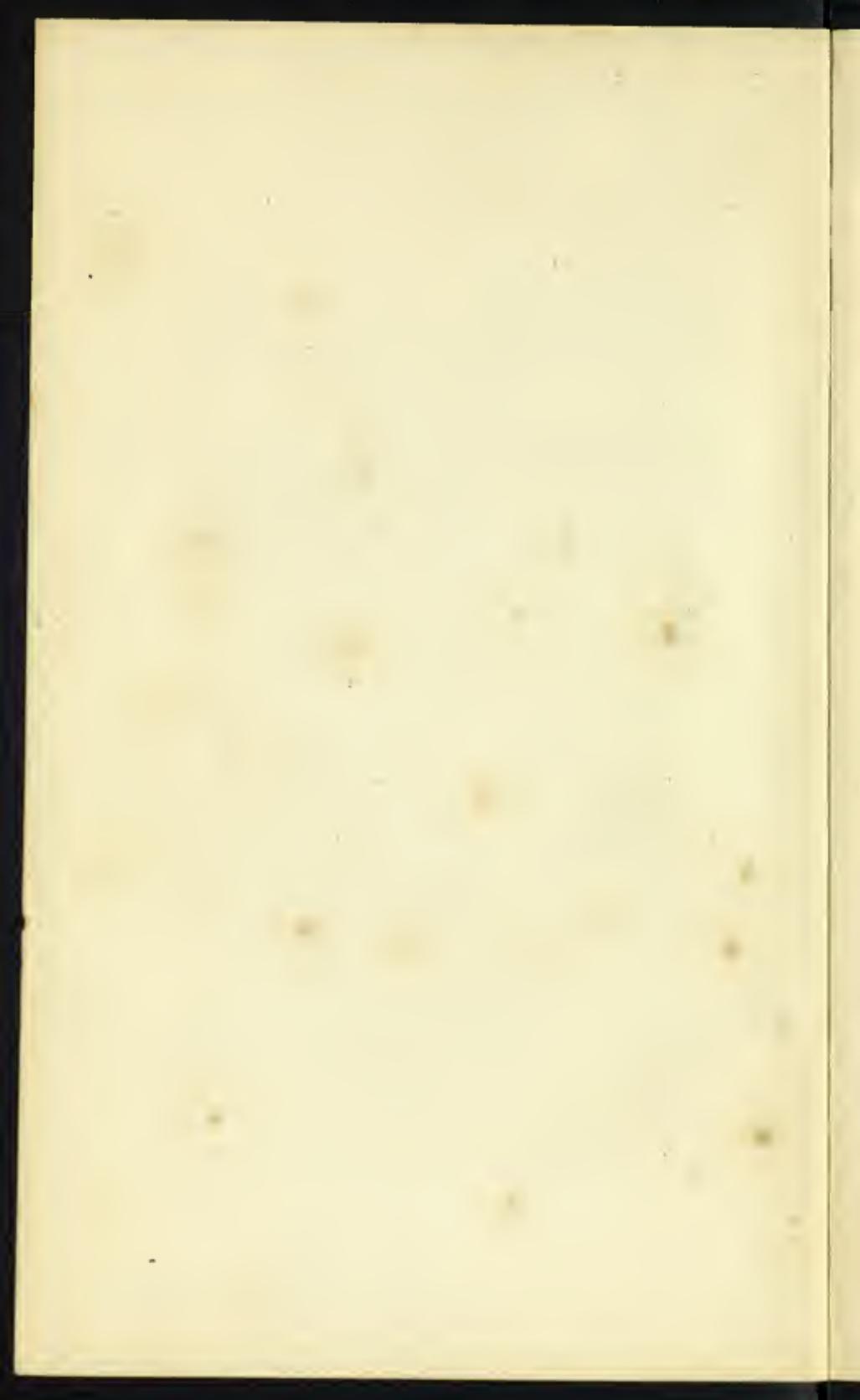
* It has been very judiciously remarked that in preparing the intended Census for 1841, it would be desirable to be more specific than on former occasions. The classes and occupations ought to be distinctly marked, and it might not be amiss to distinguish, in children from five to ten years of age, the number of those who cannot read and write. A return of this kind would designate the counties, or parishes, blessed with diligent and attentive overseers.

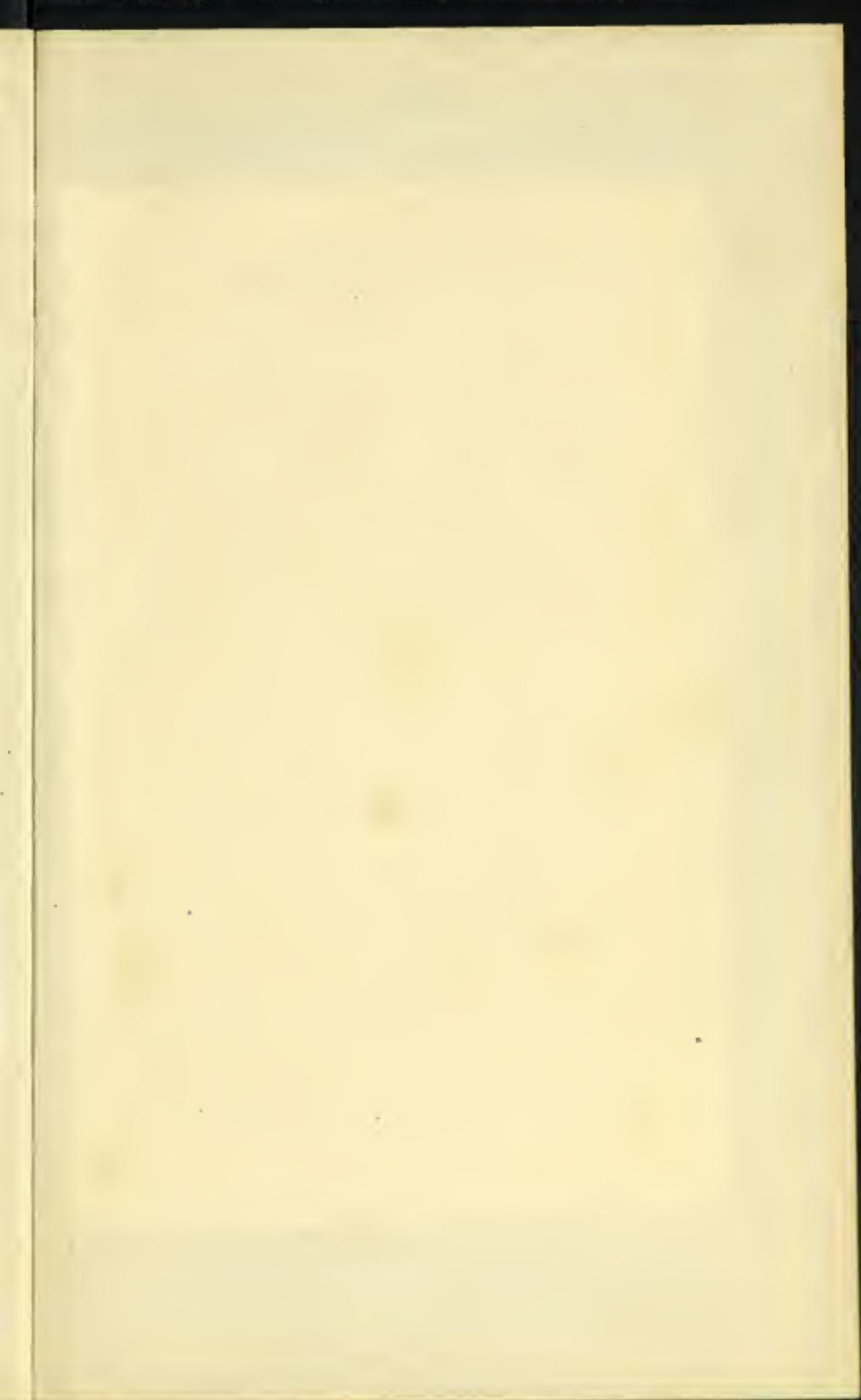
tion of the seasons for sowing, modes of planting and grafting, &c. accompanied by instructive plates.

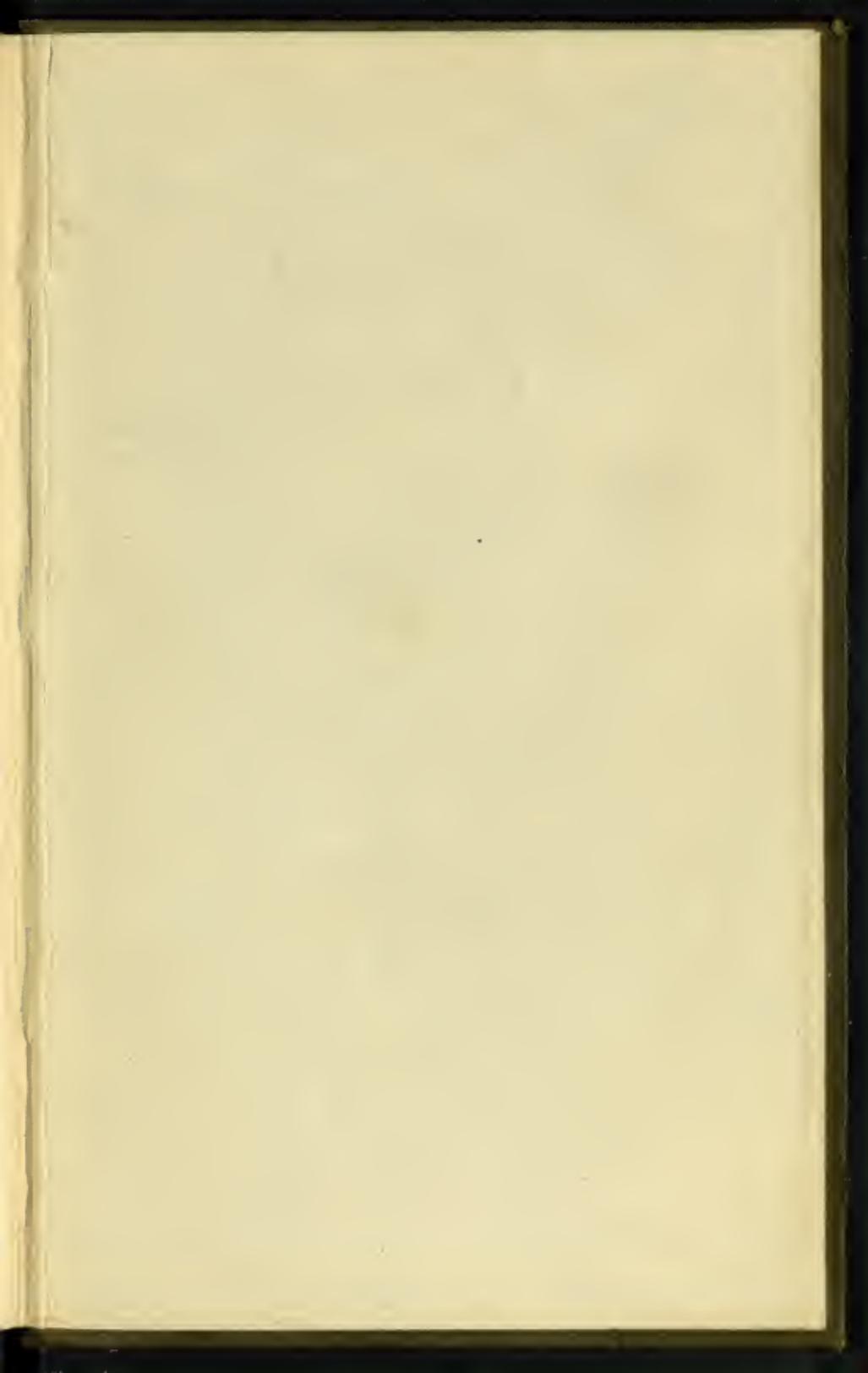
This manual ought also to treat of the common diseases among cattle, horses and sheep, to which might be added a plate, representing the short-jointed, clean-legged, bony and compact cart-horse, of which there are a few fine specimens still remaining in Suffolk and Norfolk. Correct drawings of this kind would familiarize the eye to a breed of horses, unfortunately much out of fashion in England, but still extremely serviceable everywhere. It might also comprise general views and practical results concerning the earth's surface, showing the best modes of quarrying, of discriminating the nature of soils, and improving them for agricultural purposes.

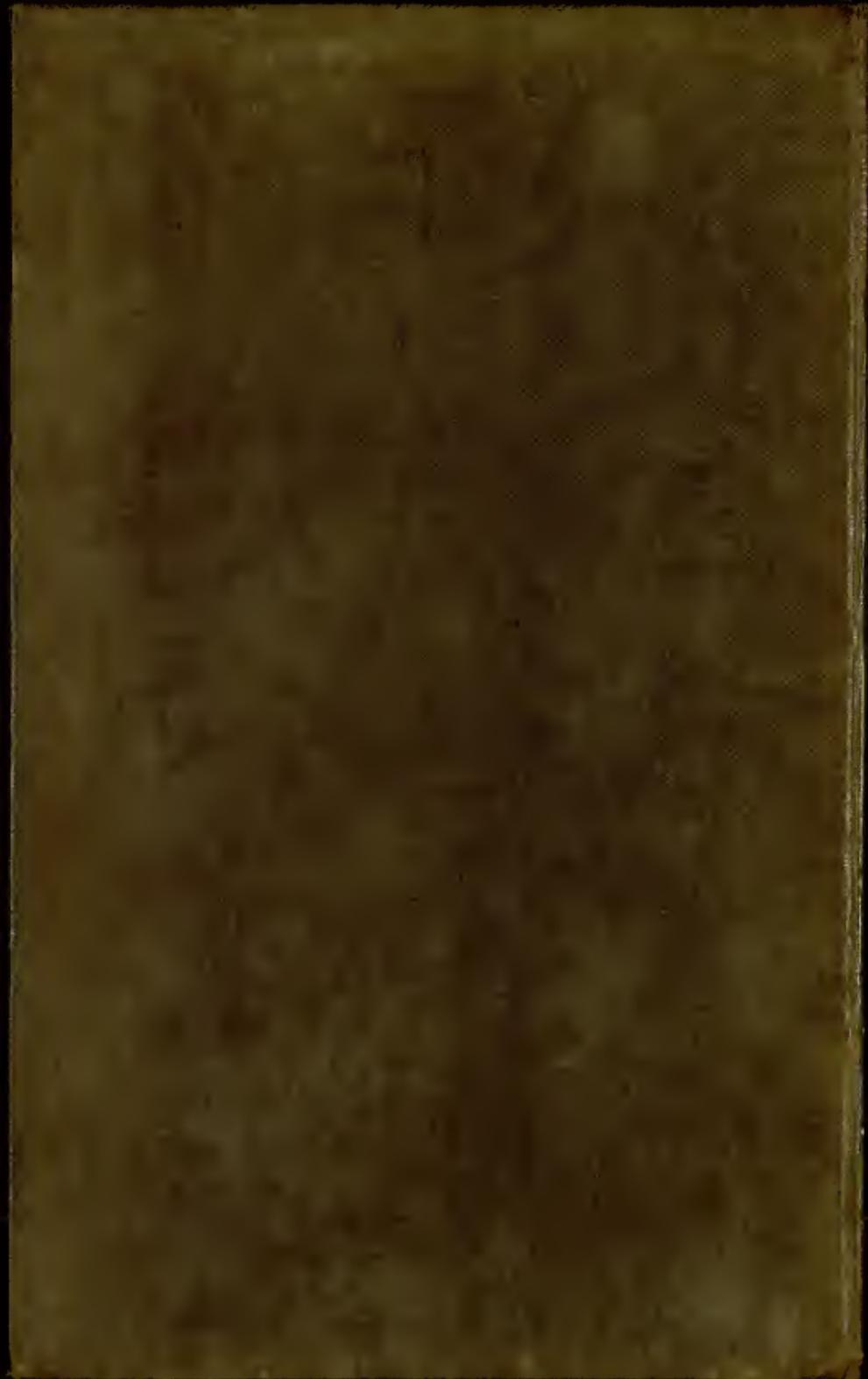
A work of this kind would be extremely serviceable to the young peasant and assist him in his progress through life. As a stimulus, suitable rewards should be offered to him for such improvement as he may make in that branch of industry to which his application is directed. It were indeed to be wished that some of our patriotic noblemen, or benevolent Corporations, would carry out the suggestion here offered. A mixed elementary and practical tuition, undertaken on a plan similar to the one here insinuated, besides being beneficial at home, would be attended with the best consequences in our grazing Colonies.











WOLFE, ON SHEEP & WOOL.

1853
1854
1855
1856