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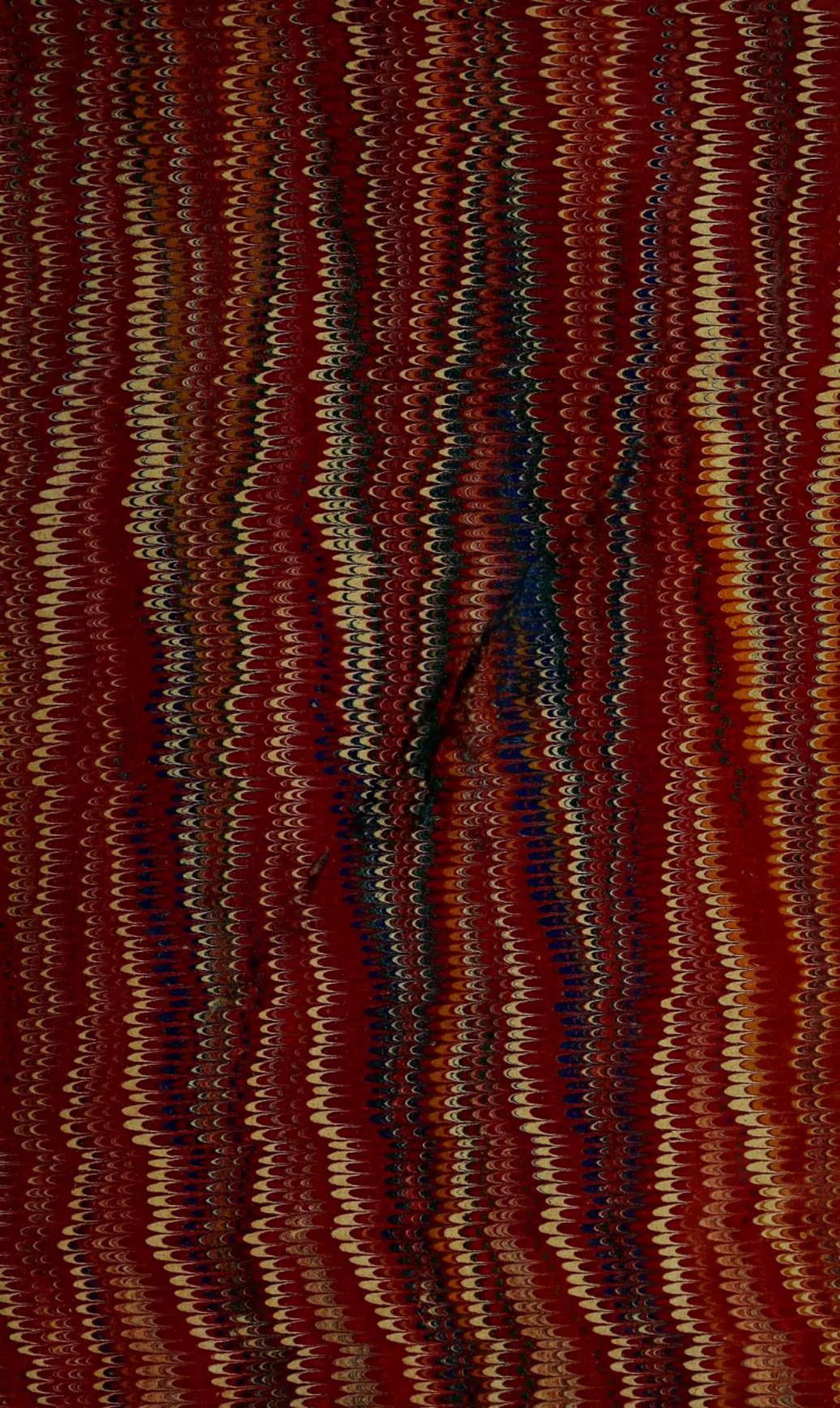
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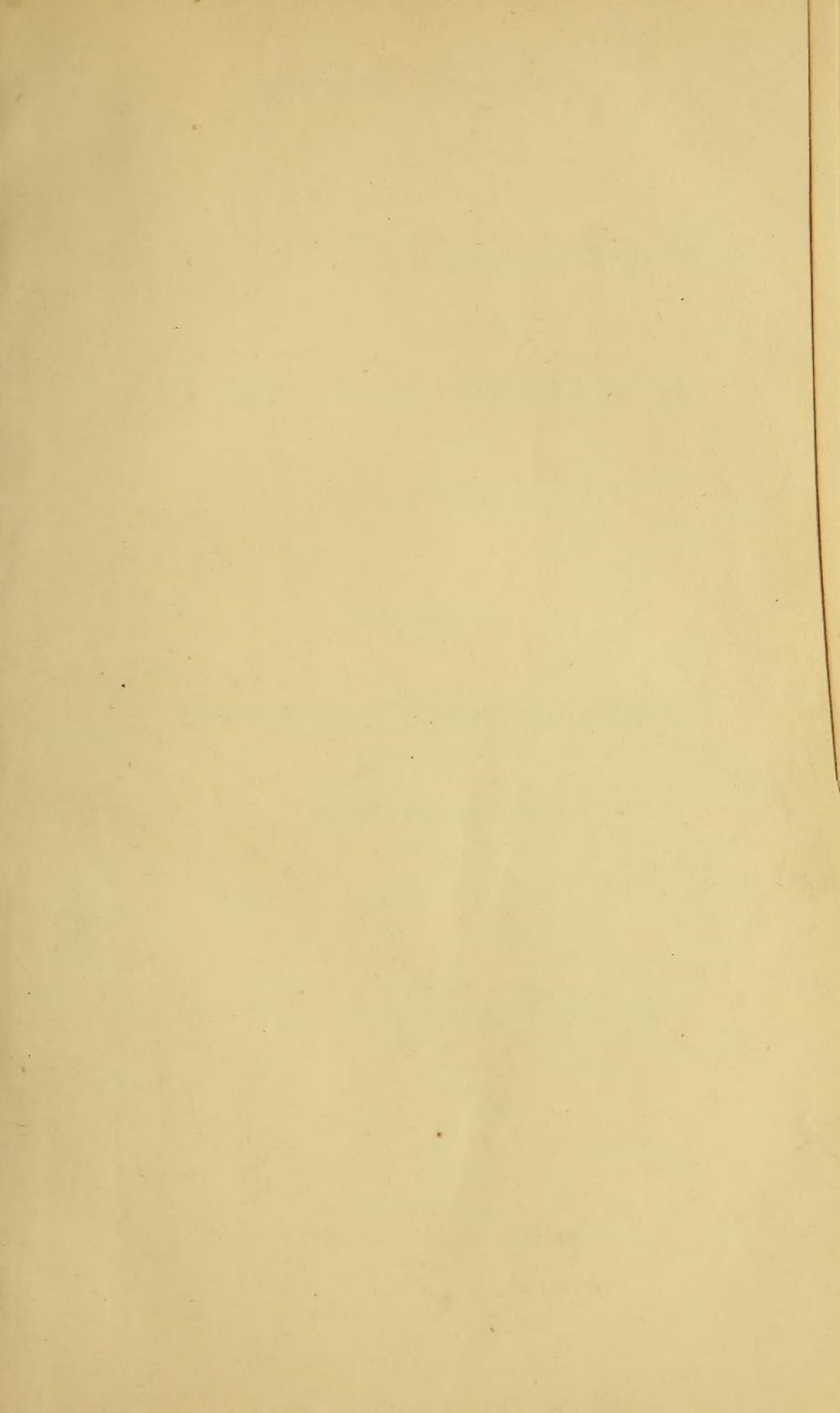
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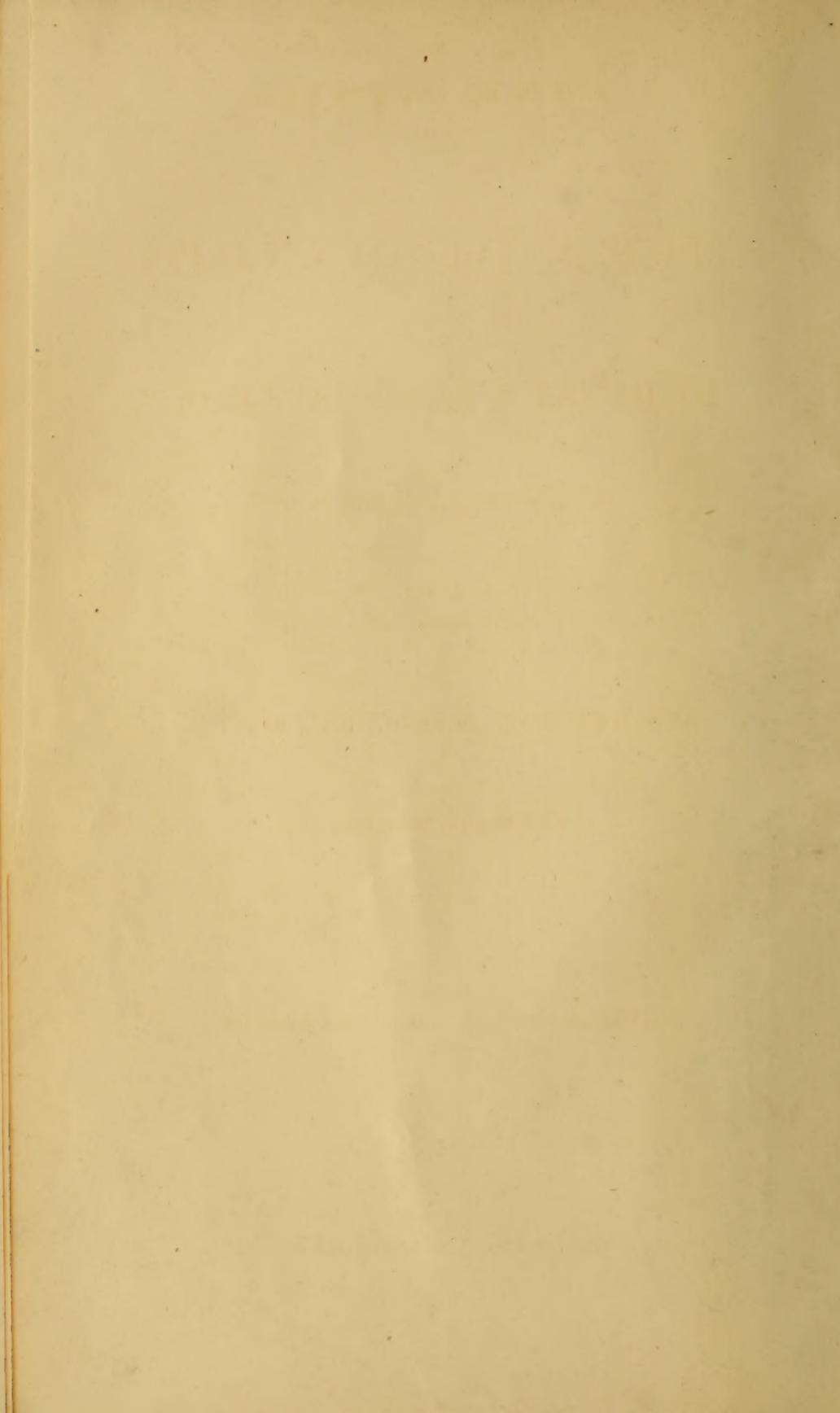
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1862
UNITED STATES OF AMERICA.







FINE WOOL

SHEEP HUSBANDRY.

Jefferson
BY HENRY S. RANDALL LL. D.

OF CORTLAND VILLAGE, N. Y.

READ BEFORE THE

NEW YORK STATE AGRICULTURAL SOCIETY,

FEBRUARY 12th, 1862.

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FINE WOOL SHEEP HUSBANDRY.

In rising to read this paper on the sheep of our country, prepared at the request of your President, I cannot fail to have it forcibly recalled to my memory that twenty-five years ago this very month, at the annual meeting of the old New York State Agricultural Society, in this city, I was appointed chairman of a committee of breeders to draw up a report on the same subject; and that, twenty-four years ago, I read that report before the Society.*

On that occasion I was aided by the far riper experience of some of the most eminent breeders of our State, and might therefore without presumption, embody their knowledge in respect to breeds with which my own acquaintance was limited.

Having no such assistance now, I shall confine my descriptions chiefly to those varieties of which I can speak from an ample personal experience. These include the Merinos which, at various periods, have been imported from Spain, France and Germany into the United States.

The inquiries of your President embraced the following topics: The origin of the Merino; its varieties; its introduction into the United States; the circumstances which have affected its success; the comparative profitableness of its varieties; the expediency of crossing between varieties and the effects of in-and-in breeding; the proper mode of selecting a flock; the art of breeding; the present course of breeding in the United States; and suggestions as to the future of the fine wool husbandry in our country.

* It was published in the *Cultivator* (Albany) March, 1833, and extracts from it in the present Society's *Transactions*, 1841.

THE SPANISH MERINO.

The origin of this animal is involved in obscurity. The commonly received account is, that Columella, a Roman who resided near Cadiz in the reign of Claudius, coupled fine wool Tarentian (Italian) ewes with wild rams brought from Barbary, and thus laid the foundation of the breed; that some thirteen centuries after, Pedro IV. of Castile, improved it by a fresh importation of rams from the same country; and that two hundred years later still, Cardinal Ximenes a third time repeated this ameliorating cross;—from which period, we are left to infer, the breed became established about as it was found when it first began to attract the special attention of foreign nations in the seventeenth century. All the early varieties of Africa had long, straight, hairy wool, like the present long-wooled sheep of England, and no writer, ancient or modern, has pretended that the rams imported from that country into Spain, were any different in this particular. How recurring crosses between such animals and fine woolled ewes should have commenced, improved, and finally fixed the characteristics of a breed like the Merino, is a problem which admits of no rational solution to a practical sheep breeder.* This pedigree is probably entitled to about as much confidence as that which the Greek poets gave to the wonderful ram which bore the "Golden Fleece." He, according to this very respectable authority, was got by the sea-god Neptune, dam the nymph Theophane.

The only well settled facts on this subject—and fortunately they are quite sufficient for all practical purposes—are, that at a period anterior to the Christian era, fine woolled sheep abounded in Spain; that they were preserved and made themselves heard of in the channels of trade and the domestic arts through all the conquests, re-conquests, and other sanguinary convulsions of that kingdom; that they were, or gradually ripened into, an exclusive breed unique in its characteristics, and essentially unlike all other breeds in the world.

When the Merinos of Spain first attracted the observation of

* Strabo, who was a contemporary of our Savior, and who consequently lived a generation earlier than Columella, says that the fine cloths worn by the Romans in his time were manufactured from wool brought from Truditania, in Spain. Pliny, himself Governor of Spain, writing just after Columella's time, describes several fine woolled varieties in that country which must have existed there a long time anterior to Columella. The Barbary crosses undoubtedly were made with, or formed, the Chunah or long-wooled breed of Spain, which is altogether distinct from the Merino.

other nations, they were found scattered over most portions of their native country, divided into provincial varieties which exhibited considerable differences; and these again were separated into great permanent flocks or cabanas, as the Spaniards termed them, which had so long been kept distinct from each other and subjected to special lines of breeding, that they had acquired the character of sub-varieties or families.

VARIETIES AND SUB-VARIETIES IN SPAIN.

The first division recognized in Spain was into Transhumantes or traveling flocks, and Estantes or stationary flocks. The first were regarded as the most valuable. They were mostly owned by the King and some of the principal nobles and clergy, who at an early period fastened on the kingdom a code of regulations which sacrificed every other agricultural interest for the convenience of the proprietors of these sheep.*

The system of Spanish sheep husbandry is a curious and not uninteresting leaf from the records of the past, but does not come within the scope of this paper. It will be found described with sufficient fullness by Mr. Livingston, whose valuable "Essay on Sheep," now recognized authority throughout the world, was laid before the New York State Agricultural Society in 1809.†

* These will be found described in detail by Lasteyrie, Livingston and other writers. The sheep were driven from the southern provinces in April or May, according to the weather, to the mountains in the north of Spain, a distance of about four hundred miles, and driven back again in the autumn, generally leaving the mountains towards the close of September and through the month of October. The Tribunal (Consejo de la Mesta) which both made and administered the laws which regulated their transit, was composed of the rich and powerful flockmasters. The following remarks are from Lasteyrie's most valuable Treatise on Merino Sheep:

"A Spanish writer, Jorvellanes, in a memoir addressed to the King of Spain, says 'the corps of Junadines (proprietors of flocks) enjoy an enormous power, and have, by the force of sophisms and intrigues, not only engrossed all the pastures of the kingdom, but have made the cultivators abandon their most fertile lands: thus they have banished the stationary flocks, ruined agriculture, and depopulated the country.' It is easily conceived that five millions of sheep traversing the kingdom in almost its whole extent, for whom the cultivators are compelled to leave a road through their vineyards and best cultivated lands of not less than ninety yards wide, and for whom, besides, large commons must be left; I say, it is easily conceived that such a flock must greatly contribute to the depopulation of the country, and that the revenue that the King draws by the duty on wool is snatched from the bread of his people."

† I have thus termed the Society, because it will convey a more correct impression to many readers of the present day, than to give it its actual designation, which was, "The Society for the Promotion of Useful Arts." It was the lineal ancestor of our present organization.

Robert R. Livingston, LL. D., Secretary of Foreign Affairs under the American Articles of Confederation, Chancellor of New York, &c. &c., went as American Minister Plenipotentiary

Livingston makes the following territorial classification of the Merinos in Spain at the opening of the present century: "Castile and Leon has the largest with the finest coats. Those of Soria are small, with very fine wool. Those of Valencia, which, like the last, do not travel, have fine wool, but a very short staple."

The Leonese Transhumantes, considered the best sheep of Spain, were the only ones which ever attracted much foreign notice, and they composed the principal importations into the United States. Some of the most esteemed families of them were thus briefly characterized by Lasteyrie, one of the best informed* and most reliable writers, early or late, in respect to the Merino:

"The Escorial breed is supposed to possess the finest wool of all the migratory sheep. The Guadeloupe have the most perfect form, and are likewise celebrated for the quantity and quality of their wool. The Paulars bear much wool of a fine quality; but they have a more evident enlargement behind the ears, and a greater degree of throatiness, and their lambs have a coarse, hairy appearance, which is succeeded by excellent wool. The lambs of the Infantados have the same hairy coat when young. The Negretti are the largest and strongest of all the Spanish traveling sheep."†

The Merinos, as they appeared as a race at the opening of this century, are thus described by Livingston:

to France in 1801. He there gave much attention to the Merinos preparatory to an importation of them. He is an able, and in matters of fact, extremely reliable, writer. He was one of the most spirited and influential agricultural improvers in our country, and is never to be forgotten as the patron and coadjutor of Fulton.

* Lasteyrie traveled into every country in Europe, where the Merinos had been introduced, to ascertain how the experiment succeeded and to observe the effect of the different climates and systems of management on the animal.

† Livingston's descriptions coincide with these, except that he says that the Paulars have "similar fleeces" with the Guadeloupes, and are "longer bodied."

These celebrated flocks were the property of individuals or of religious orders. The Escorial flock belonged to the King, until Philip II gave it to the friars of a convent attached to the Escorial palace. The Paulars were purchased by the Prince of Peace of the Carthusian friars of Paular. The Negrettis were owned by the Conde Campo de Alange—the Infantados, Aqueirres, Montarcos, etc., to the nobles of those names.

Hon. William Jarvis, of Vermont, hereafter mentioned as a conspicuous importer of Merino sheep into the United States, in a letter to L. D. Gregory, which was re-published in Morrell's American Shepherd, (pp. 71-76,) describes the Spanish cabanas somewhat differently. But his opportunities for judging, good as they were, were not equal to those of Lasteyrie, and Mr. Jarvis wrote some years *after* he had seen any pure bred animals of the separate cabanas. Lasteyrie's description is adopted by some eminent writers, familiar with the Spanish sheep near the opening of this century, and I do not remember to have seen it contradicted by any European author of reputation. Like all the descriptions of animals by writers of that day, it is, however, exceedingly meagre and vague. But I do not think the writers of that day considered the distinctions between a few of the best cabanas as of much importance—regarding them as about equal in value.

"The race varies greatly in size and beauty in different parts of Spain. It is commonly rather smaller than the middle sized sheep of America. The body is compact, the legs short, the head long, the forehead arched. The ram generally (but not invariably) carries very large spiral horns, has a fine eye and a bold step. The ewes have generally no horns. The wool of these sheep is so much finer and softer than the common wool, as to bear no sort of comparison with it; it is twisted and drawn together like a cork screw; its length is generally about three inches, but when drawn out it will stretch to nearly double that length. Though the wool is, when cleaned, extremely white, yet on the sheep it appears a yellowish or dirty-brown color, owing to the closeness of the coat, and the condensation of the perspiration on the extremities of the fleece. The wool commonly covers great part of the head, and descends to the hoof of the hind feet, particularly in young sheep; and it is also much more greasy than the wool of other sheep."

To supply data which will enable any one curious on the subject to make some practical comparisons between these sheep and their descendants in the United States, I select the following, from a more extensive table by Petri, who visited Spain in the early part of this century for the express purpose of examining its sheep: and I add similar admeasurements of American Merinos:

NAMES OF FLOCKS.	Weight, including wool.		Length from mouth to horns.	Length from horns to shoulders.	Length from shoulders to tail.	The whole length.	Circumference of the belly.	Height of the fore legs.		Height of hind legs.	
	lbs.	inc.						ft. in.	inc.	ft. in.	inc.
NEGRETTI.											
Ram	97	9 $\frac{1}{2}$	1 7	2 2	4 6 $\frac{1}{2}$	4 1 $\frac{1}{2}$	1 3	10	6		
Ewe	67	8 $\frac{3}{4}$	1 5	2 1	4 2 $\frac{1}{2}$	4 1 $\frac{1}{4}$	1 1	9 $\frac{1}{4}$	4 $\frac{1}{2}$		
INFANTADO.											
Ram	100 $\frac{1}{2}$	10	1 6	2 3	4 7	4 2	1 0	9	6		
Ewe	70	9	1 5 $\frac{1}{2}$	2 1	4 3 $\frac{1}{2}$	3 11	1 0	8 $\frac{1}{2}$	5 $\frac{1}{2}$		
GUADELOUPE.											
Ram ..	97 $\frac{1}{2}$	9	1 6	2 2	4 5	4 5 $\frac{1}{2}$	1 0	8	6		
Ewe ..	69	9	1 2	2 1	3 11	3 9	10 $\frac{1}{2}$	6 $\frac{1}{2}$	4		
ESTANTES OF SIERRA DE SOMO.											
Ram	96 $\frac{1}{2}$	9 $\frac{1}{2}$	1 6	2 0	4 3 $\frac{1}{2}$	4 2 $\frac{1}{2}$	1 0	8	6		
Ewe	62	9	1 2	2 1	4 0	3 10	11	7	5		
SMALL ESTANTES.											
Ram	42	7 $\frac{1}{2}$	1 3	1 9	3 7 $\frac{1}{2}$	3 2	10	6 $\frac{1}{2}$	3		
Ewe	30	7	1 1	1 6	3 2	2 10	8	6	3		
AMERICAN MERINO.											
Ram	122	9	10	2 4	3 11	4 4 $\frac{1}{2}$	11	9	9		
Ewe	114	9 $\frac{1}{2}$	10	2 4	3 11 $\frac{1}{2}$	4 1 $\frac{1}{2}$	11	9	8		
Ewe	122	9	10	2 5	4 0	4 3	9	9	8		
Ewe	100	9	11	2 3	3 11	4	8 $\frac{1}{2}$	8	8		

These weights and measures, except those of the American sheep,* are Austrian. The Austrian pound is equal to 1.037 lbs. avoirdupois; the Austrian foot to 1.234 English feet.

Mr. Livingston, in describing the Spanish Merino of his day as compact and short-legged, took for his standard of comparison, doubtless, the gaunt, tall sheep of America; and Col. Humphreys' description, sent to the Massachusetts Society for promoting Agriculture, requires the same explanation. Most British writers, with their eyes on their own mutton breeds, fall into the opposite extreme. Petri's measurements show that the Spanish sheep were far less compact than their American descendants, though they ran to no extraordinary excess in the opposite direction.

We should gather the impression from Livingston's remarks—and Humphreys expressly says—that they were broad chested.† Compared with other sheep, or their own descendants of the present day, this was quite otherwise. The concurrent testimony of both writers and observers who had more practical acquaintance with the points of an animal's carcass than either of the above distinguished gentlemen, as well as my own observations thirty years ago, when our own Merinos had been bred closely to the original model, show that the Merino of Spain was decidedly

* The American Merino ewes were taken from one of my flocks composed of sheep of good medium size, and I think they were a little heavier than the average of the flock. They were weighed, &c., in Dec. 1861, and had been sheared only five months—so that their weights did not, like the Spanish, include full fleeces. They were in good ordinary condition, and no more. The same is true of the ram. He is a small, short animal for one of his family, but has great substance, and is specially prized for the uniformity of his offspring, for their low, broad, beautiful forms, and for the great length and thickness of their wool. His own fleece has reached to about 21 lbs. In other respects there was nothing unusual in the appearance or form of any of the four; and their shape, &c. would about correspond with that of the flock they were taken from, or that probably of any other prime full blood flock in the country. The ram was 25 inches high on the shoulder, the ewes about 23 inches each. I wish Petri had given the heights of the Spanish sheep. When the difference in weight is taken into account, it is remarkable that there should be no greater difference in the "circumference of the belly" between the Spanish and American sheep in the table; and one would infer that a good portion of the weight of the former must be made up of a belly so disproportioned in size. But I have no doubt that Petri measured their circumference in full fleece and without any compression of the wool. I shall reserve any further comparisons until I describe the improved American Merino.

† "The neck short, the chest broad. The members more compact and thick than those of our former breed of sheep; and the carcass is thought to have smaller bones and to be more rounded in the hinder part."—[Col. Humphreys' Letter to Mass. Society for promoting Agriculture.

a narrow chested animal.* But what he thus lost in symmetry was made up, so far as room for the lungs and other viscera was concerned, by his great depth of carcass. In these respects he was to the English mutton breeds what the Spanish barb was to the thick winded English dray horse: and he exhibited a corresponding superiority in locomotion and energy.†

Mr. Livingston unquestionably wrote from a vague recollection, or at least without making actual admeasurements, when he stated the length of the unstretched Spanish wool at three inches. The Spanish breeders intentionally kept the staple short enough to meet the demands of the broadcloth manufacturers of that day, and two inches, unstretched, would have been regarded as a long staple then, and is so still. All old Merino breeders concur in the statement that the Spanish wool has increased in length in this country, yet it may be doubted whether a thorough bred sheep of this variety can be found in the United States, the wool of which, at one year's growth, averages three inches over the carcass. I never yet saw or heard of one.

The fleece of the Spanish Merino was exceedingly dense, level on the surface, uniform as between animals of the same family, and even in quality in the individual. The sheep of the Escorial cabana were destitute of external "gum," (indurated yolk,) and therefore quite light colored. Most of the celebrated flocks, however, had more of it, and were more or less dark—some as dark as the *unhoused* Merinos of the present day. The wool was free from indurated yolk within, and it opened with a fine lustre and the other general characteristics which still distinguish the breed.

Gilbert, a French writer of great reputation, stated in a report to the National Institute of France, in 1796, that "all the wool of Spain he had examined, not excepting the prime Leonese, the most esteemed of any, appeared to contain much more jar than that of Rambouillet." This would imply that the best wools of

* And it appears to me that the same fact is deducible from Petri's table. With the length, and belly circumference which he gives to them, they would far exceed the weights he gives, if they were as broad chested as their descendants.

† The Merino would travel almost twice as fast and more than four times as long as a mutton sheep, particularly in hot weather. Think of a great drove of ewes and lambs of *any* of the mutton varieties sweeping along eight or ten miles a day, for 400 miles twice each year, and kept on the most meagre pasturage during every trip! The Spanish ram would readily vanquish in battle, an English ram of twice his size. In "bottom," "pluck" and hardness there is no comparison between the breeds.

Spain exhibited this defect,* but Gilbert says "they pretend the best of the Spanish wool is not imported into France."

The weight of the Spanish fleeces was placed by Livingston at $8\frac{1}{2}$ lbs. in the ram, and five lbs. in the ewe, which he stated lost half in washing. Youatt gives the average weight of the ram's fleece at half a pound less, but of the ewe's the same. The Spanish system of washing alluded to, was much more perfect than our own. Brook-washed, on the back, in the American way, the shrinkage would not have exceeded one-third.†

These are but general averages, and do not indicate the weight of fleeces of prime animals. The King of England's flock of Negretti's, about one hundred in number, yielded during five years (1798-1802) an annual average of $3\frac{1}{2}\frac{5}{4}\frac{3}{7}$ pounds of brook-washed wool, and $2\frac{1}{2}\frac{5}{4}\frac{2}{7}$ pounds of wool scoured for manufacturing.‡

Some of the Spanish sheep first imported into the United States yielded still more wool, if well-preserved tradition can be credited; but I have not been able to find any precise records of weighing, except in relation to a dozen or two of them. Our early writers on such topics appear to have eschewed nothing so much as exact and definite facts.

Youatt ascertained, by actual admeasurement, that the fibres

* There has been some confusion as to the use of the term "jar" in our country. I think the foreign writers do not mean by it that firmly rooted hair which projects from the wool on the thighs, necks, &c. of some sheep, but that sharp-pointed, shining hair which is found *detached from the skin* within the fleece, and usually much shorter than the wool. It becomes detached when the wool has partly grown.

† If I have not made this distinction, in previously published papers on this subject, it was because I entirely overlooked the fact. The Spanish wools, after being shorn, are beaten on hurdles to remove loose dirt, then placed in a vat of hot water and stirred about five or six minutes, then put into the head of a trough or aqueduct of cold running water, and trampled on and rubbed by men's feet as they pass slowly through. They are next drained on an inclined plane and spread on the grass to dry. But four to seven per cent. of yolk is left in them. One-third of gross weight is the usual amount of deduction on our American unwashed wools, to put them on a par with our brook-washed wools.

‡ The flock included a very small number of wethers (the number is not given) and no rams. To exhibit the sorting of the Spanish wools of that day, by the English mode, I subjoin the following table:

	No. of sheep.	Lbs. of wool washed on sheep's back	Lbs. of scoured wool.	Lbs. of "prime" wool.	Lbs. of "choice" wool.	Lbs. of "fribbs."
1798.....	89	295	203	167	23	13
1799.....	101	346	254	207	28	19
1800.....	100	398	294	234	34	26
1801.....	108	397	285	237	31	17
1802.....	96	352	256	221	32	3

I have drawn these facts from Sir Joseph Banks' five annual reports in relation to His Majesty's flock.

of a specimen of picklock (the best) wool from a Negretti fleece, had the diameter of $\frac{1}{750}$ part of an inch. Another "fair sample" which he thought was probably *fina*, or No. 2, and a third one taken from Lord Western's Merinos, in England, gave the same admeasurement. This may probably be assumed as the average fineness of the good Merino wool of that day.

Having attempted to show the principal characteristics of this celebrated breed of sheep at the period of its highest development in its native country, comments and comparisons will be reserved until its French and German offshoots—also introduced into the United States—are first examined.

THE FRENCH MERINO.

Colbert, the eminent French statesman, was the first, so far as I have ascertained, who attempted the transplantation of the Spanish Merino into other lands. Nor have I learned the date of that attempt. Colbert was born in 1619, and died in 1683. Occupied in incessant and harassing cares, he could give no personal attention to his experiment, and it is to be presumed the sheep encountered among his dependents that obstinate antipathy which subsequently met them, among the ignorant, in every other country outside of Spain. As would be expected under such circumstances, they attracted no notice, and soon disappeared. A subsequent importation of Merinos by M. de Perce, resulted so favorably as to attract the notice of the government, which instituted a series of experiments on the subject, under the direction of the celebrated Daubenton. These proved satisfactory, and Louis XVIII of France applied to the King of Spain for permission to export a flock. The latter not only granted the request, but ordered "that they should be selected from the finest flocks of Spain."* A little over three hundred of them arrived safely in France in 1786, and were placed in an agricultural establishment devoted to the improvement of domestic animals, at Rambouillet, about forty miles from Paris.

Gilbert, in his already cited report to the National Institute of France, in 1796, thus describes them and the course of breeding to which they were subjected :

"The stock from which the flock of Rambouillet was derived, was composed of individuals beautiful beyond any that had ever before been

* Livingston's Essay, p. 47.

brought from Spain ; but having been chosen from a great number of flocks, in different parts of the kingdom, they were distinguished by very striking local differences, which formed a medley disagreeable to the eye, but immaterial as it affected their quality. These characteristic differences have melted into each other, by their successive alliances, and from thence has resulted a race which perhaps resembles none of those which composed the primitive stock, but which certainly does not yield in any circumstance to the most beautiful in point of size, form and strength, or in the fineness, length, softness, strength and abundance of fleece. * * * The comparison I have made with the most scrupulous attention, between this wool and the highest priced of that drawn from Spain, authorizes me to declare that of Rambouillet superior."

Judging by the taste uniformly displayed by the French in that particular, there is little doubt that "abundance of fleece" was the first rather than the last consideration—as it here happens to be named—which guided the original selection. And the far more liberal feed which the sheep received in France—their exemption from the exhausting annual migrations of Spain, and a course of breeding specially designed to produce that result, rapidly carried the weight of their fleeces beyond any point ever known in their native country.

Ten years after their introduction into France, Lasteyrie gives their average weight of fleeces, unwashed, and thus continues it through a series of years: in 1796, 6 lbs. 9 oz.; 1797, 8 lbs.; 1798, 7 lbs.; 1799, 8 lbs.; 1800, 8 lbs.: 1801, 9 lbs. 1 oz.

While all practical wool growers know that some seasons produce lighter fleeces than others—without reference to the apparent condition of the sheep, or to the weather, or any other circumstance known to influence the growth of wool, the disparity here exhibited between 1796, and the succeeding years, cannot be thus explained, and it would be preposterous to imagine that the course of improvement had advanced thus abruptly within so limited a period.

Gilbert, writing under government patronage, said, in 1796:

"Almost all the fleeces of the rams of two years old, and upwards, weigh from twelve to thirteen pounds, but the mean weight, taking rams and ewes together, has not quite attained to eight pounds, after deducting the tags and the wool from the belly, which are sold separately." This is, probably, the correct statement,* for Livingston, so familiar with the Rambouillet flock,

* The supposed statement of Lasteyrie, under examination, may be a misprint. Having suffered my wool library to become scattered, I cannot verify the accuracy of the quotation

accepts it as such, and subjoins the following remarks: "It is proper to observe that the French pound is almost one-twelfth heavier than the English; but, at the same time, to note that from the general custom of folding the sheep in France, of feeding them in fallows, and wintering them in houses, they are very dirty,* and their fleeces, of course, proportionably heavier; the loss in washing is about sixty per cent, so that the average weight of the ram's fleece would be, when washed and *scoured*, about six American pounds, exclusive of tags and belly wool."

"Scouring," even as Mr. Livingston uses the word†, is a very different process from brook-washing; and the belly wool, and clean tags, which are done up with the fleece in this country, would, I think, equal the weight acquired from additional yolkeness and dirtiness; so I infer that to place these unwashed French fleeces on an equality, in respect to cleanliness, with American brook-washed Merino fleeces, we should not deduct more than one-third of the given gross weight. There is something exceedingly unsatisfactory in statistics which are so vague as not to mention the respective number of rams and ewes, the fleeces of which go to make up a mean weight—when all know the produce of the former is nearly double that of the latter.‡ But here we have something more definite, and it shows another decided stride upward in the Rambouillet sheep. Lasteyrie, in his report to the National Institute in 1802, states "that the medium weight of fleece of full grown nursing ewes was 8 lbs. 7 oz.; of the ewes of three years old, which had no lambs, 9 lbs. 13 oz.; and two-tenths [grade] ewes 10 lbs. 8 oz."§ By the rule

from the original. I copy it from my "Sheep Husbandry in the South," and on turning to Youatt I find he gives the same figures.

I will, in this connection, add that, for the reason already given, I shall generally, in this paper, be under the necessity of re-quoting foreign authors from the work of mine alluded to. It is possible that occasional misprints have crept into succeeding editions of that work.

* A sheep, housed nights, and from storms, retains an additional amount of the soluble yolk in its fleece, which would far outweigh the mere "dirt" which adheres to the fleece.

† I do not apprehend that Mr. Livingston here refers to a process as thorough as that now employed by manufacturers in cleansing wool; but, judging from his remarks on other occasions, I infer that he meant something about equivalent to the Spanish mode of washing, described in a previous note.

‡ As already said, not having Lasteyrie's works to refer to, I am not certain that he does not supply this omission; but I think not, or I should have quoted his statements on former occasions.

§ Quoted by Livingston, Essay, p. 142.

of estimating above adopted, the Rambouillet grown ewes, sixteen years after the foundation of the flock, produced, on an average, not far from six pounds of wool, washed in the American way.

It is true that Mr. Livingston's own sheep, imported from France in 1802, bore less wool,* but it is evident that he made fineness, instead of quantity of wool, the leading consideration in their selection.

There is nothing incredible in these stated results of this most successful French experiment. The gain in wool is no greater, in proportion, than we witnessed in the American Merino in the sixteen years which succeeded 1840.

Leaping over a chasm of twenty-five years, let us again examine the Rambouillet sheep, and ascertain the progress of this most interesting experiment through the eyes of an English breeder of Merinos. Mr. Trimmer, the author of the "Practical Observations," visited this flock in 1827, and the following is his often quoted description of it :

"The sheep, in size, are certainly the largest pure Merinos I have ever seen. The wool is of various qualities, many sheep carrying very fine fleeces, others middling, and some rather indifferent; but the whole is much improved from the quality of the original Spanish Merinos. In carcass and appearance I hesitate not to say they are the most unsightly flock of the kind I ever met with. The Spaniards entertained an opinion that a looseness of skin under the throat, and other parts, contributed to the increase of fleece. This system the French have so much enlarged on that they have produced, in this flock, individuals with dewlaps almost down to the knees, and folds of skin on the neck, like frills, covering nearly the head. Several of these animals seem to possess pelts of such looseness of size that one skin would nearly hold the carcasses of two such sheep. The pelts are particularly thick, which is unusual in the Merino sheep. The rams' fleeces were stated at 14 lbs., and the ewes' 10 lbs., in the grease. By washing they would be reduced half, thus giving 7 and 5 lbs. each."

Washed, in the American way, these rams' fleeces would have yielded an average of about $9\frac{1}{3}$ lbs., and the ewes' fleeces about $6\frac{2}{3}$ lbs.

Trimmer described only the Royal flock. It appears that it was already beginning to be outstripped, in weight of fleece and

* Viz, in 1807, three ewes, having lambs, bore 11 lbs. 12 oz., or nearly 4 lbs. each, of unwashed wool. In 1808 "he did not keep a separate account, but as they were in better order he thought the average was near 5 lbs." In 1809 seven ewes bore 36 lbs., or 5 lbs. 2 oz. per head. The same year his three rams bore, respectively, 12 lbs. 14 oz., 9 lbs., and a ram, fourteen months old, of "uncommon size," (imported from France in 1808,) bore 9 lbs. 6 oz., all unwashed.

size of carcass, by private ones. On this subject I prefer to quote the language of John A. Taintor, Esq., of Hartford, Connecticut, by far the most extensive importer of French sheep into the United States; and a gentleman long familiar with all the National varieties of the Merino. It will add to the interest of his remarks on this subject to give his reasons for preferring the French, and his criticisms on other varieties. I should say, in justice to Mr. Taintor, that his letter to me, from which I quote, was written in haste, on the eve of a journey, and with no expectation that I would adopt its phraseology in making use of its facts. But its terse and careless off-handedness does not detract from its value.* He writes :

“In 1828 I imported a lot of Saxony sheep, and, at various times, have selected, in France, nearly one thousand of their best Merinos. In 1842 my friend, D. C. Collins, of this city (Hartford), bought, by my advice, fourteen ewes and two rams of the Royal flock at Rambouillet. About half of them were good sheep, but for want of care and attention the importation was of but little value to the owner or the country.

* * * “I cannot afford to keep any other sheep (for wool) but French Merinos. I call them *best* because they pay best, and that is the true test. Not the sheep that can crawl through the year with the least possible care and feed, but one generously fed and cared for, and bred with close attention and judgment, with always an eye for the most valuable fleece for the manufacturer, and the most valuable carcass for the butcher.

“Since 1828 I have been seven times across the water, and at one time took a year and a half to visit every part of Europe, and examine the flocks and see the owners, hear all they had to say, and then use my own judgment. You are aware that the Spanish Merinos have become almost lost. They are so small, neglected, and miserable that I would not take one of them even as a present.

“Improved machinery, too, has had a ruinous effect on the Saxony flocks, as they have learned the art of using medium wool in the place of very fine. The sheep of Saxony, proper, are more than half a million less in number than ten years ago.

“In France, the Royal flock (now the private property of the Emperor,) at Rambouillet, which, for years, attracted all the sheep masters of Europe to its annual auction sale, bred the fleece so fine, and the animals so delicate, that they could no longer attract attention; and, four years ago, they changed the plan, and now sell (when they can) at private sale. The sheep have no wool on the head or legs, and but little on the belly. They are ruined by high breeding. The wool is short and fine.

“In France forage is more than double the price that it is in this country. The price of mutton is also about double, and the price of wool, on the average of the last fifteen years, about 24 to 26 cents per pound, always in the grease. Ewes' fleeces average 14 lbs. (in flocks of 500), and rams 20 lbs. to 24 lbs. Say average weight for ewes (all

* It is dated January 2, 1862.

ages) 100 lbs., and rams 200 lbs. One ram I bought (for 3000 francs or \$600) weighed 309 lbs., carrying a fleece, unwashed, of 32 lbs. Fair estimate of loss, in cleansing, 60 per cent.

“It is from this class of flocks I have selected my Merinos. It is from wool of this class that the fine French muslin de laines are made, as it has length of staple and fineness, with requisite strength, which is all important.

“Three years ago a gentleman sent me, from Estremadura, a number of Spanish Merino fleeces as a sample (as circumstances did not allow me to see his flock when in Spain.) They were little wads of fleeces. I can send you one if you have any curiosity to see it.”*

The remarkable fact is made to appear, from these statements of Mr. Taintor, that, at the period of his importations, there were flocks of 500 in France which produced 14 lbs. of wool to the ewe, and from 20 to 24 lbs. to the rams. If we are to suppose the belly and tag wool excluded from these also, then the ewes produce nearly 9 lbs. 6 oz., and the rams about 14 lbs. 11 oz. of brook-washed wool. If, as I conjecture, grown sheep are only referred to here, the weight of the ewes probably averaged not far from 150 lbs., and the rams at least 200 lbs.†

I have traced down the history of these sheep to the period of their comparatively recent emigration to the United States, although two or three importations of them, hereafter to be mentioned, were made about the beginning of the present century. But I cannot learn that all of the latter included more than a dozen living sheep on their arrival in this country. And it is probable either that these were soon mixed with the Spanish Merinos of the country, or else that they had not yet obtained established characteristics differing sufficiently from those of the latter to found a separate family. At least no family, bearing any resemblance to the present French sheep, sprung from them.

* One of these fleeces has been forwarded to me. It is in the dirt, and weighs 5 lbs. 11 oz. It is difficult to judge its exact quality, as exposure to the air has converted much of it to the color of a sponge, and altered its appearance in other particulars. It is about as long as American Merino wool—is not very even in quality, and I think I am not mistaken in saying that in fineness it would be below mediocrity in any prime full blood American flock. Having been sent among *specimens* from Spain it ought to be up, at least, to the average quality and quantity of fleeces in that country.

† I have seen flocks of Mr. Taintor's imported sheep, and their immediate descendants, numbering thirty or forty each, and I judge this about the average weight of the full grown ewes when in good condition. They varied from 125 to 180 lbs.—an occasional one reaching 290 lbs.

THE SAXON MERINO.

Though France took priority in the introduction of the emigrant Merinos, Saxony effected an earlier successful colonization of them. In 1765 Prince Xavier, administrator of the Electorate during the minority of the Elector, Frederick Christian, obtained the permission of his brother-in-law, the King of Spain, to introduce three hundred Merinos into Saxony, and other flocks on subsequent occasions. It is understood that the sheep were principally drawn from the Escorial cabana.

The course of breeding adopted in the Electoral and private establishments tended to develop an extreme fineness of wool at a material sacrifice of other properties. Size of carcass, weight of fleece, and constitutional vigor, were rapidly diminished. The loss of hardiness was met by an extreme care of the animal, extending to those minute and methodical arrangements which are so congenial to the spirit of German agriculture, and which were rendered economically practicable by the cheapness of labor.

The sheep were housed during the winter (usually in spacious and well arranged structures of brick or stone). They were housed at night, and generally brought in for a time at noon, in the warm weather; their carefully selected and constantly varying food was portioned out to them with the strictest nicety; they had a daily routine, and a monthly routine of nutriment; they were never allowed to go out when dew was on the grass; they were most carefully protected from rain, and fed in stables during its continuance; they were not allowed to run on particular kinds of ground in damp weather, etc., etc. And, during the yearning season, the regularity and care of the attendance they received did not fall far short of those of a human lying-in hospital.

These sheep, when introduced into the United States, lacked at least one-fifth, and often more, of the weight of the parent Spanish Merino, as it then was; they were longer legged in proportion to size, slimmer, finer boned, and thinner in the neck and head. At every point they gave indications of a more delicate organization. Their fleeces averaged from one and a half to two pounds of washed wool in ewes, and from two to three pounds in rams. There was sufficient yolk in the fleece to give it pliancy and brilliancy, but the yolk was colorless, limpid, and easily

liberated in washing. It never assumed a viscid, waxy consistency, or became indurated into "gum" either within or on the outer extremity of the wool, and consequently having nothing on the surface to catch and retain dirt, the fleece remained almost white externally.

The staple, unstretched, was usually from an inch to an inch and a half in length on the back and sides, shorter on the belly, and formed a considerably less compact mass than that of the Spanish Merino. In the best sheep, the surface of the fleece was smooth and even, (as if it had been cut off at a uniform length,) and it broke into masses of some size; but in inferior animals the wool grew in small disconnected tufts, which ended in *points* externally; these fell apart on the shoulder and along the back, and in some instances partly hung down like hair or Leicester wool, instead of standing at right angles to the surface. The last indicated extreme thinness of fleece. When to this was added a gauzy, half-peeled nose and ear—an ear as thin and almost as transparent as parchment—a pale skin, a carcass without depth and about six inches thick, a camel-shaped neck, and long spider legs, the "lower deep" of debility and degeneracy was reached.

But there was an atoning beauty about the wool of the Saxon which it was hard to resist. It flashed with such a gem-like lustre; it was so beautifully fine and even; it had such an exquisite downiness of touch, that all other wool seemed base by the side of it. I have seen it so pliant, that a lock of it held upright by the outer end, between a thumb and finger, and gently played up and down, would bend and dance like a plume.

According to Youatt's measurements, the fibre was about $\frac{1}{840}$ of an inch in diameter; but he did not obtain fine specimens of the wool.

This variety had "touched bottom" in physical degeneracy at the period of its importation to the United States, and a reaction was commencing in breeding. As there have been recent American importations of them, I will present a brief view of the present prime sheep of Germany.

That the former inferiority both in weight of fleece and carcass continues to exist in the flocks of Saxony, Silesia, and all parts of Germany where these sheep have become established, is certain. But such breeders as Baron Von Sternburg in Saxony,

Prince Lichnowsky and Mr. Fischer in Silesia, and various large proprietors in Hungary, have bred on the principle that good size and compactness of form and fleece are essential to profit. Von Sternburg (Alexander Speck Von Sternburg, generally called Baron Speck by Americans) is now better known in this country than any other German breeder. I think most if not all of our late Saxon importations have been made from his admirable flock. In a letter to Mr. Wright, the American Minister to Berlin, written in 1859,* the Baron gave the following as the average weights of his sheep: full grown rams, 110 lbs.; ewes, 82 lbs.; wethers when fat for the butcher, 110 lbs. to 115 lbs. The average weight of the washed fleeces of his ewes was 2 lbs. 7 oz.; of his wethers, 2 lbs. 8 oz.; of his yearlings, 2 lbs. 5 oz.; of his rams, 4 lbs. to 6 lbs. 14 oz. The flock numbers 1200. His best ewes undoubtedly produce as much as 3 lbs. a head, and kept in smaller flocks and pampered, would produce nearly or quite 3 lbs. 4 oz.

Mr. Charles L. Fleischmann, formerly draughtsman of the United States Patent Office, attended the great meeting of German agriculturists at Breslau, in 1845, where particular attention was given to the subject of wool; and that gentleman communicated the result of his very minute observations in an instructive paper prepared at the request of the Commissioner of Patents.† In this paper, the sheep of the manor of Alcsuth, in Hungary, are mentioned as a flock of high reputation throughout Germany. I do not observe that their average weight of carcass is given, but Mr. Fleischmann speaks of their "surprising size" and says, "there are some rams that measure five feet from the muzzle to the root of the tail, and twenty-nine inches from the bottom to the chine.‡

The average weight of their fleeces was as follows: rams 3 lbs., wethers 3 lbs. 8 oz., ewes 2 lbs. 8 oz., lambs 14 oz. The wool was extremely well washed. The flock numbered ten thousand. A diminution of numbers, a selection of the heaviest fleeced, and pampering, would produce the same increase in the weight of

* For his sensible and practical letter containing much information in respect to German sheep husbandry, see Patent Office Report, 1859, p. 288.

† See Patent Office Report, 1847, p. 239, *et seq.*

‡ This is a considerably longer and taller sheep than the Spanish Merino, or than the American Merino of approved size and form. See Petri's table, already given, with subjoined American measurements, and remarks. I cannot think that such length and height would find any favor in Germany, in animals producing only *three pounds* of wool.

wool that has been assumed the like circumstances would produce in the Baron Von Sternburg's flock.

The Baron sells his wool "from 2s 8d to 3s 2d per pound, (English currency, I take it.) The Alcsuth wool was sold in 1838 for 72½ cents a pound, in 1839 for 79 cents, and in 1840 and 1841, when prices were depressed, for 64 cents.

At Breslau is the most celebrated wool market of Germany, frequented by manufacturers and wool merchants from England, France, Belgium, Russia, and other nations. The following table of what is about the average annual prices of the seven qualities into which the German fine wools are sorted, will be found instructive for the purposes of comparison :*

Cwt.	Reichthalers.	Dolls.
3,000 are of the finest quality and average about	130 =	98 per cwt.
4,000	110 =	77 do
5,000	100 =	70 do
10,000	90 =	63 do
15,000	80 =	56 do
15,000	70 =	49 do
8,000	50a60 =	35a42 do

Baron Von Sternburg's sheep farm has some other stock. He realizes 5½ per cent. from the whole, and appears well satisfied with his profits. It is probably a high rate of profit for any of the great German or Hungarian sheep establishments.

THE SILESIA MERINO.

There is not, perhaps, properly speaking, any distinct family of Merinos entitled exclusively to this appellation. There are in Prussian Silesia numerous flocks descended from the Saxon Merinos, and not a few descended from Merinos brought direct from Spain. In the only important importation made from Silesia to the United States, of which I have information, the sheep belong to the latter class, and so far as this country is concerned *they* have received the distinctive name of Silesian Merinos.

I will reserve a description of this flock, until the subject of importations of Merinos into the United States is specially considered.

* See Fleischmann's paper, Patent Office Report, 1847, p. 293.

INTRODUCTION OF MERINOS INTO THE UNITED STATES.

In 1793, William Foster, of Boston, Mass., being on his return from a residence at Cadiz, in Spain, "with much difficulty and risk" got out of that kingdom, and brought home with him three Merino sheep—two ewes and one ram. Their fate was somewhat characteristic of American knowledge of sheep at that time. Mr. Foster writes: "Being about to leave this country for France, soon after my arrival in Boston, I presented these sheep to Mr. Andrew Craigie, of Cambridge, who, not knowing their value at that time, 'simply ate them,' as he told me years after when I met him at an auction buying a Merino ram for \$1000."*

In 1801 Dupont de Nemours, the head of the commission appointed by the French government to select, in Spain, the large flock of Merinos given up by the latter by the treaty of Basle, together with a Mr. Delessert, a Parisian banker, shipped four ram lambs to America, three of them intended for farms owned by those gentlemen in the United States, and the fourth for President Jefferson. Three perished on the passage, but the other arrived safely, and lived to effect a vast deal of good.†

Later, the same year, Mr. Seth Adams, of Zanesville, Ohio, imported a pair of Spanish sheep which had been carried into France. They arrived in Boston in October, and received the premium of the Massachusetts Society for promoting Agriculture, the following year.‡

In 1802, Mr. Livingston, the American Minister in France, sent home two pairs of Merinos to his estate on the Hudson. They

* George Livermore, Esq., of Boston, writes me: "Mr. Foster is still living at the advanced age of nearly ninety years, and I have this day called on him, and heard from his own lips an account of his importation of Merino sheep substantially the same as that given above (January 20, 1862)."

† "Don Pedro" was taken to Dupont's place, near New York. In 1802 he was placed on Delessert's farm, called Rosendale, near Kingston, N. Y., and was used there for four years. In 1805 Delessert rented his farm, and sold his sheep at auction. The ram was bought by Dupont's agent for \$60. The half and three-quarter blood ewes were sold to the surrounding farmers "at a price inferior to that of common sheep," and above half of them "perished of neglect the following winter." (Preface to Livingston's Essay, p. 8.) Chancellor Livingston found 24 of them and bought them after the introduction of his Merinos. "Don Pedro" was removed, in 1808, to E. I. Dupont's farm, near Wilmington, Delaware. That spirited gentleman offered the ram's services gratuitously to his neighbors, but scarcely any of them availed themselves of the offer! He, however, founded a valuable flock for his owner. This superb animal, for that day, weighed 138 lbs., and his fleece, well washed in cold water, 8 lbs. 8 oz. His wool was fine and even, and he was a model of form.

‡ Mr. Adams published this statement in the Albany Cultivator many years ago, and its authenticity has never been disputed.

were purchased from the French National flock, at the Veterinary school, at Chalons. They cost him, delivered at Paris, five miles distant, 1200 franks, and about twice that sum delivered at his farm, though the patriotic captain of the vessel refused to take any freight.* One of his rams is figured from a drawing furnished by himself, in Vol. 1, of the "Transactions of the (N. Y.) Society for the Promotion of Agriculture, Arts and Manufactures." It represents a low, compact animal, with a smooth, long face, a skin free from folds on any part, and legs without wool below the knees. Though somewhat out of drawing, it is, obviously, the figure of a class of Merinos very common twenty years ago, and yet to be found in ordinary unimproved flocks. The type is essentially Spanish, there not being the most remote resemblance to the French sheep of the present day.

Mr. Livingston made another importation of a single French ram in 1807, and he speaks of having purchased some choice ewes brought to France from Spain. But I do not learn that the latter ever arrived in this country. His sheep attracted no special notice until 1807 or 1808, when he began to sell his rams for \$150 a piece.† Half-blood rams and ewes, bred from his rams on common sheep, sold for \$12 a piece.

This eminent public benefactor had too many pursuits to be able to give much of his personal attention to breeding. His sheep improved, and were of good quality, but he established no distinct family, of special value, which has survived until the present time.

In the same year with Mr. Livingston's first importation (1802), Col. Humphreys,‡ the American Minister in Spain, being about to return from that country, after an official residence in it of seven years, brought home with him a flock of Merinos. I quote the

* They were treated, on their arrival, exactly like his other sheep—fed on hay, and had no shelter. They brought two lambs the first year, and three of them (he had let his brother have one of the rams) sheared 11 lbs. of washed wool—nearly 3 lbs. 12 oz. each. The next year the lambs came in January, "were neglected, and died!" In 1805 "one of the ewes was sick and brought no lamb; the other dropped a ewe lamb; and the five fleeces (from the three old sheep and two shearlings), when washed, weighed 18 lbs., besides the tags and waste wool," upwards of 3 lbs. 8 oz. each. The Chancellor "thought this a considerable yield from small sheep, kept upon hay, in a flock with twenty other sheep!" See Livingston's Essay, &c., in 1806, subsequently expanded into his more elaborate Essay of 1809.

† For a choice one raised by himself, ten months old, he refused \$1000.

‡ He was an aid-de-camp of Washington in the Revolution, and an inmate of his family at Mount Vernon from 1788 to 1790. He was an elegant, learned, and public-spirited gentleman.

following statements from his "Dissertation," &c., addressed to the Massachusetts "Society for Promoting Agriculture" (August 25, 1802):

"Convinced that this race of sheep, of which, I believe, not one had been brought to the United States until the importation by myself,* might be introduced with great benefit to our country, I contracted with a person, of the most respectable character, to deliver to me, at Lisbon, one hundred, composed of twenty-five rams and seventy-five ewes, from one to two years old. They were conducted, with proper passports, across the country of Portugal, by three Spanish shepherds, and escorted by a small guard of Portuguese soldiers. On the tenth of April last they were embarked in the Tagus, on board the ship *Perseverance*, of 250 tons, Caleb Coggeshall master. In about 50 days, 21 rams and 70 ewes were landed at Derby, Connecticut, they having been shifted, at New York, on board of a sloop destined to that river. The nine which died were principally killed in consequence of bruises received by the violent rolling of the vessel on the banks of Newfoundland."†

It does not appear, from his writings, that Col. Humphreys paid any attention to the difference in the cabanas in Spain.‡

* Livingston said his own "arrived safely in the *spring* of 1802, and were, he believed, the first *couples* ever imported into the United States." (Pref. to Essay, p. 7.) It is probable, therefore, Livingston's arrived a little the earliest. The point is of no consequence, but I am told it created some feeling in its day.

† See Col. Humphreys' Works, p. 349. In this gentleman's poem "On the Industry of the United States of America," after a glowing description of the times:

"When true utility, with taste allied,
Shall make our homespun garbs our Nation's pride,"

he proceeds to say—

"Not guarded Colchis gave admiring Greece
So rich a treasure in its golden fleece.

Oh, might my guidance from the downs of Spain,
Lead a white flock across the western main;
Fam'd, like the bark that bore the Argonaut,
Should be the vessel with the burden fraught!
Clad in the raiment my Merinos yield,
Like Cincinnatus, fed from my own field,
Far from ambition, grandeur, care and strife,
In sweet fruition of domestic life;
There would I pass, with friends beneath my trees,
What rests from public life in lettered ease."

‡ I am indebted to George Livermore, Esq., of Boston, for several MSS. letters of Colonel Humphreys, specially on the subject of his sheep, addressed to different correspondents, and not one of them mentions or alludes to this subject. If I recollect aright the name of any separate cabana does not occur in his published papers. He was the son of a clergyman, and, not long after leaving college, entered the army. During his two years' residence at Mount Vernon he doubtless acquired many agricultural tastes, but he could have known little or nothing of it practically until his return from Spain. Prior to that period his leisure hours appear to have been devoted to polite literature. He does not mention ever even seeing any of the great Spanish flocks; and alone mentions, as the sources of the information given by him in his Dissertation, "the facts stated, in some instances, by respectable individuals, and, in others, by official reports."

It has been suggested to me, by a most intelligent correspondent, that, being an Ambassador, he was, probably, allowed to draw his sheep from the Escorial flock, and I find that this impression is somewhat prevalent. Those who have read his writings, and observed the old-school ceremonious courtesy, as well as the other tastes developed in them, will have no difficulty in arriving at a very positive conclusion that, had Colonel Humphreys been indebted to any proprietor of a cabana for a selection from his flock, or for any other particular favor in the premises, the fact would have been carefully stated. It is to be presumed he made inquiries in the proper place, and was referred to a thoroughly capable, as well as "respectable" person, to make the purchases for him, and there is no doubt the commission was most intelligently and faithfully executed. No flock enjoyed a better early reputation in our country, and none enjoys a better traditional reputation now. With the Spanish ideas in respect to mixing cabanas, such a Spanish agent as he employed would not have procured different varieties as the foundation of a flock. It is singular how few things, in relation to these sheep, can now be agreed on by different recollectors; and the contemporaneous descriptions are usually so vague and general that they will apply to one variety as well as another.

In a manuscript letter of Col. Humphreys, before me, he says, as if he thought it worthy of note, that a ram, raised on his farm, yielded 7 lbs. 5 oz. of washed wool. In an Essay, obviously written by a gentleman, and a man of the first intelligence and standing, but whose name is torn from the copy before me,* there is a more careful description than I have elsewhere seen of a full blood ram of this flock, owned by Mr. Bulkley, of Philadelphia, and lent by him to the writer in 1807. This ram was very small, very fine, and produced but 4 lbs. of washed wool. His "length of staple was somewhat less than that of Mr. Livingston's rams." "He was extremely gentle, and strongly marked with the carnation hue of skin; had spiral horns, and brownness of fleece surface, all of which qualities he faithfully transmitted to his progeny in their usual proportions." The "brownness penetrated to some depth from the surface." His lambs, when they came,

* This writer mentions that he wrote the article on wool in the ——— Cyclopaedia; and he was the importer of the *black* Merinos next to be described. I have had considerable search made in Philadelphia to discover his name, but, as yet, without success.

were "covered with coarse hairs," to the great suspicion of their paternity, until it was found this hair dropped off, and that his subsequent crops of lambs exhibited the same peculiarity. Here we have a distinct hint of Paular or Infantado characteristics. Yet Col. Humphreys' sheep could scarcely have been Paulars without some one alluding to their throatiness—a point which then attracted peculiar notice both because it was unusual, and regarded as unsightly. Besides, the sheep we now have among us, which can trace a clear descent from Col. Humphreys' flock, are not marked by this peculiarity unless it has been bred on them within the last fifteen or twenty years. It can hardly be presumed that the American Ambassador would have been placed by his Spanish acquaintances in the hands of an agent who would have purchased from an obscure flock, or one not among the first.* I do not build up a hypothesis on the single fact above given; it is only one among a number of scattering hints and circumstances which have led me to the opinion that the sheep were from the cabana of the Duke of Infantado.

One thing is certain. No such ram as Mr. Bulkley's could have been of Escorial blood. And the darkest and yolkiest sheep bred in the United States (Mr. Stephen Atwood's family), which trace directly to sheep bred by Col. Humphreys, cannot be descended from the whitest and dryest fleeced sheep of Spain.

Judging from the statements in Col. Humphreys' manuscript letters lying before me, he not only found great satisfaction but great success in breeding his sheep. The very ones he brought from Spain, he says, increased half a pound in their fleeces; and their descendants continued to improve in that and every other particular. He speaks glowingly of their hardiness and propensity to fatten; and in the highest terms of their mutton. This gentleman (to whom the farmers of New England should erect a statue) died in 1818, when causes, hereafter to be detailed, had sunk the Merinos into contempt and neglect. His invaluable sheep were then scattered, and, as a general thing, they appear to have fallen into the hands of those who attached no great value to their blood, for I can learn of but two or three instances where they were preserved distinct after 1826; and it is a lesson

* Col. Humphreys was a favorite at both the Courts of Portugal and Spain. He had been made highly wealthy by marriage. He had the means to pay for the best; and those who know anything of him know how absurd it would be to suppose he failed to instruct his agent to obtain the best.

of some value to those who term themselves "breeders," to know that those who had the good sense or good luck thus to preserve them in their purity were farmers of little information, and wholly obscure until their connection with these sheep raised them to notoriety.

Mr. ————,* of Philadelphia, had, as early as 1796-7, sent an order to Spain for a Merino ram. The animal reached the Capes of Delaware safely, but was there washed overboard in a storm. He sent an order for a pair in 1801, instead of which two pairs of *black* ones reached him in 1803! This he supposed done to "increase the profit of the commission," for black Merinos "cost but little, being held in no estimation in Spain." This gentleman bred from these assiduously for a few years, but nobody would buy them, and they had to be abandoned.

Mr. Muller imported a pair of Merinos from the flock of the Prince of Hesse Cassel in 1807, and they, and their descendants, were kept about Philadelphia, and in New Jersey and Delaware. James Caldwell, Esq., of Philadelphia, interbred, with success, between these and sheep from Col. Humphreys' flock.

But by far the most extensive and important importations of Spanish Merinos into the United States were thus described in a letter to me, in 1841,† from Hon. William Jarvis, the principal person engaged in them :

"When the second irruption of the French armies into Spain, in the winter of 1809, drove the Spanish Junto from Madrid to Badajos, the Junto was without money and without resources, and they durst not levy any taxes on the Estremaduras lest they should disgust that province, and the people should declare in favor of the French. No alternative was, therefore, left them other than to sell the four flocks of Merinos which had been confiscated with the other property of four grandees who had joined France, with license to transport them out of Spain. Those flocks were the Paular, which had belonged to the celebrated Prince of Peace, the Negretti, which had belonged to the Conde Campo de Alange, the Aqueirres (the wool of which was known in England as the Muros, this flock having been the property of the Moors before their expulsion from Spain), which had belonged to the

* See second note back, and the text to which it is appended. I find this account of his importation of black sheep in the fragmentary Essay mentioned in such text. The Essay will be found in a volume of the State Agricultural library, made up of miscellaneous papers and extracts. It appears to have been published in 1808 or 1809. The author says the price of his sheep, in Spain, was \$60, freight \$20. The quantity of wool yielded by the two rams was 4 $\frac{3}{4}$ and 4 $\frac{1}{2}$ lbs.; by the ewes, 3 $\frac{1}{2}$ and 3 $\frac{1}{4}$ lbs. This was washed wool, I suppose.

† Published in the Transactions of the New York State Agricultural Society that year.

Conde de Aqueirres, and the Montarco, which had belonged to the Conde of that name. Those flocks were then in the vicinity of Badajos, and, when confiscated, the two former numbered about five thousand each, and the two latter about twenty thousand each; but they had been reduced, by being unceremoniously slaughtered for the use of the armies, to about seven thousand five hundred Paulars, six thousand Negrettis, four thousand Montarcos, and three thousand Aqueirres. Four thousand of the Paular flock were sent to the King of England, in compliance with the application of his Minister, and General Downie and I purchased the remainder. Sir Charles Stewart, the British Minister, purchased the Negretti flock, of which I selected a small part, and the remainder he sent to England. I also purchased about one thousand three hundred Aqueirres, and selected about two hundred from the Montarcos. I likewise purchased, in Spain, two hundred of the Escorial flock from the mayoral, which were the only Escurials ever sent to this country. I shipped, in 1809 and 1810, about three thousand eight hundred and fifty to this country of the aforementioned flocks, being all which I purchased in Spain, and which were distributed as follows: about one thousand five hundred to New York; one thousand to Boston and Newburyport, including three hundred and fifty which I sent to be reserved for me; the remainder were sent to Philadelphia, Baltimore, Alexandria, Norfolk and Richmond, and a small number to Wiscasset, Portland and Portsmouth, as I was disposed to distribute these valuable animals to every State which would be likely to profit by the acquisition. Those I reserved for myself were composed of about half Paulars, a quarter Aqueirres, and the other fourth of Escurials, Negrettis and Montarcos, which I subsequently mixed together.

“There were sent, in the latter year, (1810) by others, about two thousand five hundred, composed of Paulars, had of General Downie, Montarcos, Aqueirres and Guadalupes. Part of those went to New York, part to Boston. All those sheep were Leonesa, transhumantes, and were of the prime flocks of Spain.

“I have been able to be thus minute in relation to the Merinos in 1809 and 1810, as I was then American Consul at Lisbon, which was the port from which they were all shipped, it being only about one hundred miles to Badajos, and the nearest seaport to that place.”

It was thus our peculiar good fortune at the period of the final disruption, and dispersion to foreign lands of some of the most celebrated flocks of Spain, to have on the spot a public agent who had the sagacity and energy to avail himself of the opportunity to confer an inestimable benefit on his country.

Mr. Jarvis, very unfortunately crossed a portion of his large flock of Spanish Merinos with the Saxons, when the latter were brought into the country; but he discovered his error in time to correct it,* and made those careful arrangements which effectually

* Mr. Jarvis wrote to me in 1844, a letter from which the following and some other extracts were published in the same year in the Albany Cultivator and New York Agriculturist:

“In May, 1826, I purchased 52 or 53 at the sale in Brighton, Mass., of the large importation of Saxony sheep by Messrs. Searle of Boston; and the following autumn I selected and separated one hundred merino ewes from my flock, and the rest I crossed with Saxony bucks.

ally prevented any subsequent admixtures of blood. He bred his descendants of his Spanish importations pure to the period of his recent death.*

I have not thought it necessary to collect the statistics of all the different importations which followed those of Mr. Jarvis, and shall allude to but few, the facts concerning which appear to be well authenticated. In a letter to L. D. Gregory, Mr. Jarvis goes into some more particulars in regard to the later importations. He says there were about 300 Guadalupes and 200 or 300 Paulars sent to Boston; about 2,500 Montarcos to Boston, New York, Providence, Philadelphia, Baltimore and Savannah; that those shipped for Boston were for the account of Gorham Parsons, Gen. Sumner, D. Tichenor, and E. H. Derby; that they were all shipped in 1809, 1810, and the early part of 1811. Charles Henry Hall, of Pomfret, Connecticut, (afterwards so well known as a breeder of horses, cattle, &c. in New York,) who, I

Those hundred Merinos and their descendants I have always been careful to keep by themselves, both summer and winter, and have been very particular in the choice of pure blood Merino bucks to put to them for breeding. The pure blood Merinos I kept marked with my old Merino ear mark, a half penny (or notch) under each ear; the progeny of those crossed between Merino and Saxony, with two half pennies under the right ear; and the full blooded Saxony with two half pennies under each ear.

“In 1831 or 1832, finding that the Saxony crosses were reduced in weight of fleece from four pounds, which was about the average of my full blood Merino flock, to two pounds ten ounces, or two pounds twelve ounces per fleece, upon an average, I took out all the remaining old Merino ewes, and put them with the descendants of the one hundred formerly reserved pure bloods. I have since bred all the Merino ewes with Merino bucks; and the cross blood ewes with cross blood bucks, selecting those with the heaviest fleeces; and full blooded Saxony ewes with full blooded Saxony bucks. I have been very particular to keep the three kinds of ewes apart, winter and summer. This I have been easily able to do, as I have ten sheep yards, each connected with a shed, and well separated with a good fence, and water in each; and fifteen pastures, all well walled or fenced. I particularly employ one man about my sheep, and constantly give the necessary directions regarding them, which I, personally, see are faithfully executed. Usually in March or April, I myself select from the preceding spring lambs the buck lambs I intend for stock bucks. The flocks are separately washed and separately sheared; and during the shearing process the lambs are ear marked and tar marked; and the old sheep are also tar marked as fast as sheared. I have been thus minute, to satisfy you of the confidence and safety with which I can speak of the blood of my sheep.

“My flock consists of about a thousand sheep of all kinds, of which there are one hundred and sixty Merinos, the pure blooded descendants of those I purchased in Spain in 1809 and '10, and exported from Lisbon; about one hundred full blood Saxons; and the remainder are crossed between Saxony and Merino. The fleeces of the latter, from the attention I have paid to the selection of bucks, (as before mentioned,) are much heavier than in 1832. The average of the three kinds, taken together, is now 3 lbs. 2 oz. to 3 lbs. 4 oz. per head.”

* Now that he has passed away, I may be allowed to say of him, that on the score of integrity no American breeder's reputation ever stood higher. He was emphatically a “gentleman of the old school,” above trick, dissimulation, or that paltry *reticency* which has marked so many celebrated breeders in all countries of the world.

think, was American consul at Cadiz, at the time, sent home about 50 Merinos to his father, Dr. Hall. "They were Paulars, and good ones, too," says a competent judge. Peck & Atwater, of New Haven, imported a cargo of Merinos into that city in 1810.* A cargo of Infantados went into New London in 1810 or 1811. Abraham Heaton, of New Haven, and an associate imported a cargo into that place. Mr. Heaton writes me, (Jan. 29, 1862 :) "I have no invoice of the particular breed of the sheep at this time, but I think I gave the papers regarding the breed, &c. to Daniel Bacon, of Woodbury, of this state, since dead, he having been one of the principal purchasers. I well recollect that a part of the cargo was composed of what is called the Guadalupe breed." A cargo of fine Paulars went into New York in 1811.

CIRCUMSTANCES AFFECTING THEIR SUCCESS.

The earlier importations of Merinos into the United States, as has been already remarked, attracted but little public notice. The woolen cloths then made in the country were mostly spun and woven in families. The fine Merino wool was as little adapted to the instruments employed, as was so valuable a material to the cheap, common fabrics worn by our people. Both Livingston and Humphreys, however, patriotically set the example of attempting fine-cloth manufactures, with the new wool; and the former, with his usual energy as a public improver, made and published the results of investigations and experiments on the subject, which were soon to prove of the highest value.

When the great warlike struggle then shaking Europe led, in 1807, to maritime regulations—the English Orders in Council and the French Milan decree—which converted American commerce into the mere prey of the belligerents, our government made an effort to save it by laying an embargo (Dec. 22d) which entirely

* Mr. Jacob N. Blakeslee, of Watertown, Conn., whose flock on the maternal side is descended from these sheep, writes me, Jan. 15, 1862: "I took them of Capt. Peck to keep one year for half the wool and half the increase; they were the same he selected in Spain; they had the Spanish brand on the nose of every sheep; he told me he selected them himself from the flock of the 'Don Delle Infandado,' which was the best flock in Spain."

Since the preceding was written, I have found a letter from Mr. Blakeslee, in Appendix to Mr. Morrell's "American Shepherd," in which he says: "I began a flock of sheep, in 1815, that were imported by Peck & Atwater, of New Haven. A part of them were the Negretti and a part Montareo. I let them run together till 1823." There are other conflicts in the statements of the two letters. I mention it as a lesson to a large class of sheep breeders, of the impropriety of relying solely on their *memory* in regard to ancient pedigrees.

shut our shipping off from the ocean. This was succeeded by the non-intercourse law, which prevented trade with England and France. France repealed her obnoxious decrees, and trade was restored with her, but the continued attitude of England rendered commerce with her neighbor precarious. A British outrage on an American national vessel (the Chesapeake) early in 1811, forced our country to begin preparations for war. This was declared in 1812, and continued until 1815.

Thus for a period of about eight years, our commerce was virtually suspended with those nations which had previously supplied us with our woolen goods, and was so interrupted and precarious with all others, that the establishment of home manufactories and of the means of supplying them with raw material, became an object of prime necessity. Most fortunately, the embargo was raised at just the right moment to allow the sheep, which the situation of Spanish affairs threw in the way of Mr. Jarvis and others, to be purchased and sent home.

At such a juncture, it would be expected that the arrival of the Merino on our shores would be hailed with enthusiasm—particularly when it was learned that we had obtained the very best sheep of Spain. And, as a matter of course, the spirit of speculation lent energy to the movement. From \$1,000 to \$1,500 a head were in many instances paid for the imported rams, and \$1,000 a head for the ewes. Flocks of full blood or grade sheep were eagerly commenced in all parts of the country. Fine wool commanded such an exorbitant price that it required the utmost bad management, added to the most extravagant original disbursement, to render the venture unprofitable. As early as 1807 wool rose to a dollar a pound. In 1809, Mr. Livingston sold his full blood Merino wool, *unwashed*, for two dollars a pound! During the war with England it rose to \$2.50.

STATE ENCOURAGEMENT.

The Legislature of this state passed laws to encourage the manufacture of woolen cloth. By the act of April 8, 1808, premiums of \$150, \$75 and \$50 were respectively offered for “the best specimens of woolen cloth, of uniform texture and quality,” “of a breadth of not less than three-quarters of a yard,” manufactured within the state; a premium of \$80 to the best specimen manufactured in a family in each county of the state; and premiums

of \$150, \$75 and \$50, in plate, to the three best of the last named county domestic specimens in the whole state.*

The act of April 5, 1810, after declaring that "important advantages, materially connected with the prosperity of the state, have resulted" from the preceding law, proceeds to amend it in some particulars which do not require mention. It was again amended in 1812,† and the preamble of the act declared that "the rapid increase in the manufacture of woolen cloth within the state of New York, and the great improvements in that branch of national industry, fully and satisfactorily evince that the bounties granted for that object have been highly useful, and that their continuance will be eminently beneficial." By this law the two principal state premiums were paid only for broadcloths.

It appears by a report of the State Comptroller,‡ that the sums paid out in premiums under these laws were as follows :

In 1809.....	\$2,770	In 1813,.....	\$2,790
1810.....	3,490	1814,.....	3,350
1811.....	4,095	1815,.....	3,970

The law of 1812 expired by its own limitation at the end of 1815, and was not renewed.§ The Council of the Society for the Promotion of Useful Arts reported through their chairman, in 1815, that the liberal bounties granted by the state, "in combination with other circumstances," had "contributed to raise in many respects, the fine cloths of America to a degree of perfection equal to those manufactured in Europe."||

* To obtain the first premium of \$150, open to the competition of manufactories, the specimen of cloth was required to equal 200 yards, the second 150 yards, and the third 100 yards. The county specimens were required to equal 30 yards. The three first premiums, and the plate for the county specimens, were adjudged by the Society for the Promotion of Useful Arts—the county specimens by "a majority of the judges of the court of common pleas."

† Perhaps technically they were new acts.

‡ Made March 5, 1816.

§ I think the state defrayed no more money in premiums until the establishment of the Board of Agriculture in 1819, and then it divided \$10,000 among the counties, to be paid out in various kinds of agricultural, &c., premiums.

|| The chairman of the council was E. C. Genet, the famous minister of republican France, who produced such a commotion during Gen. Washington's administration. He had settled down near Albany, in this state, married a daughter of Gov. George Clinton, and was an opulent and public spirited citizen. The report has one or two characteristic touches. It is not complimentary to the commercial restrictions of the two last administrations, and has a sly stroke at the "Philosophers"! It is decidedly severe on duties intended "to check the importation of foreign manufactures" and "other disguised attempts at monopoly"!

STATE MANUFACTURES.

As a specimen of the manufacturing industry of those days, I will present the following statistics, compiled from the census of 1810. In that year the following fabrics were manufactured in New York :

	Yards.	Value.
Woolen goods made in families,	3,257,812	\$2,850,585
Cotton do do	216,013	69,124
Flaxen do do	5,372,645	2,014,741
Blended and unnamed cloths and stuffs made in families, .	180,659	63,230
Tow cloth do do ...	21,721	6,516

There were 33,068 looms, 413 carding machines, 427 fulling mills, and 26 cotton manufacturing establishments. I am not aware there was a woolen manufactory in the state.

EFFECT OF PEACE OF 1815 ON PRODUCT AND MANUFACTURE OF WOOL.

The Peace of Ghent, and the liberation of commerce which followed, exposed our infant manufactures, and our wool-growing, to the competition of the world. The exhaustion and derangement of our finances assisted in their overthrow. The revulsion from war prices to peace prices, in almost everything, was enormous, and it carried bankruptcy into every department of business, and mourning into every neighborhood of the land. Our manufactories perished. Merinos, which were valued at \$1000 a head in 1809, sold for a dollar a head in 1815.* Speculating holders ceased, of course, to take any interest in them. Multitudes abandoned wool-growing altogether. Careless owners no longer paid any attention to preserving purity of blood. But the "most unkindest cut of all" that I ever heard of their receiving was the fear expressed, by an agricultural writer of that period residing in one of our northeastern counties, "that there was danger of the Merinos running out the native sheep."

* The well known G. W. Featherstonhaugh, one of our most active agricultural improvers, and himself a breeder of Merinos, states expressly that he had *seen* such sheep so sold. I have the same fact from other reliable sources. (See Featherstonhaugh's Letter to Stephen Van Rensselaer, on Sheep Husbandry, &c., Memoirs of the N. Y. Board of Agriculture, vol. 2, page 138.)

UNITED STATES TARIFF LAWS.

In 1816 a tariff law was enacted by the federal government* which imposed a duty of 15 per centum, ad valorem, on wool, and 25 per centum, ad valorem, on woolen manufactures.† The duty on the latter was to be reduced to 20 per centum after the expiration of three years.

This, as would be expected, produced no effect in favor of the growth of fine wools. There was little domestic demand for them. The Merinos continued without any considerable marketable value until 1824. They became completely lost to public notice, and there was many a choice flock of which no trace can now be found.

In 1824 a tariff was enacted which imposed a duty of 15 per centum, ad valorem, on wools costing less than 10 cents per pound at the place of export; 20 per centum on those costing more, until June 1, 1825; 25 per centum from that date to June 1, 1826; and 30 per centum afterwards. On manufactures of wool‡ it imposed a duty of 30 per centum until June 30, 1825, and $33\frac{1}{3}$ per centum afterwards.

The decided protection thus afforded to wool and its fabrics, conspired, with other circumstances, again to turn the attention of farmers to the production of that staple. Among these auxiliary circumstances is to be mentioned the arrival of Saxon sheep in our country. The most extravagant ideas were formed of their value. The country, after so long a rest, was ready for another wool mania, and it set in.

* Of the preceding general tariffs, that of 1789 imposed a duty of five per cent. ad valorem on woollens, and made all wools free of duty. The tariff of 1790 re-enacted the same provisions, and imposed a duty of $7\frac{1}{2}$ per cent. ad valorem on carpets, carpeting and wool hats. The tariff of 1792 again made wool free of duty, and imposed a duty of five per cent. ad valorem on woollens, except on carpets, stockings, mittens and hats, on which it imposed a duty of 10 ditto. The tariff of 1794 raised the duty on carpets, stockings, mittens and wool hats to 15 per cent. ad valorem; imposed a duty of 10 ditto on ready-made clothing, and also on "all goods, wares and merchandize not otherwise enumerated or described." This provision included wool. The tariff of 1800 made no changes in the rates of duty on woollens, but raised the duty on the non-enumerated articles (including wool) paying a duty of 10 percent. under preceding law, to $12\frac{1}{2}$ per cent ad valorem. The tariff of 1804 (to raise Mediterranean fund) added $2\frac{1}{2}$ per cent. to all existing ad valorem duties. The tariff of 1812 doubled all *permanent* duties before imposed by law. This was followed by the tariff of 1816.

† Except on wool hats, caps and clothing, which paid a duty of 30 per cent. ad valorem; stockings 20 ditto; blankets, rugs, worsted goods and stuff goods 15 ditto; yarn four cents per pound.

‡ There were some exceptions. On blankets, worsted stuff goods and woollens not exceeding $33\frac{1}{3}$ cents a yard, the duty was 25 per cent.; and on carpets a specific duty of 50 cents a square yard.

INTRODUCTION OF SAXON MERINOS.

The following statement of the Saxon importations was embodied in that report on sheep which, as already mentioned, I made to the State Agricultural Society in 1838. The facts were furnished by one of the members of the committee, the late Henry D. Grove, of Hoosic.*

"The first importation of Saxony sheep into the United States was made by Mr. Samuel Henshaw, a merchant of Boston, at the instance of Col. James Shephard, of Northampton. They were but six or seven in number. In 1824 Messrs. G. & T. Searle, of Boston, imported 77 Saxon sheep. They were selected and purchased by a Mr. Kretchman, a correspondent of the above firm, residing in Leipsic, and shipped at Bremen on board the American schooner *Velocity*. I was engaged to take charge of the sheep on the passage, and I also shipped six on my own account. I am sorry to say that as many as one-third of the sheep purchased by Kretchman (who shared profit and loss in the undertaking) were not pure blooded sheep. The cargo was sold at auction at Brooklyn, as 'pure blooded Electoral Saxons,' and thus unfortunately in the very outset the pure and impure became irrevocably mixed. But I feel the greatest certainty that the Messrs. Searle intended to import none but the pure stock. The fault lay with Kretchman. In the fall of 1824, I entered into an arrangement with the Messrs. Searle to return to Saxony, and purchase, in connection with Kretchman, from 160 to 200 Electoral sheep. I was detained at sea seven weeks, which gave rise to the belief that I was shipwrecked and lost. When I finally arrived the sheep had been already bought by Kretchman. On being informed of what the purchase consisted, I protested against taking them to America, and insisted on a better selection, but to no purpose. A quarrel ensued between us, and Kretchman even went so far as to engage another to take charge of the sheep on their passage. My friends interposing, I was finally induced to take charge of them. The number shipped was 167, fifteen of which perished on the passage. They were sold at Brighton, some of them going as high as \$400 to \$450. A portion of this importation consisted of grade sheep, which sold as high as the pure bloods, for the American purchasers could not know the difference. It may be readily imagined what an inducement the Brighton sale held out to speculation, both in this country and Saxony. The German newspapers teemed with advertisements of sheep for sale, headed 'Good for the American market'; and these sheep, in many instances, were actually bought up for the American market at five, eight or ten dollars a head, when the pure bloods could not be purchased at from less than \$30 to \$40. In 1836, Messrs. Searle imported three cargoes, amounting in the aggregate to 513 sheep. They were about of the same character with

* This gentleman was born and educated to the duties of a shepherd and flockmaster, in Prussian Saxony; and I am sure I shall give no offence in expressing the opinion that he was the best practical shepherd of his day in our country. Mr. Grove was an ardent, decided man, prejudiced by early associations for the favorite sheep of his native country, and by the fact that his own skill produced exceptional results in their favor, and thus gave them an entire advantage when brought into comparison with rival varieties or flocks which were less perfectly managed. But where he states any fact on his own knowledge, it can always be implicitly relied on. The German fatherland never sent out a more incorruptible son.

their prior importations ; in the main good, but mixed with some grade sheep. On the same year a cargo of 221 arrived, on German account, Emil Bach, of Leipsic, supercargo. A few were good sheep and of pure blood ; but taken as a lot they were miserable. The owners sunk about \$3000. Next came a cargo of 210, on German account, Wasmuss and Multer owners. The whole cost of these was about \$1,125 in Germany. With the exception of a small number, procured to make a flourish on in their advertisements of sale, they were sheep having no pretensions to purity of blood. In 1827, the same individuals brought out another cargo. These were selected exclusively from grade flocks of a low character. On the same year the Messrs. Searle made their last importation, consisting of 182 sheep. Of these I know little. My friends in Germany wrote me that they were like their other importations, a mixture of pure and impure blooded sheep. It is due, however, to the Messrs. Searle to say, that as a whole, their importations were much better than any other made into Boston.

“ I will now turn your attention to the importations made into other ports. In 1825, thirteen Saxons arrived in Portsmouth. They were miserable creatures. In 1826, one hundred and ninety-one sheep arrived in New York, per brig William, on German account. A portion of these were well descended and valuable animals. The rest were grade sheep. In June, the same year, the brig Louisa brought out 173, on German account. Not more than one-third of them had the least pretensions to purity of blood. Next we find 158, shipped at Bremen, on German account. Some were diseased before they left Bremen, and I am happy to state that twenty-two died before their arrival in New York. All I intend to say of them is, that they were a most curious and motley mess of wretched animals. The next cargo imported arrived in the brig Maria Elizabeth, under my own care. They were 165 in number, belonging to myself and F. Gebhard, of New York. These sheep cost me \$65 a head when landed in New York. They sold at an average of \$50 a head, thus sinking about \$2,400! I need not say that they were exclusively of pure blood. A cargo of 81 arrived soon after, but I know nothing of their quality. The next importation consisted of 184, on German account, per brig Warren. With a few exceptions they were pure blooded and good sheep. We next have an importation of 200 by the Bremen ship Louisa. They were commonly called the ‘stop sale sheep.’ They were of the most miserable character, some of them being hardly half grade sheep. The ship Phebe Ann brought 120 sheep, of which I know little ; and sixty were landed at Philadelphia, with the character of which I am unacquainted. Having determined to settle in America, I returned to Saxony, and spent the winter of 1826-7 in visiting and examining many flocks. I selected 115 from the celebrated flock of Macherns, embarked on board the ship Albion, and landed in New York June 27, 1827. In 1828 I received 80 more from the same flock, selected by a friend of mine, an excellent judge of sheep. I first drove them to Shaftesbury, adjoining the town of Hoosic, where I now reside. On their arrival they stood me in \$70 a head, and the lambs half that sum.”

The fires of speculation might have died out and a reaction ensued, when the unsuitableness of these sheep for our climate and systems of husbandry became apparent, had any time been given for cool reflection. But the year 1825 brought another of

those pecuniary revulsions, which periodically sweep like desolating tornadoes over our country. This is not the place to investigate its causes. The friends of the "American System," as the friends of high protective tariffs were then called, attributed it to our excessive importations from Europe, and these views prevailed so far that the tariff of 1828 was enacted.

U. S. TARIFF LAWS SINCE 1824.

The tariff of 1828 imposed a specific duty on wool of four cents per pound, and in addition thereto an ad valorem duty of 40 per cent. until 30th of June, 1829, when an additional duty of five per centum was to be added, and that amount annually, till the additional duty ad valorem amounted to 50 per centum: on manufactures of which wool formed a component part,* an ad valorem duty of 40 per centum until June 30, 1829, afterwards 45 per centum: on manufactures of wool which exceeded \$4 the square yard, 45 per centum until June 30, 1829, and afterwards 50 per centum: on manufactures of wool (except flannels and baizes) not exceeding $33\frac{1}{3}$ cents, 14 cents per square yard: on blankets, hosiery, ready made clothing, etc., 35 per centum: on the three most valuable kinds of carpets, 70 cents per square yard; the two next best kinds 40 cents; the lower grades 32 cents. And the principle of minimums was now first applied to woolen tariffs, practically to increase the duties on the cheaper imported fabrics. Thus those not exceeding 50 cents per square yard were deemed to cost 50 cents; † those exceeding 50 cents and not exceeding \$1, were deemed to cost \$1; those exceeding \$1 and not exceeding \$2.50, were deemed to cost \$2.50; those exceeding \$2.50 and not exceeding \$4, were deemed to cost \$4.

The events, in manufacturing and wool growing circles, which followed the tariff of 1828, may not have been solely due to that law. However this may be, the facts themselves admit of no dispute. Both the manufacturers and producers were excited beyond the bounds of sober reason.

The scenes exhibited among the latter would be remembered with amusement, had not their results proved so injurious to public and private interests. Intelligent and enterprising far-

* Excepting carpetings, blankets, worsted stuff goods, bombazines, hosiery, mits, gloves, caps and bindings.

† With the exceptions expressed in preceding note.

mers pulled down their barns to build greater, or, at least, made the most costly preparations for growing wool, and then sent one hundred or one thousand miles to purchase Saxon sheep at \$100 or \$500 a head. When the prodigies arrived, with what a blank look the proprietor, and with what an irrepressible titter the farm laborers, first surveyed the little strangers! If they had been exposed to storms and hardships on their journey, they did indeed present a very disconsolate appearance.

But who can see through the folly of his times? The public were in the midst of a fine-wool cyclone. The manufacturer and producer talked of the exquisite fineness of this or that clip—but whether the sheep which bore it yielded much or little, had good or bad carcasses, were hardy or feeble, was scarcely a matter of thought. Enormously exaggerated expectations of the future demand for Saxon wool were entertained; it was to increase with our increasing population; the tariff was to raise prices to the highest pitch; and then the tariff and the high prices were to stand for generations, if not forever. Aladdin's lamp was, plainly, discovered!

It is remarkable that this Saxon mania had so little effect, comparatively, on the estimated value of the descendants of the Spanish Merino in our country. They rose in value; but their chief value appeared to be considered as resting on the fact that they would grade up more rapidly than common sheep toward the Saxon standard of fineness—in other words, make a better cross with the Saxon! The idea that they had a separate value, approaching that of the latter, appears to have entered nobody's mind. Yet at that very time the average of Saxon wool was not ten cents higher a pound than Spanish, and the product of a Spanish sheep was worth more in market than the product of a Saxon sheep. Even the prices of fine wool did not rise until near the close of 1830. American producers of very fine wool have have ever fed on expectation, but never attained the fruition of their hopes.*

* I trust no former breeder of the Saxons will complain of the tone of these remarks, when I say, "quorum pars fui." I was the owner of sheep before I was a year old, and have remained so since. Thirty-two years ago I became the owner of a pure Spanish flock. Subsequently I purchased some Saxons, and was so gratified with the produce of a few picked sheep, that I bought and bred a flock usually numbering from 500 to 700. They were derived from the most celebrated flocks. I kept them several years and gave them a fair trial, before going back to the Spanish Merinos, which, very fortunately for myself, I had never entirely abandoned.

I will now trace down an account of the subsequent tariffs, in connection, for the purpose of rendering a comparison of their provisions more convenient.

The tariff of 1828 produced a vast annual surplus of revenue over the expenditures of the government, and furnished means for a rapid extinction of the public debt. But the latter would be soon paid; the discontents of a portion of our people against the duties imposed by the law, were loudly expressed; and a change was felt to be necessary. This was made by the tariff of 1832.

This made wools not exceeding eight cents per pound in value at the place of export,* duty free; and imposed a duty on those exceeding that value, of four cents per pound and 40 per centum ad valorem; cloths not exceeding 35 cents per square yard, were to pay an ad valorem duty of five per centum, others 50 per centum; shawls and ready-made clothing 50 per centum; carpeting 63 and 35 cents per square yard; flannels, baizes, &c., 16 cents per square yard; various minor articles from 10 to 25 per centum.

This was a period of great inflation in the currency, and the proceeds of the immense sales of the public lands, together with the revenue collected, were still found greatly to exceed the wants of the government. This and the "nullification" of South Carolina led to the passage of what was termed the "compromise tariff" of 1833.

The tariff of 1833 commenced a system of progressive reductions in duties exceeding 20 per centum ad valorem, as follows: The reduction of one-tenth of such excess was to take place December 31, 1833, and a tenth of the residue of the excess at the same date each second year until 1841, when half the residue was to be deducted, and the other half on the 30th day of June following. The free wools (costing less than eight cents a pound) were to pay a duty of 20 per centum in 1842 and afterwards. The cloths which had paid five per centum (those costing not to exceed 35 cents a square yard) were immediately to pay 50 per centum, and then suffer the same biennial reduction in duties with the others.

* The bill provided that if wools were mixed with dirt or other material to reduce its value to eight cents, the appraisers should appraise it at such price "as in their opinion it would have cost had it not been so mixed."

From 1833 to 1837 the plethora in the money market continued and increased. Imports became enormous—vastly exceeding those of any preceding period. They culminated in 1836. The following figures, in respect to manufactured textiles alone, will express the increase more readily than it can be done in words :

Imports.	Woolens.	Cottons.	Silks.	Linen & Flax.	Hemp.
1832.....	\$9,992,424	\$10,399,653	\$9,248,907	\$4,073,161	\$1,640,618
1836.....	21,080,003	17,876,087	22,980,212	9,307,493	3,365,897

In many other articles the gain was proportionable. In the single one of sugar, the advance, during the same period, in the value of the import was from two to twelve millions of dollars. The aggregate value of imports in 1836 was \$189,980,035 ; the aggregate duties \$30,991,510 ; and the average per centum of duties on imports $16\frac{313}{1000}$. The sales of the public lands went on. The gradual reduction of the tariff of 1833 did not therefore bring down the public revenues to the scale of expenditure, and a surplus of twenty-eight millions of dollars accumulated and was deposited with the states.

An exigency, however, was approaching, which rendered it necessary to increase the duty on imports. The pecuniary revolution of 1837 fell upon the country. In that year the import of woolens sunk to \$8,500,292 ; and in the succeeding year it rose to only \$11,512,920. Other imports decreased in a somewhat corresponding ratio. The sale of public lands fell off. The government debts were increasing ; and all saw that under the pressure of the times, the manufacturers could not possibly sustain themselves under the minimum of protection to be reached by the " compromise tariff." This led to the tariffs of 1841 and 1842, and to the changes they made in the duties on wool and woolens.

The one year tariff of 1841 left the 20 per centum duties on woolens undisturbed, but struck out the 20 per centum duties on wools not exceeding eight cents in value at the place of exportation.

The tariff of 1842 imposed a duty of five per centum ad valorem on wools costing seven cents and under, and raised it on higher wools to 30 per centum ad valorem and three cents per pound specific duty ; on manufactures of wool, except on carpets, &c., 40 per centum ad valorem ; on carpets of different qualities respectively 65, 55 and 30 cents per square yard, and on lower

grades 30 per centum ad valorem; on other woolen articles duties ranging from 15 to 35 per centum.*

The tariff of 1846 established an even ad valorem duty of 30 per centum on all wools and on cloths.† Under its operation many of the principal woolen manufactories of the United States failed, and the manufacture of broadcloth was entirely broken up.

The tariff of 1857 made all wools costing 20 cents or less, free of duty, and lowered the duties on other wools to 24 per centum ad valorem. The duty on the principal manufactures of wool was also lowered to 24 per centum ad valorem.‡

The tariff of 1861 places the duty on wools costing less than 18 cents, five per centum ad valorem; on wools exceeding 18 cents and not exceeding 24 cents, a specific duty of three cents per pound; on wools exceeding 24 cents, a specific duty of nine cents per pound; on woolen cloths, shawls and manufactures of every description, wholly or in part wool, not otherwise provided for, a duty of 12 cents per pound, and twenty-five per centum ad valorem; on the various descriptions of carpets, 25, 30, 40 and 50 cents per square yard; on shawls of which wool is the chief component, 16 cents per pound and 20 per centum ad valorem; on blankets, wholly or in part wool, of different values, respectively, 6 cents per pound and 10 per centum ad valorem, 6 cents per pound and 25 per centum ad valorem, and 12 cents a pound and 20 per centum ad valorem; on delaines, cashmere, etc., wholly or part wool, grey or uncolored, and other grey and uncolored goods of similar description, 25 per centum ad valorem. This bill contains so many provisions that no analysis of them can be presented here without consuming too much space. I have made out a table of them which I will subjoin in Appendix A.

* Blankets not exceeding 75 cents each, 15 per centum ad valorem; all others 25 ditto; worsted not otherwise specified 30 ditto; hearth rugs 40 ditto; yarn, mits, gloves, caps, binding and hosiery, 30 ditto; coach laces 35 ditto; flannels, bockings and baizes, 14 cents per square yard.

† On carpets of wool of all kinds, ready-made clothing, caps, gloves, leggins, mits, socks, stockings, wove shirts, drawers, etc., not otherwise provided for, the duty was 30 per centum ad valorem; on manufactures wholly or in part worsted, woolen and worsted yarn, baizes, bockings, flannels and floor cloths, 25 per centum ad valorem; on blankets of all kinds, hats, hat-bodies and woolen listings, 20 per centum ad valorem.

‡ On cloths, carpets, delaines, ready-made clothing, rugs, &c., 24 per centum ad valorem; on worsteds, yarns, baizes, bockings, flannels, floor cloths, &c., 19 ditto; on all blankets, wool hats, &c., 15 ditto.

PRICES OF WOOL SINCE 1824.

The following table of the prices of wool in Boston for thirty-eight years, was prepared, at my request, by George Livermore, Esq., the eminent wool commission merchant of that city, whose name is an ample guaranty of its entire accuracy. It is undoubtedly the most extended list of wool prices which has ever been made out in our country from reliable data. The average, and not the extreme prices, for each quarter are given.

I have added a column indicating the tariff laws in force at the different periods.

Let me preface the table by stating that I learn from various sources that from 1800 to 1807 wool bore a low and mostly a nominal price in our country; that in 1807 and 1808 full blood Merino wool was worth about \$1 a pound; † that it advanced in 1809 to about \$2 a pound, ‡ and continued at not far from that price during the war, some selling at \$2.50 a pound; that in 1815 it again sunk to a low price, and so remained until 1824.

Prices Current of Wool in Boston.

Tariff and time of taking effect.	Year.	Quarter ending*	Fine.	Medium.	Coarse.
June 30.	1824.	January, .....	..	..	..
		March	70	45	33
	1825.	July .....	..	..	..
		October	60	40	30
Tariff of 1824.	1825.	January	60	45	33
		April .....	..	..	..
		July .....	..	..	..
	1826.	October .....	..	..	..
		January .....	..	..	..
		April	52	45	40
		June	37	30	27
	1827.	October	44	38	33
		January	37	33	28
		April	44	36	30
		July	36	31	26
	1828.	October	42	32	25
January		40	30	25	
April		44	36	28	
		July	48	40	33

* The prices, it will be observed, are not given strictly by *quarters* in the table anterior to 1827.

† Col. Humphreys, in a MS. letter lying before me, says that he sold for that price in 1807.

‡ In 1809 Chancellor Livingston sold his unwashed full blood wool for \$2.00; seven-eighths blood for \$1.50, three-fourths for \$1.25; one-half blood for 75 cents; common for 37½ cents. See his Essay, pp. 185, 186.

Tariff and time of taking effect.	Year.	Quarter ending	Fine.	Medium.	Coarse.	
Sept. 1.	1829.	October.....	47	40	31	
		January.....	55	45	35	
		April.....	43	35	30	
		July.....	45	35	30	
		October.....	38	31	27	
		1830.	January.....	40	35	30
			April.....	48	38	32
			July.....	62	50	40
			October.....	70	60	47
		1831.	January.....	70	60	47
			April.....	70	60	50
			July.....	75	63	50
October.....	70		60	50		
1832.	January.....	65	55	45		
	April.....	60	50	40		
	July.....	50	40	30		
	October.....	50	40	30		
1833.	January.....	..	..	..
	April.....	..	..	..
	July.....	62	55	42		
	October.....	65	55	45		
March 3.	1834.	January.....	70	60	47	
		April.....	65	55	42	
		July.....	60	50	40	
		October.....	60	50	40	
		1835.	January.....	60	50	40
			April.....	65	58	45
			July.....	65	58	45
			October.....	65	58	45
		1836.	January.....	65	58	45
			April.....	65	58	45
			July.....	70	60	50
			October.....	70	60	50
1837.	January.....	70	60	50		
	April.....	70	60	50		
	July.....	..	..	..
	October.....	50	40	33		
1838.	January.....	50	42	35		
	April.....	50	42	35		
	July.....	45	37	32		
	October.....	55	48	37		
1839.	January.....	55	48	38		
	April.....	55	48	38		
	July.....	58	50	40		
	October.....	60	52	46		
1840.	January.....	50	45	38		
	April.....	48	41	36		
	July.....	46	38	33		
	October.....	46	38	33		
1841.	January.....	52	45	37		
	April.....	52	45	37		
	July.....	50	44	35		
	October.....	48	41	33		
1842.	January.....	48	43	35		
	April.....	46	42	33		
	July.....	43	38	31		
	October.....	37	31	26		
1843.	January.....	35	30	25		
	April.....	34	29	25		
	July.....	35	30	26		
	October.....	36	32	26		
1844.	January.....	37	31	26		
	April.....	45	37	30		
	July.....	45	37	31		
	October.....	50	42	33		
1845.	January.....	45	38	31		
	April.....	45	38	33		
	July.....	40	35	30		
	October.....	38	34	28		

Tariff and time of taking effect.	Year.	Quarter ending	Fine.	Medium.	Coarse.				
Dec. 1.	Tariff of 1846.	1846. January.....	40	35	30				
		April.....	38	33	28				
		July.....	38	33	28				
		October.....	36	30	22				
		1847. January.....	47	38	30				
		April.....	47	40	31				
		July.....	47	40	31				
		October.....	47	40	30				
		1848. January.....	45	38	30				
		April.....	43	37	30				
		July.....	38	33	28				
		October.....	33	30	22				
July 1.	Tariff of 1849.	1849. January.....	33	30	23				
		April.....	42	36	30				
		July.....	40	35	28				
		October.....	42	36	30				
		April 1.	Tariff of 1850.	1850. January.....	47	40	33		
				April.....	45	38	31		
				July.....	45	38	32		
				October.....	45	38	35		
				July 1.	Tariff of 1851.	1851. January.....	45	37	32
						April.....	50	44	40
						July.....	47	42	37
						October.....	45	40	33
April 1.	Tariff of 1852.					1852. January.....	42	37	32
						April.....	42	36	31
						July.....	45	38	32
						October.....	50	42	37
		July 1.	Tariff of 1853.			1853. January.....	58	55	50
						April.....	62	55	50
						July.....	60	53	48
						October.....	55	50	48
				April 1.	Tariff of 1854.	1854. January.....	53	47	42
						April.....	57	52	44
						July.....	45	37	30
						October.....	41	36	32
July 1.	Tariff of 1855.					1855. January.....	40	35	32
						April.....	43	35	32
						July.....	50	40	33
						October.....	52	41	36
		April 1.	Tariff of 1856.			1856. January.....	50	38	35
						April.....	57	43	37
						July.....	55	43	38
						October.....	60	55	45
				July 1.	Tariff of 1857.	1857. January.....	58	50	43
						April.....	60	56	43
						July.....	56	48	40
						October.....	38	30	26
April 1.	Tariff of 1858.					1858. January.....	40	33	28
						April.....	42	35	30
						July.....	42	37	30
						October.....	55	42	36
		July 1.	Tariff of 1859.			1859. January.....	60	52	45
						April.....	60	46	37
						July.....	55	40	35
						October.....	60	49	42
				April 1.	Tariff of 1860.	1860. January.....	60	50	40
						April.....	52	45	40
						July.....	55	50	40
						October.....	50	45	40
April 1.	Tariff of '61.					1861. January.....	45	40	37
						April.....	45	37	32
						July.....	40	35	32
						October.....	47	47	52

From the beginning of 1827, from which the above prices present the averages of each quarter, to the close of 1861, a period

of 35 years, the average price of fine wool was $50\frac{3}{10}$ cents; of medium, $42\frac{8}{10}$ cents; of coarse, $35\frac{1}{2}$ cents. Fine wool averaged 15 per centum higher than medium, and medium 14 per centum higher than coarse.

The wools classed in the table as fine, I should say included Saxon, grade Saxon, and choice lightish-fleece American Merino; the medium included American Merino and grade down, say to half blood; the coarse included wools one-fourth blood Merino and below. Each of these classes, of course, embraced wools of various qualities and prices.

Mr. George William Bond, wool broker of Boston, has prepared for me a valuable list of prices of Ohio State wools, extending back for twenty-one years; and Messrs. Tellkampf & Kitching, wool brokers of New York, a valuable list of prices of New York State wools. Both of the last named lists and some others will be found in Appendix B.

The following table was prepared for me by the Acting Register of the Treasury, at the request of my friend, Hon. R. H. Gillet, of Washington, D. C., former Register of the Treasury.

STATEMENT

Exhibiting the value of Wool, and Manufactures of Wool, imported into and exported from the United States from 1840 to 1861, both years inclusive.

YEARS ENDING—	WOOL UNMANUFACTURED.			MANUFACTURES OF WOOL.		
	EXPORTS.			IMPORTS.		
	Foreign.	Domestic.	Total.	Foreign.	Domestic.	Total.
September 30, 1840	\$26,246		\$26,246	\$546,076		\$546,076
do 30, 1841	44,226		44,226	1,091,953		1,091,953
do 30, 1842	90,865		90,865	797,382		797,382
June 30, 1843	34,651		34,651	248,679		248,679
do 30, 1844				851,460		851,460
do 30, 1845	22,153		22,153	1,689,794		1,689,794
do 30, 1846	41,571	\$203,996	245,567	1,134,226		1,134,226
do 30, 1847	37,302	89,460	126,762	555,822		555,822
do 30, 1848	1,840		1,840	857,034		857,034
do 30, 1849	6,891		6,891	1,177,347		1,177,347
do 30, 1850				1,681,691		1,681,691
do 30, 1851	7,966		7,966	3,838,157		3,838,157
do 30, 1852	54,285		54,285	1,830,711		1,830,711
do 30, 1853	51,387		51,387	2,669,718		2,669,718
do 30, 1854	41,668		41,668	2,822,185		2,822,185
do 30, 1855	131,442		131,442	2,072,139		2,072,139
do 30, 1856	14,997		14,997	1,665,004		1,665,004
do 30, 1857	920		920	2,125,744		2,125,744
do 30, 1858	824,898		824,898	1,036,759		1,036,759
do 30, 1859	82,141	355,563	437,704	4,022,635		4,022,635
do 30, 1860	37,280	389,512	426,792	4,842,152		4,842,152
do 30, 1861	48,299	237,846	286,145	4,717,350		4,717,350
	\$1,551,028	\$1,562,502	\$3,113,530	\$46,077,273		\$46,077,273
				\$9,131,408		\$9,131,408
						\$9,131,408
						\$429,422,951

TREASURY DEPARTMENT, REGISTER'S OFFICE, Feb. 12, 1862.

J. A. GRAHAM, Acting Register.

The value of the annual imports of manufactures of wool, for nineteen preceding years, and a table exhibiting what proportion of the imports of wool, for a number of years, fell below the dutiable price, will be found in Appendix C.

The following, extracted from the Report of the Boston Board of Trade on Wool, in 1859, was "furnished by George Wm. Bond, a member of the Board, and by George Livermore, a member of the Government of the Board."

WOOLEN MACHINERY.

Table showing the quantity and classification of Woolen Machinery in New York and New England.

	Maine.	N. Hamp- shire.	Ver- mont.	Massachu- setts.	Conne- cticut.	Rhode Island.	New York.
Satinets	9	3	22	165	112	33	20
Cassimeres	28	40	44	285	95	82	103
Cotton warp cloths and carp, ..	..	..	..	82	..	..	31
Stocking yarn and hosiery...	6	12	6	30	74	..	33
Worsted and woolen yarn....	..	10	..	76	..	8	..
Blankets and flannels	40	81	11	185	19	..	33
Delaine .....	..	58	..	67	..	..	..
Carpets .....	..	2	..	62	70	..	47
Cashmeretts .....	..	4	..	5	..	..	..
Shawls .....	..	..	..	10	..	7	26
Feltings .....	..	..	..	14	30	..	..
Negro cloths and jeans .....	..	..	..	..	..	53	..
Linsays and dometts .....	..	..	..	..	..	42	..
Sundries*	8	18	39	18	9	..	148
Total number of sets ...	91	228	122	999	409	225	468
No. of establishments ..	32	56	56	154	93	56	208

The above classification is not strictly accurate, as it is impossible in some mills to say how many sets are on each description.

Mr. Bond writes me (January 20, 1862 :) "In the rest of the free states there are about 500 sets of cards, as nearly as I can reach it."

Mr. Livermore writes me (January 26, 1862 :) "I should not like to assert that there is not a broadcloth manufactory in New England, though I do not know of any machinery, now running, of that kind of goods."

A manufacturer of standing, in our state, who made broadcloths prior to 1846, writes me, (January 23, 1862,) that there are no broadcloths made in the United States, so far as he knows, except such as are made for the army and navy; and a few cotton warp cloths called "Union."

* Those classed sundries are very small.

I have presented the preceding statistics, because they embrace facts which are inseparably and importantly connected with the progress of sheep and wool husbandry in the United States; and without them much of the history I am sketching would be meaningless—a mere record of apparently casual events. I had contemplated accompanying them with similar statistics of the woolen production, trade and legislation of other nations; but I found that while those of them which could be obtained in this country would swell this paper to a volume, they still would lack a satisfactory degree of completeness without sending to Europe for more, for which there would be no time.

Having presented a class of facts, the mutual relations and bearings of which have been made the topics of much partizan discussion—which in some cases, indeed, have constituted what are termed “issues” between parties—I feel constrained to omit my own deductions and conclusions in respect to them, leaving every person to form his own opinions on the subject.

DECLINE IN THE PRODUCTION OF FINE WOOLS.—THE SPANISH SUPERSEDES THE SAXON MERINO.

The small difference made in the prices of different qualities of wool, in our country, necessarily proved fatal to the success of the Saxon Merino. The improvement of the imported sheep in the hands of such breeders as Mr. Grove, Mr. Scoville, of Connecticut, Mr. Reed, of Pennsylvania, Messrs. Wells & Dickinson, of Ohio, Mr. Cockrill, of Tennessee, and many others, was manifest; and in some cases it more than kept pace with what may be termed the reform movement of Baron Von Sternburg, Prince Lichnowski, and their compatriots in Germany.

Two years after the introduction of the Saxons (i. e. in 1826) the average price of their wool sunk within ten cents of that of full blood Merino wool. It never subsequently rose to any higher proportionable price, while the difference was frequently only five or eight cents a pound. The best breeders of pure Saxons, who owned large flocks, could not bring up the mean product of their whole number to three pounds of wool per head. In 1840, Mr. Grove's admirable flock—not exceeding about 200 sheep—yielded an average of 2 lbs. 11 oz. per head, and he published this product* as a proof of the value of his favorite breed, in that controversy

* See his letter to me, Transactions N. Y. State Agricultural Society, 1841, p. 333.

between the advocates of the Saxon and Spanish Merinos which was then filling our agricultural publications.

This controversy opened about 1835. The Saxons had by far the greatest number of distinguished names, but the Spanish sheep had nearly all the facts on their side. As early as 1831-2, Mr. Jarvis' full blood Merinos yielded about four pounds of wool per head. And persons who obtained small choice lots of him, from the period of 1835, could obtain ewes yielding nearly or quite $4\frac{1}{2}$ lbs. per head. In 1835, Francis Rotch, the celebrated cattle and sheep breeder of Morris (then Louisville) New York, published the statement that his flock of Spanish Merinos yielded an average of $4\frac{1}{2}$ lbs. of "well washed wool." My own flock, larger than Mr. Rotch's, yielded an equal amount. This was also undoubtedly true of the flock of Stephen Atwood, of Woodbury, Connecticut; of John T. Ritch, of Shoreham, Vermont; and of many other flocks descended from those of the two last named gentlemen.

And the Spanish sheep, then the subject of great attention—and of attention directed specially towards increase of fleece—was rapidly adding to the disparity between itself and the Saxon in this particular. In 1844, I purchased a small lot of Rich ewes in Vermont, which yielded an average of five pounds of washed wool, at a year old. The same year a little flock of thirty (descended from Col. Humphreys' sheep) yielded me an average of 5 lbs. $13\frac{1}{8}$ oz. of washed wool.*

In 1845, Mr. Stephen Atwood wrote to the author of the American Shepherd, that his flock consisted of 150, half ewes and half rams and wethers; that his ewes yielded five pounds of washed wool per head, and his lambs an equal amount; that his wethers yielded six pounds, and his rams from seven to nine pounds; that his heaviest ewe's fleece in the preceding spring was 6 lbs. 6 oz., and the heaviest ram's fleece 12 lbs. 4 oz.

It is my impression that several other small flocks, whose product of wool was published at that period, yielded

* Two of the number were rams, and four of the ewes had two years' fleeces on—but, on the other hand, a portion of them were yearlings and two year olds, which, yeaned at the customary time and treated in the customary way in my flock, always fall considerably short of the fleeces of grown sheep. My impression at the time was, that the fleeces of the 28 ewes, including the double ones, did not weigh more than would the fleeces of the same sheep at three or four years old, without any double ones. The sheep were not housed except in winter, and were wholly unpampered. See my detailed statement of their keep, &c., in Transactions N. Y. State Ag. Society, 1844. They drew the first premium of the Society for best managed flock.

about the same amount; but none of those statements are at hand.

Many of the Saxon breeders strove to shut their eyes to such facts as the preceding. They called loudly for more discriminating prices from the manufacturers, and for high protective tariffs from the Government. The first did not come; the last did not remain. The financial crash of 1837 carried the price of Saxon wool absolutely below a remunerative point. There was a very brief rally towards the close of 1839, but it again sunk to the non-remunerative point, and *has never since regained it*. From that period the difference in the prices of Saxon and Spanish Merino wool has not usually exceeded five or eight cents per pound. After that failure of our broadcloth manufacturers which followed the tariff of 1846, the breeders of Saxons gave up all hope, and rapidly relinquished their flocks or crossed them with other breeds or varieties.

THE AMERICAN MERINO.

When the Saxon sheep disappeared, the improved Spanish Merino again came into general favor. Thus far I have used the term "Spanish" in speaking of them, but it is quite time to change our ovine nomenclature in this particular. France and Saxony have produced distinct and self-sustaining* varieties of the Merino, and given them their national names. The American variety, though departing far less essentially from the original standard of the race, is equally distinct and equally self-sustaining. Let us then hereafter talk of American instead of Spanish Merinos, unless we mean by the latter designation the present inferior sheep of Spain.

The American Merinos, when again brought into public favor between 1840 and 1845, were found divided into several as well marked families as were their Leonese ancestors in 1800. This arose partly from the preservation of the original family blood unmixed, and partly from the courses of breeding adopted by their owners.

Premising that the order in which I place them implies no attempted gradation as to merit, I will proceed to describe:

1. Mr. Jarvis', or the Mixed Leonese sheep of the United States. What varieties of his imported sheep he bred together has already been made to appear. Those of their descendants which I saw

* That is, reproducing their characteristics in their offspring with regularity.

twenty years ago, were not perhaps quite as light in weight, long in the legs and neck, and narrow in the carcass as the Spanish sheep measured by Petri, but they were equally remote from the compactness and substance of the American sheep, whose measurements are subjoined to Petri's table, or of the family I shall describe as No. 3. Their skins were thin, loose, and usually exhibited but few corrugations, and these were confined to the ram and to the neck of that animal. They had but a small amount of external gum, and were accordingly quite white—whiter than any Spanish sheep imported into this country except the Escorial. They had little wool below the eyes or below the knees and hocks. Their wool was long, but shorter on the belly, and of medium thickness. On a portion of them it divided about the shoulders and fore parts into those small pointed tufts which indicate thin wool. The fleece was very fine, very even, and opened on a high tinted, rosy skin, with a brilliancy and style which almost rivalled the Saxon. The yolk was thin, colorless, and easily liberated in washing. I have never seen any other Merino wool so closely resembling Saxon, or of so profitable a character to the manufacturer. Altogether the sheep bore an obvious likeness to the Spanish Escorial, and I have no doubt that Mr. Jarvis gave a preference to rams of that variety while he was forming his mixed family. They were, however, a heavier fleeced, and for this country, a more valuable sheep than those of the Royal cabana of Spain.

2. I take up these next as the descendants of an older importation than No. 3, and I am almost inclined to dub them the American Infantados. They were bred from rams and ewes of Col. Humphreys' importation, by Stephen Atwood, of Connecticut.* I think that in 1840 they were about as heavy sheep as

* Mr. Atwood writes me that in the spring of 1813 he bought a ewe of Col. Humphreys for \$120, and put her to a ram "that Younglove Cutler bought of Col. Humphreys in 1807." This was the starting point of his flock. He put their descendants to rams raised from Col. Humphreys' sheep in his neighborhood, until about 1830, after which period he used rams of his own raising. This is the distinct and positive statement of a man whose character is considered good by those who know him. It has been uniformly made and persisted in by him from a period long anterior to the time when the public attached any particular importance to the fact whether the sheep were descended *exclusively* from Col. Humphreys' importation or not. Though I own sheep of this family, I have *never* regarded that point of particular importance; and I commenced sifting out the facts on the present occasion leaning towards the opposite belief. But I find Mr. Atwood's statements persistent, coherent, reasonable in themselves, originally made under no peculiar motive of interest, and he certainly ought to *know* the history of his own flock better than those who are not even his near neighbors. To the

Mr. Jarvis', and had the same Spanish figure—that is to say, they were taller, thinner, longer necked and finer boned than our present Merinos. I should say they were a little flatter in the ribs than No. 1, and a little deeper in the chest. They were peculiarly deep-chested, and not only had a very marked Spanish appearance, but the marked individuality of sheep from one cabana. Their skins were mellow, loose, and of a fine deep color. The ram had a pendulous dew-lap, and some moderate sized neck-folds. Some of the ewes had dew-laps, but otherwise their skins were free from corrugation. The external color of the fleece was very dark, sometimes a pitchy black, shining and sticky in hot weather, and forming a rigid crust in cold weather. The inside was so filled with yolk that every fibre seemed to have been dipped in it, and it often stood in small globules between the fibres. The inside yolk was thin, generally colorless, and perfectly limpid. The sheep were not woolled below the eye, knee and hock. The wool was rather short—considerably shorter than that of No. 1 and No. 3, and did not carry out its length so well on the belly, forehead, cheeks and legs near the knees as No. 3. The wool stood thicker than on No. 1, and often seemed vastly thicker when grasped by the hand externally, by reason of its gummy coating. I saw some, however, which, under this gummy coating,

only individual who has, so far as I know, impeached the accuracy of Mr. Atwood's statements I recently applied for a history of his own flock, only for the purpose of giving him the place and credit to which I supposed him entitled as a breeder of the pure descendants of imported Merino sheep. Something in the reply, and something in another letter received at the same period, induced me to question him in relation to Mr. Atwood's flock. He says that prior to about the year 1822, Mr. Atwood's sheep were Negrettis—"the hardest kind of Spanish sheep;" that Atwood then bought of him (my informant) a ram got by a ram "bred by Daniel Bacon, out of his imported Escorial buck;" that some years after, Mr. Atwood hired a buck of ——— (name illegible) that was got by his (my informant's) "best Escorial buck;" that "from these two bucks he (Atwood) has obtained his great credit." My informant says his own ewes were Infantados. (See preceding note where the importation of Atwater and Peck is spoken of.) Admitting the sale, purchase and hiring above alleged, does it prove anything? Mr. Atwood not only bought or hired, but *used* a Saxon ram one year; but, wiser than his neighbors, promptly abandoned him and weeded all his lambs out of the flock. If there was any Merino flock in the United States specially unlike the Escurials, it was Mr. Atwood's twenty years ago, and the same is true now. How, then, could his flock have obtained "their credit" from Escorial rams! What authority has my informant for pronouncing sheep notoriously bred from a ewe from Col. Humphreys' own flock, to be Negrettis, and "the hardest kind of Spanish sheep?" Judge of my astonishment when I find the same person claiming, in a *published* letter 17 years ago, that his own sheep, instead of being originally Infantados, were "*a part of them Negrettis and a part Montareos!*" These slips of memory at least admonish us that similar ones may have occurred in other instances. Again I say the matter is of little consequence, except as one of justice to an old breeder who deserves well of the public; and when such details are given at all, they should be correctly given.

had thinnish wool. The quality and style of the wool were excellent. Its curves were especially bold and showy, and were continued regularly throughout the entire length of the fibre, showing even on the tips. The fleece had great evenness, and nothing approaching to hair in any part. The sheep had not the appearance of being as hardy or as easily kept as No. 3. To my eye they looked like animals which had attained great uniformity and strong points of excellence by in-and-in breeding, but that this had been carried so far that they were on the point of losing constitution. It would seem, however, that this opinion was unfounded, for we now have flocks of their unmixed descendants which, after twenty years more of in-and-in breeding, have been converted into low, compact, strong, heavy and hardy sheep.

3. The American Paulars. They were purchased of the importer by Andrew Cock, a breeder of character residing near Flushing, Long Island.* They were sold in 1823 to Hon. Charles Rich, M. C., and Leonard Bedell, of Shoreham, Vermont. Twenty years ago they were heavy, low, broad sheep, full in the bosom and buttocks, with strong bones, thick short necks, and thick coarse heads. The ewes had deep, pendulous, and sometimes plaited dewlaps, and folds of moderate size about the neck; the rams had both in a greater degree. The external color of the fleece was dark leaden gray, or blackish, indicating considerably more yolk than No. 1, and considerably less than No. 2. They were not wooled below the eye, and not commonly below the knee and hock.† The wool was long, and retained its length unusually well on the belly, forehead, cheeks, and on the legs down to the knees and hocks. It was very thick over all the parts, and in many instances broke into masses of the same size on the belly as on the sides, instead of the small pointed tufts usual in that place on No. 1 and No. 2. This indicated great thickness of fleece. The fleece was considerably inferior to that of the preceding families in fineness, evenness and general style. It was sometimes quite coarse on the thigh, and hairs were occasionally seen protruding from the edges of the neck folds. The lambs were often covered with hair when born, and their big, bony legs and thick coated ears were marked with patches of tan

* Their full pedigree, sustained by the most ample testimony—testimony never since disputed—was published in the *American Agriculturist and Cultivator*, in 1844.

† I speak of wool of length and quality fit to be put in the fleece when sheared. Nearly all of them had short, coarsish wool on the legs, and particularly on the hind legs.

color. On the ears this color continued to show faintly, on close examination, through life. They were better nurses and hardier than either of the other families: they were precisely the *negligent farmer's sheep*. I have often seen a flock of them, slightly sheltered by a haystack, stand composedly chewing their cuds, and treading down the drifting snow under their feet, when the wild northwest gale "curled up" every other shivering animal on the farm.*

4. I do not intend specially to classify under this head, and attempt to describe, any separate family. Chancellor Livingston's flock, I have understood, was preserved by his descendants until about 1840, and for aught I know, later. Of its later history and character I know nothing. There were a number of breeders in all the Northern and Eastern states, who commenced flocks with imported Spanish Merinos. Most of them crossed with the Saxons after 1824, and lost the Spanish characteristics. But there were exceptions in probably nearly every state where the Merino was established. I know of several such instances in New York, but the flocks have not attained sufficient excellence to deserve special mention now, or they have been so crossed with other flocks—and particularly with those classified under the three preceding heads—as to retain no distinct and separate family character. Most of the early flockmasters of New York were men of large possessions, and were rather wool growers than breeders. In other words, the production of wool was the primary consideration with them, instead of the production of a small annual surplus of rams and ewes to be sold at extra prices for breeding purposes. On the other hand, several persons in Connecticut and Vermont fortunately devoted themselves specially to breeding, and in their ardor to improve and to excel

* It may not be amiss to state that on the 8th of February, 1862, a number of the most prominent breeders and friends of these respective families of sheep, in Addison county, Vermont, met me by appointment at the house of Hon. M. W. C. Wright, of Shoreham, and conceiving that it was a subject on which they had a right to be heard, I read to them the preceding descriptions of their sheep as they were twenty years ago; my account of the results of crossing these families, (presently to appear,) and, indeed, everything pertaining to their sheep in this paper, except the references to and descriptions of their *present individual flocks*, which I did not read—which, indeed, were not then written.

I solicited these gentlemen to correct my statements wherever they thought I had fallen into error, apprising them that if after such an invitation they should fail to do so, they, as much as myself, would be committed to the accuracy of my assertions. No corrections were offered, but on the contrary, Messrs. Hammond, Rich, Wright and others expressed their unqualified affirmative assent to those assertions.

each other and the Saxon breeders, made great and beneficial changes in the characteristics of the breed. Accordingly, when the restoration of the American Merinos to public favor took place, about 1845, New England had choicer individual sheep than New York, and there was a general importation of them, and especially of breeding rams, from the former into the latter, and into the other states lying west of New England. These importations superseded the families existing in those states, or were blended with them, and thus merged the individuality of the latter as separate families. From that period, the American Paulars and Infantados* have been bred distinct in all parts of our country. Those who then procured Mr. Jarvis' "mixed Leonese" sheep, have generally since crossed them with one or both the other families.

It would be an instructive lesson could I accurately trace out the modes and the results reached by the most noted breeders of these separate or mixed families. To attempt it without long and minute investigation, would be not only unfair, but excessively presumptuous; and even after the most careful examination, it would be a very delicate affair, to say the least of it, to assume to sit in judgment on the comparative merits of flocks which are now keen competitors for public favor, and concerning which the opinions of the most intelligent and experienced flockmasters differ. Accordingly I shall waive it, after reserving to myself the right of selecting some examples when I come to discuss the subject of crossing.

Suffice it to say, that each of the separate families and the crosses between them, or between them and other pure American Merino stocks, have improved enormously within twenty years.

The American Merinos, the measurements, etc. of which I subjoined to Petri's table, exhibit some of the marked changes which have taken place in the form of the breed not only since their original importation, but within the last twenty years. And if that table had been more complete in *useful* data, these facts

* I have no wish to impose a new name on the public for the "Atwood sheep," as they are commonly termed, but I adopt this designation myself, first, because I believe it to be the correct one; secondly, because it is convenient and proper to have a family name for these well known sheep; and thirdly, because I can see no propriety in giving them permanently the name of an individual, who, if he deserves (as he undoubtedly does) great credit for preserving their blood unmixed, and effecting considerable improvements on the original stock, neither imported them nor brought them to their present high degree of perfection. If they are to be named after any man, that man should be Col. Humphreys.

would be still more apparent. The American sheep, weighed and measured for that table, were not, as already remarked, extraordinary ones in any particular pertaining to the carcass—were such as can be found in abundance in any prime flock. When their length of leg, neck and body, and breadth of hip are compared with each other and with their weight, their compactness and massiveness of form become a necessary corollary; and here the disparity between them and the original Spanish sheep is most striking. The longer neck and legs, and shorter bodies of the latter, remind us of the Saxons.

The improvement of the fleece has kept pace with that of the form. In prime flocks, the quality is at least as good as that of the original Spanish sheep, while the quantity has more than doubled.

The very best Merinos imported into the United States between 1800 and 1813, yielded from $3\frac{1}{2}$ to 4 lbs. of brook washed wool in the ewe, and from 6 to 7 lbs. in the ram. Mr. Dupont's Don Pedro, the heaviest fleeced imported Spanish Merino ram, I think, on record, produced 8 lbs. 8 oz., of brook washed wool. We have seen that ewes in small flocks, descended from the above, yielded an average of $4\frac{1}{2}$ lbs. of wool, washed in the same way, as early as 1835. In 1844-45, the product had risen to 5 lbs. in some small flocks; that of rams to 9 lbs., and in individual instances much higher.* At the present day it is easier to find small flocks yielding an average of 6 lbs. of washed wool, than it was in 1845 to find those yielding 5 lbs., or in 1835 those yielding $4\frac{1}{2}$ lbs.

I speak of "small" flocks, because in large ones equal averages are never obtained. It would be difficult, and probably impracticable at this time, to find a flock of 400 or 500 ewes, kept in the ordinary way, which would produce an average of more than 5 lbs. of well washed prime Merino wool. But from these, 100 could be drawn, which, subdivided into a couple of flocks, given "the range" of an entire farm in summer and well kept in winter, would yield a pound more of wool a head. The heaviest fleeced 50 of this hundred, bought by a breeder, protected from

* See preceding statement of Mr. Atwood, that in 1845 his heaviest ewe's fleece was 6 lbs. 6 oz., and his heaviest ram's fleece 12 lbs. 4 oz. My premium ram's *first* fleece in 1844, was 10 lbs. of well washed wool. In 1847, a ewe of mine produced 7 lbs. 10 oz. of well washed wool. (See portrait of her in *Sheep Husbandry in the South*, p. 134.) In 1849, a ram of mine yielded 13 lbs. and two or three ounces of well washed wool. I think that Mr. Atwood *then* probably had rams which exceeded that amount.

all storms, and pampered for show, would yield nearly 7 lbs. of washed wool a head, and a few scattering ones from 8 to even 9 lbs. Should one of the very heaviest fleeced ewes of the flock fail to have a lamb at two or three years old, and become very fat, she might produce 10 lbs. of wool the succeeding year. Prime rams *unwashed and housed from storms from the middle of August to shearing*,* produce from 18 to 20 lbs., and occasionally if large and very highly kept, two, three, and even five pounds more.

INTRODUCTION OF THE FRENCH MERINO.

When the American Merino started on his second and rapid march of improvement, he soon found a new foreign competitor for public favor in the field.

Mr. D. C. Collins's importation of French Merinos in 1840, has already been alluded to in the extracts I have published from Mr. Taintor's letter. These sheep found a warm admirer and advocate in Anthony Benezet Allen, the very able editor of the *American Agriculturist*, and they were consequently brought rapidly into public notice. Mr. Allen attended Mr. Collins' shearing in 1843. He considered the wool quite equal to the best of that of Spain. It opened with a brilliant creamy color on a rich, soft, pink skin, which was excessively loose and corrugated. The sheep were of fine form, he thought of excellent constitution, and from one-tenth to one-fifth larger in carcass than American Merinos. "Grandee," the choicest imported ram, † had, at three years old in France, sheared 14 lbs. unwashed wool. In 1842 his unwashed fleece weighed $12\frac{3}{4}$ pounds. He was 3 feet $8\frac{1}{2}$ inches long "from the setting on of the horns to the end of the rump," and weighed in fair condition about 150 pounds. Mr. Allen found the average weight of the ewes' unwashed fleeces in 1843 to be 6 lbs. 9 ozs.

Mr. Taintor's importations commenced in 1846. Mr. Allen has kindly furnished me with a list of those also made by other persons, but on second thought I have concluded not to give it. To do so without discrimination would be placing honorable persons in an unpleasant association, and I do not feel called upon, with-

* It has become so customary not to wash the best stock rams, and to treat them as above mentioned, that I am compelled to give their weight of fleeces under such circumstances.

† He was used as a sire ram at Rambouillet, and Mr. Collins was obliged to wait until he was thus used the year that he brought him out.

out greater necessity, to specify individual frauds which have mostly worked their own cure.

Mr. Taintor, on the point of leaving home, referred me for particulars concerning his imported sheep, to a large proprietor of them, Mr. John D. Patterson, of Westfield, N. Y. That gentleman has furnished me the following statements :

“Your second inquiry calls for the characteristics of these imported sheep, weight of single year’s fleeces, &c., &c. It would be difficult to give the characteristics of these various importations of sheep, as there has been so great a difference in them, they having been of all kinds and qualities, from *good to very inferior*. Some of them have been of large size, were well proportioned, being short in the leg, broad in the chest, had strong hardy constitutions, were easily kept, and always in good condition. With ordinary care and on ordinary feed, they sheared heavy fleeces, and their wool was even and of good quality, while others of them, and by far the greatest number, were the opposite of these in all the different qualities mentioned, some having been the discarded and refused sheep of good flocks, and others were grade sheep from flocks having no reputation as being of strictly pure blood ; but these kinds of sheep were bought up by speculators at low prices, brought to this country and sold on the reputation and credit of the better class of French sheep that had been previously imported. They were long in the leg and long in the neck ; were slab-sided, thin-visaged, gaunt, thin through the shoulders, narrow in the chest ; their constitutions so puny and delicate that it was impossible to keep them in fair condition even with the best possible care and attention ; their fleeces were light, their wool uneven in quality, some being quite too fine for profit (because too light), while others would be exceedingly coarse and filled with jar. In France, as in this country, there are all descriptions and grades of sheep, and it does not follow, as is supposed by many, that all that have been imported from there are of the same kind and quality, even if *called* by the same name. * * * * *

“In answer to your inquiry as to the weight of fleece of the French sheep and their live weight, I can only reply by giving the result of my own flock. My French rams have generally sheared from 18 to 24 pounds of an even year’s growth, and unwashed, but some of them, with high keeping and light use, have sheared more, and my yearling rams have generally sheared from 15 to 22 pounds each. My breeding and yearling ewes have never averaged as low as 15 pounds each, unwashed, taking the entire flock. Some of them have sheared over 20 pounds each, but these were exceptions, being large and in high condition.

The live weight of any animal of course depends very much upon its *condition*. My yearling ewes usually range from 90 to 130 pounds each, and the grown ewes from 130 to 170 pounds each, and I have had some that weighed over 200 pounds each ; but these would be above the average size and in high flesh. My yearling rams usually weigh from 120 to 180 pounds each, and my grown rams from 180 to 250 pounds each—some of them have weighed over 300 pounds each, but these were unusually large and in high flesh and in full fleece. I have had ram lambs weigh 120 pounds at seven months old, but they were more thrifty, fleshy and larger than usual at that age.

“As you request the height from the top of the shoulder to the ground, I have measured some of those of medium height, and find that

yearling ewes run from 26 to 28 inches, the grown ewes from 28 to 30 inches, the yearling rams from 28 to 32 inches, and the grown rams from 30 to 34 inches. You also inquire the *color* of the great body of French sheep, externally; what color the wool is when opened on the sheep, whether the oil in the wool is white or yellow, and if they exhibit much gum?

"When running out and exposed to the storms, they are, as a whole, light-colored when compared with the Spanish Merinos, for the reason that they have much less yolk or gum in their fleeces, besides their oil or yolk is more of a soap-like substance, and separates from their wool so readily that the rains will wash their surface comparatively clean, leaving them light-colored, while the oil or gum of the Spanish Merino is so adhesive and sticky it is difficult and, in many of them, impossible to wash it out of their wool by ordinary brook-washing; and as it is the yolk or oily matter contained in the fleece, causing the dust and other matter to adhere to it, which gives the external color, the Spanish Merinos are generally darker on the surface than the French, and it is this excess of oil in the Spanish Merino which causes their fleeces to lose so large a percentage in weight when *cleansed* for manufacturers' use. Experiments made with the two kinds of wool, by reliable and experienced manufacturers, have proved that as much cloth can be made of the same number of pounds of *unwashed* French Merino wool as can be made of an equal number of pounds of *brook-washed* Spanish Merino wool in the condition it is usually sold.

"In answer to your inquiry as to the color of the wool of the French sheep when opened on the back, and if their oil is white or yellow, I would say their wool is generally of a cream color, or has a yellowish cast, and the oil or yolk in their fleece is a similar color; still, when washed their wool is of a pure white.

The wool of some of the French sheep is naturally quite white when opened on the body, without being washed, but I have invariably found those having the *whitish* wool (when alike in other respects) were the lightest shearers."*

The following statement of E. L. Gage, of De Ruyter, N. Y., (made in behalf of his father and himself,) contains interesting details in respect to the management of these sheep, by persons whose skill and success in that particular have not been excelled:

"We bred French sheep from September, 1852, till February, 1861. Our first purchase was of John A. Taintor, of Hartford, Conn. We have since bought of John D. Patterson, of Westfield, Chautauqua Co., N. Y., and F. M. Rotch, Morris, Otsego Co., N. Y. About forty is the most we had at any one time.

"The average weight of the ewes' fleeces was 10 lbs 8 ozs., well washed.

"In addition to hay in winter, we fed them about a pint of a mixture of grain and roots each per day.

"We also fed a small amount of grain in summer to attract them to the barn at night for their safety from dogs.

"They were always kept housed in winter except on clear days, when they were allowed to go out or in at will. They were also allowed to go into the shed at will in summer.

* This letter is dated January 11, 1862.

"The French Merinos always afforded us good returns in wool and lambs. The ewes were good nurses, often bearing twins. Our full grown rams weighed from 180 to 225 pounds; the ewes from 125 to 170 pounds.

"We sold our entire flock of French Merinos and crosses to J. D. Patterson, Esq., last winter.

"We have now commenced a flock of pure blood Spanish Merinos of the Atwood and Hammond stock, and have about fifty in all.

"With the experience we have in both breeds, it is our impression that the Spanish are the most profitable for all classes of wool growers, and will keep in better condition on short keep and rough usage; but it always paid us better to keep well than poorly. Part of our Spanish ewes sheared last spring 6 lbs. washed, and a part 8 lbs. 4 ozs. unwashed. I think by good breeding and care a few generations, we can increase the left very much. I enclose two samples of wool from two of the ewes."*

I subsequently inquired of these gentlemen whether their French sheep were driven to the barns at night and in rain storms in summer, or if they went there without driving. Their reply was, that they sometimes drove them in during cold rain storms in the fall, but otherwise not; that, however, the sheep generally went under shelter at all times when wetted by rain; that in fair nights they "seemed to prefer sleeping out in the yards." The means used to guard them against dogs brought them also to sleep on the dry straw of the barn yard instead of the damp sod of the pasture.

INTRODUCTION OF THE SILESIAN MERINO.

Still another Richmond was to appear in the field of competition—the exquisitely wooled Silesian Merino. The following account of its introduction and characteristics is contained in a letter to me from the principal importer of the variety, William Chamberlain, Esq., of Red Hook, New York. He writes:

"Your favor dated 24th ult. is received, and it gives me pleasure to furnish the required information in regard to my flock of Silesian sheep, with full liberty to make such use of the facts as you please.

"1st. I have made importations for myself and George Campbell of Silesian sheep, as follows:

In the year 1851, say	.....	40 ewes and	15 bucks.
do	1853, do	27 do	4 do
do	1854, do	111 do	13 do
do	1856, do	34 do	2 do
		<u>212</u>	do <u>34</u> do

"In 1854 I visited Silesia and made the purchases myself.

* This letter is dated January 2, 1862.

"2d. The sheep were bred by Louis Fischer, of Wirchenblatt, Silesia, except a few which were bred by his near neighbor, Baron Weidebach, who used Fischer's breeders.

"3d. Their origin is Spain. In 1811 Ferdinand Fischer, the father of Louis Fischer, the present owner of the flock, visited Spain himself and purchased one hundred of the best ewes he could find of the Infantado flocks, and four bucks from the Nigretti flock, and took them home with him to Silesia, and up to the present day they have not been crossed with any other flocks or blood, but they have been crossed within the families. The mode pursued is to number every sheep and give the same number to all her increase; an exact record is kept in books, and thus Mr. Fischer is enabled to give the pedigree of every sheep he owns, running back to 1811, which is positive proof of their entire purity of blood. The sheep are perhaps not as large as they would be if a little other blood were infused; but Mr. F. claims that entire purity of blood is indispensably necessary to insure uniformity of improvement when crossed on ordinary wool growers' flocks; and such is the general opinion of wool growers in Germany, Poland and Russia, which enables Mr. Fischer to sell at high prices as many bucks and ewes as he can spare, and as he and his father have enjoyed this reputation for so many years, I am fully of opinion that he is right. From these facts you will observe that my sheep are pure Spanish.

"4th. Medium aged ewes shear from 8 to 11 pounds; bucks from 12 to 16 pounds; but in regard to ewes, it must be borne in mind that they drop their lambs from November to February, which lightens the clip somewhat. I do not wash my sheep.

"5th. I have sold my clip from 30 to 45 cents, according to the market.

"6th. We have measured the wool on quite a number of sheep, and find it from one and a half to two inches long, say eight months' growth, but I have no means of knowing what it would be at twelve months' growth.

"7th. Their external color is dark. The wool has oil but no gum whatever, they having been bred so as to make them entirely free from gum—German manufacturers always insisting on large deductions in the price of wool where gum is found.

"8th. As above stated, the Silesians have oil, but no gum like what are sold for Spanish and French, and the oil is white and free; the wool does not stick together.

"9th. We have weighed five ewes. Three dropped their lambs last month; the other two have not yet come in. Their weights are 115, 140, 130, 115 and 127 pounds; three bucks weighing severally 145, 158, 155 pounds; one yearling buck weighing 130 pounds; but this would be more than an average weight of my flock when young and very old sheep were brought into the average. My sheep are only in fair condition, as I feed no grain. They have beets, which I consider very good for milk, but not so good for flesh as grain.

"10th and 11th. For the first time my shepherd has measured some sheep: ewes from 24 to 28 inches high, fore-leg 11 to 12 inches; bucks, 27 to 28 inches high, foreleg 12 to 13½ inches.

"12th. We find the Silesians hardy, much more so than a small flock of coarse mutton sheep that I keep and treat quite as well as I do the Silesians.

"13th. They are first rate breeders and nurses.

"Some of these facts I have given on the statement of my shepherd, Carl Hyne, who was one of Mr. Fischer's shepherds, and came home

with the sheep I purchased in 1854, and a man whose honor and integrity I can fully indorse.

"My sheep do not deteriorate in this country, but the wool rather grows finer without any reduction in the weight of fleece."*

In a subsequent letter Mr. Chamberlain writes :

"Carl has weighed a few more of our Silesian sheep, and their weights are as follows : Four full aged ewes, respectively, 120, 125, 107, 107 pounds ; two ewe lambs, 90, 87 pounds ; two two-year old bucks, 124 122 pounds ; one three-fourths blood, 143 pounds.

"I attended to the weighing and selection myself, and am of opinion that our ewes from three to eight years old average fully 115 pounds, say before dropping their lambs. Our younger sheep do not weigh as much. Silesians do not get their full size till four years of age, and after eight or nine years they are not as heavy. * * * Mr. Fischer's sheep are large, say larger than any flock of Vermont Merinos that I have seen. * * * I have the lambs come from November to March, because Carl says it is the best way, and I let him do as he pleases. * * * The ewes do not give quite as much wool, but I think the lambs make stronger sheep, as they get a good start the first summer."

COMPARATIVE PROFITABLENESS OF VARIETIES.

Your President has assigned to me a delicate task under this head ; but I shall advance upon it fearlessly, because I know that the opinions of one person, if erroneous, will weigh but little and soon be corrected.

With an experience with all the preceding national varieties, except the Prussian or Silesian Merino, quite sufficient to satisfy *myself* in regard to their respective qualities, I have preferred to go for testimony to others—to the principal importers and the most deeply interested owners and advocates of each variety—to those who, by common consent, have the choicest animals of each ever introduced into or bred in our country.

It is true this affords a view only of the best animals, but these are the ones which offer the most instructive examples, and there is no difficulty in judging from them downwards.

The American (Spanish) and Saxon varieties were first introduced in large numbers, and will therefore be first compared.

There was no time after 1835 when the prime American Merino did not exceed the prime Saxon Merino by at least one and a half pounds in the weight of fleece. The table of prices shows that before and subsequently to that period, the average price of Saxon wool was not more than 10 cents highest per pound.

* This letter is dated January 6, 1862. Mr. Chamberlain's residence is considerably nearer to Barrytown than to Red Hook.

Between 1831 and 1837, when Saxon wool was most remunerative, its average prices were from about 65 to 70 cents per pound. If we estimate the Saxon fleece at three pounds, and the American fleece at four and a half pounds, when the first was worth in the market \$2.10, the latter was worth \$2.70.

The Saxon was a smaller consumer than its rival, because a smaller sheep. The production of flesh and other animal tissues from food, is a process regulated by physiological laws which work substantially alike where breed, habits and other circumstances are alike. The Merino consumes about one-thirtieth of its own weight daily of good hay in winter, and an equivalent of green food in summer. The Saxon sheep of 1840, then, consumed about two and a half pounds of hay daily, and the American about three pounds—a difference of 75 pounds in favor of the former during the 150 days of a New York winter. Hay then cost about \$5 a ton at the barn, and pasturage a cent a week for a sheep of either variety through the remaining 225 days of the year, making the cost of keeping an American Merino less than 20 cents most a year.

The Saxon required much more care and attention and better winter shelter. In ordinary hands it reared 20 per centum less of good lambs.* Finally the American Merino fattened as easily as the Saxon, made as good mutton, and produced more of it.

In the interior and wool-growing regions proper of New York, hay for the last few years has usually averaged about \$6 a ton in value at the barn, and pasture costs through the season about two cents a head per week for sheep. Were the prices of both doubled, it is obvious that the American Merino would continue vastly the most profitable sheep, particularly if the increase in its fleece since 1840 is taken into account.

The French Merino spread with great rapidity throughout the Northern States, and is disappearing as rapidly. Our farmers have obtained the impression that it produces less wool in proportion to size and consumption, than the American Merino, wool of less value, and that it is essentially a weaker and less hardy animal.

Many of the imported sheep of this variety, as well as their

* I say "good lambs," because many of the small and feeble lambs of the Saxon sheep perished during their first winter when eight or nine months old.

descendants, did, undeniably, produce very light fleeces in proportion to carcass. I have seen them repeatedly beaten, fleece for fleece, by little compact American Merinos of scarcely half their size.

It is true also of the best of them that their fleeces are much lighter in proportion to mere bulk (that is when equal force is applied to compress the fleece in the wool press*), than those of the American variety. If both are unwashed, the American fleece has far most yolk. If washed equally well, the American fleece still retains far more of that substance. Yolk is mainly an animal soap, the constituents of which will presently be given, but it contains a trace of insoluble fatty matter. Whether from a greater proportion of the last, or for some other cause, the yolk of the American sheep is less readily liberated—it requires more previous soaking—and if the sheep are put *dry* into cold brook water, and not kept in over long—the fashionable mode of washing in our country—the French Merino's wool is nearly as free from this substance before it goes in, as that of a *class* of American Merinos is when they come out; and according to my observation, the yolk reappears twice as rapidly in the American fleece after washing. Indeed this must be true, for where there is double or treble secretion during the year, the process of secretion must go on with double or treble rapidity; consequently, if two or three weeks are allowed to intervene, as usual, between washing and shearing, and if the weather be warm, the American fleece again becomes lubricated and “weighted” with yolk, while the French fleece remains almost as dry as cotton.

In one respect, certainly the American fleece derives a purely legitimate advantage from these facts. With the rapid return of the yolk comes the rapid return of lustre and the characteristic silkiness of handling so much prized by buyers.

I am inclined to believe that wholly independently of all extraneous matter, the actual fibre of the American wool, if we could weigh exactly equal quantities of each, would be found heaviest. The bones, muscles, skin and other animal tissues of a small animal, even of the same species, are less porous and, to use the familiar term, finer-grained than those of animals fifty per cent. larger. Wool and hair closely assimilate in their organic con-

* See Appendix D.

stituents with these substances.* I know no reason, therefore, why an analogous decrease of density should not extend to the wool and hair of the larger animal.

But without taking such refinements into the account, and to sum up the matter, the American far excels the French Merino in the combined production of wool *and* *yolk*; and as *yolk* is allowed to be a marketable commodity, the mass of our farmers prefer the sheep which produces it in greatest abundance. But in the production of pure *wool*, my own opinion is that the heaviest fleeced animals of the two varieties do not materially differ—not more perhaps than is inevitable, other things being equal—by reason of that law of matter which gives small spherical bodies more surface in proportion to weight and diameter than larger ones. The carcass of a sheep has sufficient sphericity to make this law applicable to it. A better idea of its practical effects will be obtained from an examination of the following table prepared in relation to round shot :

Diameter in inches.	Weight in pounds.	Surfaces in inches.	Inches of surface to one pound weight.
2	1,092	12.56636	11.50
3	3,685	28,27431	7.69
4	8,736	50.26544	5.75
5	17,063	78.53975	4.60
6	29,484	113.09724	3.83
7	46,820	153.93791	3.28
8	69,889	201.06176	2.87

It will be observed that while the disparity in proportionable surface, between the extremes given, is enormous, that it diminishes as between larger spheres. But notwithstanding this, all must see that between spheroidal bodies differing fifty per centum in size and weight (equivalent to the difference between the French and American Merino), the greater proportionable surface of the smaller body must be sufficient to make a material difference in its favor if that surface is to be covered with wool of equal thickness and length. To express the result more prac-

* Analyses made by Liebig, Johnston, Scherer, Playfair, Boeckman and Mulder, prove that the organic part of wool, hair, skin, nails, horns, feathers, lean meat, blood, etc., are very nearly the same. The organic part of wool, according to Johnston, consists of carbon 50.65; hydrogen, 7.03; nitrogen, 17.71; oxygen and sulphur, 24.61. The inorganic constituents are small. When burned it leaves but 2.0 per cent. of ash. (See Liebig's *Agricultural Chemistry*, Appendix; and Johnston's *Agricultural Chemistry*, Lecture XVIII.)

tically, the American Merino has more square inches of surface, in proportion to its size, for wool to grow on, than has the larger French Merino. And the general deduction is, the smaller the sheep the larger the proportionable surface.

The popular impression, that American wool is finer and better than French wool, is, in my judgment, based on an unequal and unfair mode of comparison. The best American wool is unquestionably finer, evener, softer, more glossy and more "stylish" than any French wool brought into our country. I have not a doubt either that it is denser in its substance and stronger in proportion to its diameter. My prize ram which I offered to show against Mr. Collins' imported "Grandee,"* not only excelled, but, in sportsmen's phrase, distanced the latter in fineness, trueness and soundness of wool.† Granting frankly that the former was an animal of decidedly exceptional qualities, I feel authorized to say that Grandee would have passed for a coarsish-fleeced animal in any really *fine* full blood American Merino flock of that day. And I believe that no one pretends that the modern importations of French sheep exhibit any improvement on Mr. Collins' in respect to quality of wool.

But the really good sheep of the later French importations were selected in France for a specific object—for the purpose of attaining the greatest amount of wool of a fair medium grade of fineness. To make the comparison even, we must select American Merinos which have been bred and pampered for the same object—the production of the heaviest fleece. And it is

* This offer was made in 1844, extending to a ram and a pen of ewes (Mr. C. to name amount sweepstakes), in consequence of the offensive and purely unprovoked attacks made for months in succession on our American Merinos by an able public writer, who, at the same time, warmly championed the French sheep. Now that Mr. Collins is dead, I feel bound to say that I have no idea he countenanced those attacks. Indeed, I believe that he subsequently said as much to me. But engaged, perhaps, in his ocean-steamer plans, and in his very large business transactions, he probably gave but little attention to the subject. At the time I thought his suffering these attacks so long to appear without public or private disclaimer, authorized any owner of American Merinos to make the above challenge. He did not accept it, and the sheep sent to meet his were easily victorious over all other competitors at the State Fair.

† The diameter and trueness of their wool were tested with an admirable compound Chevalier microscope, by Ebenezer Emmons, M. D., one of the State Geologists, and that one having the agricultural survey of the State under his supervision. His skill and accuracy in such *quasi* scientific manipulations will be questioned by no well informed gentleman. See his original statements in American Quarterly Journal of Agriculture, 1845, and also in Sheep Husbandry in the South, p. 135, and a reply containing further explanations, in American Quarterly Journal of Agriculture, 1846, p. 290. The diameter of "Grandee's" wool was more than double that of "Premium's," while a single fibre of the former supported 84.6 grains, and "Premium's" wool broke with 57.1 grains.

my opinion that in these classes the French wool is at least as good as the American.

The only really weak point of the best French Merino as a pure *wool* producing animal, is the want of that hardiness which adapts it to our changeable climate and to our systems of husbandry. In this particular it is to the American Merino what the great pampered Short-Horn of England is to the little, hardy, black cattle of the Scotch highlands—what the high-fed carriage horse, sixteen hands high, groomed and attended in a wainscoted stable, is to the Sheltie that feeds among the moors and mosses, and defies the tempests of the Orkneys. The French sheep has not only been highly kept and housed from storm and rain and dew for generations, but it has been bred away from the normal type of its race. The Dishley sheep of Mr. Bakewell are not a more artificial variety, and all highly artificial varieties become comparatively delicate in constitution.

The following frank and well considered opinions on this subject are from the pen of Col. F. M. Rotch, of Morris, Otsego Co., N. Y., who imported some of these sheep in conjunction with Mr. Taintor in 1851, and who, a few years since, had a most admirable flock of them. He writes me :

* * * * "France I visited two or three times with a view to importing Merinos, and sent out to Mr. Taintor quite a number of the French variety.

"The French Merinos of the first class are certainly superb sheep, but they vary there as they do here—a few flocks, say half a dozen, being very superior, and then comes a number of mediocre flocks where neither the care nor expense nor knowledge are bestowed, and where the sheep more closely resemble the old Spanish type. You ask me my opinion of the French, as suited to our *rough farming*. I don't think them at all fitted to it. Though a vigorous, good-constituted and hardy sheep, they are accustomed to too much care and watchfulness in their native land to be able to endure the rough-and-tumble style of much of our farming. The north side of a barn and the lee of a rail fence for animals that are housed every night in the year at home, is too sudden and great a change. With *proper* care they are able to endure even our vicissitudes of climate, and thrive and grow fat here as in France ; but like all improved breeds of domestic animals, it is folly to expect them to do well without care or feeding. Any animal brought from a state of high cultivation and a mild temperature, to a colder climate and poorer soil, will deteriorate unless extra pains are taken to supply the loss of care and counteract the change of food. During the dozen years I kept French Merinos, I gave them much the same care they had in their own country, and found them to thrive and breed and weigh and shear as they did there, *almost*. The long winter and the necessity of feeding dry food so many months, told upon them *somewhat*. They are good breeders and nurses, often having twins and rearing them

well. As a cross upon our usual type of Merino, I consider them very valuable, but quite unfit for the general use as a stock sheep* of our farmers *at present*. With a better husbandry and improved shepherding, they may one of these days take their place among us as a breed, but now their crosses are what we must look to. I have no data that I can lay my hand upon of weights of fleece or carcass, nor of measurements. I sold my whole flock some six years ago to J. D. Patterson, of Westfield, who has now no doubt the finest sheep of this breed in the country."†

It will be observed that there is a hint of the want of adaptation in these sheep to our climate and common systems of husbandry in all the preceding communications from the most noted breeders of them, except Mr. Patterson, and he would seem to make the same admission by implication in a letter which is to follow.‡ It may, therefore, be assumed to be a conceded and settled fact.

Another point seems equally clear, that the inferior sheep of the variety are not like inferior American Merinos, still hardy and still valuable, but almost utterly worthless. This is a disadvantage which always attends highly artificial varieties and families. What so weak, worthless and miserable as a bad family of Short-Horns or a bad family of Dishley sheep!

In giving my opinion of the comparative profitableness of the best French and the best American Merinos, I will adopt the language of the most noted public advocate of the former, Mr. A. B. Allen. He recently wrote to me :

"The hardy American Merino, properly selected, (mind that, *properly selected*,) is undoubtedly best for the ordinary sheep master, and most profitable as a wool producer."

This by no means, however, establishes the fact that the French Merino is without high value in our country. Col Rotch's remarks in favor of a cross between that and the American Merino have been noted. Mr. Patterson, in answer to an inquiry on that subject, writes to me :

"I have tried the cross between the French and Spanish [American] Merinos, and succeeded beyond my expectations. Indeed, as a wool-growing sheep in the hands of most farmers, and to be kept as sheep are generally kept throughout the country, I have never seen a stock which I thought as profitable, both for wool-grower and manufacturer.

* By stock sheep I mean the main body of a flock.

† This letter was dated January 13, 1862.

‡ Perhaps I should hardly use the word "admission," for Mr. E. L. Gage, of De Ruyter, informs me that Mr. Patterson makes no secret of such views. If he did not state them explicitly to me, it was because he was not questioned.

* * * * I have bred them since 1848, and for the last ten years I have had more of this kind than all others, although I have always kept a flock of pure Spanish, and have always put French rams to my French ewes, making my cross by putting French rams to my Spanish ewes, not that I think that principle of breeding the best, but it costs much less money to do it. And while this cross with me has always been a very profitable wool-growing sheep, I can also say I have seen crosses from these long-legged, slab-sided, narrow-chested French rams as miserable and worthless as can be imagined."

My own experiments in this cross, candor requires me to say, have been less successful. Some of them were made with a ram bred by Col. Rotch and pure blood American Merino ewes; some were purchased of gentlemen who started with such ewes and bred them to first rate French rams obtained of Messrs. Taintor and Patterson; and some were got by pure American rams on high grade French and American ewes (averaging say fifteen-sixteenths or more French, and the remainder American Merino blood.) From this last cross I expected much. The ewes were compact and noble-looking animals. The produce was obviously better than the get of French rams on the same ewes, but after watching it for two years, I have recently come rather reluctantly to the conclusion that in this climate even these grades are not intrinsically as valuable as pure American Merinos.

But the Merino ram which got them, though apparently presenting the most admirable combination of points for such a cross,* has not proved himself a superior sire with other ewes; and I do not therefore regard this experiment as conclusive.

Some well-managed experiments of both these kinds have been tried by the Messrs. Baker, of Lafayette, and the Messrs. Clapp, of Pompey, New York. They bred towards the French until they obtained about fifteen-sixteenths of that blood, and now find the cross best the other way. One of the last of these crosses now appears to promise extremely well.†

While the breeder of pure blood American Merinos has no occasion, in my judgment, to change them by a cross with *any* other variety, I at the same time believe that the owner of the mixed French and American varieties has no occasion to despair of

* He weighed about 140 lbs., was compact and symmetrical, and his fleece weighed 14 lbs. washed. He was a very dark, yolky sheep. He was bred in Vermont; and though undoubtedly full blood, probably did not spring from ancestors as good as himself, or in other words, he was an "accidental" animal.

† Particularly the get of a choice old ram known as the "Lucius Robinson" ram, one of the best sire rams ever got by the "Old Robinson" ram.

obtaining, at least, a most excellent and valuable sub-variety, if his crosses are judiciously made. There is a "debateable land" between the mutton and wool-producing regions where these crossed sheep, or where the full blood French sheep *may* prove the most profitable variety. Even the latter demand no more feed or care than the high-bred mutton varieties; they are probably about as good nurses; and they will yield a large quantity of meat, and meat of a quality which always commands a ready sale in our markets. Their annual product of wool would be far more valuable than that of any mutton variety. Their want of early maturity, as I shall presently show, would be no objection to them in such situations.

In France, where both mutton and forage are worth twice as much as in our country, the French Merino holds its ground against the best long and middle-wooled sheep brought from England.

It has another valuable place to fill, namely: on farms where surplus capital keeps up high systems of husbandry, is lavish in erecting structures, and employs an abundance of labor. These establishments of the wealthy are constantly increasing in our country—especially in the vicinity of cities and villages. In such situations the stately French sheep ought to be and will be, if fairly tried, a favorite and a profitable animal.

It is a misfortune to us as a farming people, that growing up without the local traditions and prejudices so common in older nations, we have no dams and bulkheads to arrest the currents of fashion—and if a fashion becomes established by the acceptance of a majority, it must sweep from the centre to the circumference, embracing all places and persons. Are the agricultural interests of a majority necessarily those of the whole? Are the same cattle and crops equally adapted to all soils and climates and markets? Must every change in our agriculture assume the form of a *mania*, and sacrifice everything that does not jump with its humor? It is time for us to abandon such follies.

AMERICAN AND SILESIAN MERINO.

Between the Silesian sheep and the preceding varieties, it does not appear to me to be necessary to institute any extended comparison. Like the American Merino, it is the Spanish sheep materially improved, but not, like the French and Saxon sheep, bred away widely from the characteristic features of the original race.

It is simply an exquisitely high bred Spanish sheep, of pure and undoubted descent, bred for fifty years to a particular model, by two breeders, a father and son. Its fleece is decidedly superior in quality to that of any Merino, except the Saxon, ever brought into or bred in our country. The weight of that fleece has been stated by Mr. Chamberlain. Wherever it is most profitable to grow really *fine* wool, this variety ought to stand unrivaled. And I cannot entertain a doubt that there will always be sufficient demand in the United States for such wool, to make large flocks of these Silesian sheep profitable. If our broadcloth manufactures should revive, as it is to be hoped they will, it will add immensely to the call for this class of wool.

Where it is desirable to make crosses between Merinos and coarse breeds, or to add to the fineness and evenness of coarse families of Merinos, these sheep would seem well fitted to the object.

Since writing the above, I have examined Mr. Chamberlain's imported flock and their descendants, in his possession. My impressions of the admirable quality and uniformity of their fleeces is fully confirmed. Most of the lambs were dropped when I saw them (Feb. 10th,) and the ewes appear to be excellent nurses. Their carcasses are round, and of good shape. Some of them are taller in proportion to weight than I consider desirable—because the German breeders pay less attention to this point—but this tendency could be promptly changed without going out of the flock for rams. I know not why there is so prevalent an idea that they are small sheep. They are at least as large as the ordinary American Merino. They are entirely free from gum within the wool, but are exceedingly yolky and dark colored. They are housed in the winter and at night throughout the summer, to protect them from dogs and to preserve their dark color. They are managed with great skill by the shepherd, and under admirable arrangements, but are not pampered in respect to feed.

CROSSING.

Crossing or intermixing different breeds, or different varieties of the same breed, has been dabbled in by everybody.

The French attempted the first, and proclaimed to the world that the produce of the fourth cross between the Merino and coarse sheep (breeding towards the Merino) was as good a wool-

bearing sheep, and as valuable for *breeding purposes*, as the full blood Merino.*

Dr. Parry, of England, tried two or three crosses, and with the bustling officiousness and absurd assurance of a new beginner, filled the agricultural publications of England with statements that he had already surpassed the pure Merino wool in quality, and had actually injured the produce of his grade ewes (between Merino and Ryeland) in fineness, by "one dip" too much "with the Spaniard!" †.

Dr. Browne, in his learned "TRICHOLOGIA MAMMALIUM," states that I advised the crossing of the South Down and Merino, and wishes to hear "from myself" why I did so, after I had condemned the cross between the Leicester and Merino as an "unqualified absurdity." Having never before answered this question publicly, I will do so now. I advised it as I would advise the Finlander in a season of famine to continue his practice of mixing pulverized wood or straw with meal, if he found it necessary "to fill out his stomach"; but I should not tell him that I thought the pulverized wood and meal constituted a mixture better than all meal, or as good, provided both were equally accessible. Where there is a deficiency of capital to stock wool growing farms with pure Merino sheep, or where the latter can not be obtained rapidly enough, it is better to cross coarse ewes with Merino rams, than to leave the land idle. In the progress of time the produce will become excellent and profitable sheep; but to suppose that the produce of the fourth or of the twentieth cross will equal pure and properly bred Merinos, is what no breeder of ripe experience in the premises ever dreamed of. Base blood runs out rapidly by arithmetical calculation; but practically it *stays in*, and is ever and anon cropping out, by exhibiting the old base characteristics, in a way that sets all "calculation"

* Mr. Livingston says: "Having mentioned Dr. Parry's concurrence with the French agriculturists in the opinion that the breed is completely changed in the fourth generation, I should add," &c. (Essay, p. 133.) * * * "The French agriculturists say that however coarse the fleece of the parent ewe may have been, the progeny in the fourth generation will not show it." (Page 133.) * * * "It is now so well established as not even to admit of the smallest doubt, that a Merino in the fourth generation, from even the worst woolled ewes, is in every respect equal to the stock of the sire. *No difference is now made in Europe in the choice of a ram, whether he is a full blood or fifteen-sixteenths.*" (Page 131.)

If this last assertion were known to be true in respect to the breeding of the French Merino, it would solve some now very puzzling problems in regard to that variety.

† See his letter, published in papers of Bath Agricultural Society, Vol. X.

at defiance. The observing Germans have a very good way of terming all, even the highest bred mongrels, simply "improved half-blood." They found that their original coarse sheep had 5,500 fibres of wool on a square inch; grades of the third or fourth Merino cross produced about 8,000; the twentieth cross 27,000; the perfect pure blood 40 to 48,000.*

Whether it is proper and expedient to cross between varieties of the same breed, in the expectation of forming an intermediate variety, *and improving on both of the originals*, is hardly yet a settled question. The Spaniards thought not, and carefully guarded against any mixtures between their cabanas; and they bred in-and-in for ages.

The French plunged into the opposite extreme, by selecting from and intermixing the blood of all the different cabanas indiscriminately—wherever a choice animal could be found. And, Mr. Gilbert to the contrary notwithstanding, they never have "melted into each other" by forming one closely homogeneous variety, or even a group of such varieties. They are of all sizes, sorts and descriptions. Col. Rotch's letter can be re-read with profit in this connection.

Mr. Jarvis did not carry this system so far—for he blended much fewer cabanas, and it was an aggregation of masses instead of mere individuals; but I have reason to suspect that even in this he did not follow his own better judgment, but was influenced by the inducements held out by leading manufacturers, who wished to obtain a wool resembling the Saxon.†

In his instance, the guidance of a single intelligent will, for upwards of half a century, produced a very considerable degree of uniformity in his flock; but will any one now undertake to say that the ultimate result of this long labor was an improvement on some of the separate original materials of his flock? Would

* Fleischmann's Report.

† Charles Jarvis, Esq., of Weathersfield, Vermont, son of Hon. William Jarvis, writes me, (Jan. 14th, 1862:) "He also mentioned there was more gum in the fleeces [of the imported sheep] and they had a darker complexion at their introduction here than subsequently, mainly owing to father's *accommodating the manufacturers by breeding in the contrary direction.*" Here we have the solution of the Escorial cross; and now for the Saxon: "I have repeatedly heard him say his Merino ewes sheared about four pounds till he was persuaded by Mr. Shepherd [Col. James Shepherd, of Northampton, Mass.] the great manufacturer of that day, to get some Saxons to cross with, *as the finest wool was to be in the most demand in future*—and as repeatedly heard him end his allusion to the subject by declaring that if he had thrown his pocket-book, with the price of the Saxons, into the Connecticut river, as he was crossing for the purchase of them, he should be better off."

any one now prefer his mixed sheep to descendants of the Paulars, Negrettis, etc., which he chose from the flocks of Spain ?

Crossing, however, between two or three families, has sometimes resulted highly favorably. A considerable majority of the older breeding flocks of Vermont and New York are a cross between the Paular (Rich) and Infantado (Atwood) sheep. At the period that cross commenced, the first had size, form, constitution and long, thick wool. The last had fineness, evenness and style of wool, and an excess of yolk. Each was strong in the points where the other was most deficient ; and experience soon demonstrated that the better qualities of both blended harmoniously in their offspring. There is no denying that the produce of the cross is far superior to either of the original families, as those families were when it commenced. They are great favorites with the farmers both of Vermont and New York, and are to be found in nearly every fine-wool growing county of the latter.

Mr. P. F. Myrtle and C. N. Ackerson, of Steuben county, New York, have a very superior flock, and Gen. O. F. Marshall, Julius Stickney, and others, of the same county, fine specimens of them, descended from the flocks of Tyler Stickney and Erastus and Lucius Robinson, of Vermont.* I have not at hand any statement of their average weight of fleeces, but they rank high in this particular. Messrs. Myrtle and Ackerson cut 13 lbs. of well washed wool from a ram lamb, the carcass of which weighed 60 lbs. after shearing. Gen Marshall cut 9 lbs. of well washed wool from a ewe about sixteen months old, which weighed 45 lbs.† It had previously, of necessity, received two heavy taggings. These sheep have obtained several first state premiums. They cross excellently with Merino flocks, previously in that county, owned by the Messrs. Baker and others ; and indeed with all other Merino families with which I have known them to be intermixed.

The mixed Leonese (Jarvis) and Paular (Rich) families have been crossed successfully. "Fortune," one of the best early sire rams ever known in New England, was of this cross.* The ewes

* Mr. Stickney and the Messrs. Robinson started with Paular (Rich) ewes. In 1844, Hon. M. W. C. Wright, of Shoreham, Vt., purchased a ram, bred and brought to the New York State Fair, by Stephen Atwood. From this ram and one of his own ewes, Erastus Robinson bred the "Old Robinson Ram," whose descendants on Robinson and Stickney ewes constitute the crossed family mentioned in the text. Mr. Stickney had taken a previous cross with a very superior Jarvis ram. Whether his brother-in-law, Robinson, had done so I am not informed.

† For some valuable and interesting statements in regard to the proportion of wool to meat in sheep of different ages, sexes and sizes, see Appendix E.

and ram with which I offered to meet Mr. Collins' imported French sheep in a sweepstakes, were the get of Fortune on Rich ewes.

The late John T. Rich, Esq., (son of the first Vermont proprietor of the Paulars, and father of the present proprietors of the old Rich flock,) took one cross with Mr. Jarvis' family, through a ram selected by a most competent judge,† who informs me that he was the only one of Mr. Jarvis' entire number which he considered suitable for that purpose. He was thicker-fleeced, darker and more compact of form than the others, evidently breeding back less than the others to the Escorial strain of blood, and his get corresponded with himself in this particular; but my impression is, that he did not benefit Mr. Rich's family. In a recent examination of that admirable flock, (now owned by John T. Rich, the younger, and Virtulan Rich, who live on the old homestead in Shoreham, Vermont,) I found no difficulty whatever in selecting out the nearest descendants of the Jarvis ram, and they struck me much less favorably than those displaying the characteristics of the original family. These valuable sheep have kept pace with the improvements of later times without any sacrifice of their early valuable qualities.

Hon. M. W. C. Wright, of Shoreham, Vermont, commenced breeding with Paular sheep, and crossed them with mixed Leonese, and subsequently with Infantado rams, thus uniting the three most distinguished families of American Merinos. His rams were scattered widely through New York a few years since, and they and their descendants have given much satisfaction to purchasers who wished to breed a high quality of wool. They have obtained many premiums at our fairs.

The Messrs. Cutting, of Shoreham, Vermont, have produced flocks of excellent character by a cross between Infantado sheep and an early family of Merinos from Newport, Rhode Island. They have bred steadily towards the former.

Henry Lane, Esq., of Cornwall, Vermont, has bred superior sheep of the Paular and Infantado cross, and also pure Infantado sheep improved by Mr. Hammond. The same remark applies to Loyal C. Remelee, of Shoreham.

* He was got by a Jarvis ram on a Rich ewe, bred or owned by Mr. Stickney.

† Hon. M. W. C. Wright.

On the other hand it has been signally demonstrated that crossing is much less necessary than has been usually supposed, either to avoid in-and-in breeding, or to obtain characteristics not usual to the variety. The pure Infantado (Atwood) sheep have in the space of eighteen years been completely changed in some of their most essential qualities. They have been converted into animals as large, low, broad, round, short-necked and symmetrical as any other family of Merinos in our country or the world. In short, some of them seem to me to have reached the perfection of form in a fine-wooled sheep. This change, quite as great as that which Mr. Bakewell produced in the Leicester sheep, is principally due to the skill and perseverance of Edwin Hammond, of Middlebury, Vermont. In 1861 he sheared 193 ewes and 7 rams. Forty-four of the first were yearlings, and smallish on account of the drouth of the season. Among the seven rams three were smallish yearlings and one a smallish two-year old. The whole 200 yielded an average of an ounce or two under 10 pounds of unwashed wool. Three grown rams yielded together 73 pounds unwashed wool. On account of the great scarcity of hay and the comparative abundance of oats, the sheep were wintered mostly on the latter.* This undoubtedly increased the weight of their fleeces, but the yield was still a most marvellous one. Mr. Hammond's wool is a shade coarser than it was when he commenced his wonderful improvements, but it is of a good quality, even, sound and less yolky than that of the original sheep.

Nelson A. Saxton, of Vergennes, Vermont, breeds a small and choice flock of the same blood, drawn from Mr. Hammond's flock.

Dr. Ira Spencer, of De Ruyter, New York, has made a vigorous commencement in improvements of Infantados drawn from Mr. Atwood's flock.† At the last shearing his flock consisted of 40 ewes three years old and upwards, 10 yearling and 2 grown rams and 8 wethers. The average weight of the whole fleeces, washed on the back, was a fraction over 7 pounds. He weighed and measured the height on shoulder of a few of these, on the 18th of January last, and subjoins the weight of their last year's fleeces.

* The entire ewes of all ages received on the average a pound a piece daily.

† The ram, however, mentioned in following table (recently purchased) is of the Hammond family.

	Live weight— pounds.	Height— inches.	Weight of fleece— pounds.
Ram -----	132	29	19½
Ewe -----	91	23	7
Ewe -----	87	23½	6½
Ewe -----	107	24½	8
Ewe -----	89	24	7
Ewe -----	98	24½	7

The ram's fleece was of eleven months growth and unwashed. The sheep ran between two and three weeks between washing and shearing. Their winter feed was hay, and each received daily half a pint of provender, made up of three parts by measure of oats and one part of oil-meal. The ram received more.

I have ewes of the same blood which have produced from 7 to 8 lbs. 4 ozs., of well washed wool per head; but I am unable to state any average, their fleeces not having been kept separate from those of my other sheep. The ram which I have given measurements of in Petri's table, is of this blood. He was bred by Mr. Hammond.

I am informed there are pure Paular sheep in some of the western counties of this State which produce very heavy fleeces, but I am unable to furnish any detailed facts on the subject.*

The result of my experience and investigations is embodied in the conclusion, that to attain very eminent success I would prefer to breed from a single family *having within it all the proper elements of improvement*, if it could be done without breeding in-and-in too closely. And some persons are quite too easily frightened on the latter subject. What can be made an evil by being carried too far, has, by much talking and writing on the subject, been made an indiscriminate bugbear at every stage of its progress. It is by no means true that it is either unsafe or improper to interbreed animals of any degree of relationship. If it is, what has saved the Spanish cabanas for ages? or to take a specific instance, (where there is no latitude for conjecturing impossibilities) what has kept up, nay, increased the size and vigor and

* I have by no means attempted to name all the choice pure blood flocks, either in this State or Vermont. This was not the object of this paper. In the former I have mentioned a few of which I happen to have *personal* knowledge. In Vermont I have only spoken of the flocks which (with the exception of Mr. Saxton's) I found time to examine during a three days' reconnoissance among the sheep of that State, made within a week of the time of reading this paper, for the purpose of enabling me to express opinions concerning the present qualities of the several varieties on the evidence of my own judgment.

improved the form of Ferdinand and Louis Fischer's flock for fifty years, when that flock started with one hundred ewes of one family and four rams of another family, and these families have since been interbred without the admixture of a drop of fresh blood? Mr. Atwood's sheep present a still stronger example. According to his statements, his entire flock, now scattered by colonization into nearly all the States of the Union, originated from *one ewe*, and neither she nor any of her descendants in his hands was interbred with other sheep not descended exclusively from Col. Humphreys' flock. Mr. Hammond bought a small number of Mr. Atwood's flock in 1844, and he has since, he assures me, interbred solely between the descendants of those identical sheep.

Is it probable that the Creator, who organized all animals into either families, flocks or herds, which strongly incline to remain together, and implanted in none of them but man a disinclination to incest, at the same time established a physical law which rendered incestuous connexion *per se* an element of deterioration and final destruction? Among wild brutes, brothers and sisters must constantly pair together. Some kinds of birds are hatched in pairs as if for the express purpose of remaining together and interbreeding. And the connexion of brothers and sisters is the closest possible interbreeding. Has any one discovered or even conjectured a decay of the wild denizens of earth or air on this account? Does any one imagine that the elephant is smaller or weaker than he was when he trampled down armed squadrons on old barbaric battlefields, ages on ages ago, or that the African lion is a less formidable animal than when his angry roar shook the Roman Coliseum?

It may be said that inasmuch as the strong males destroy or banish from the herd the weak males, and that in times of scarcity and hardship the weaker animals of both sexes perish, a natural provision has been made to guard against deterioration, whether arising from in-and-in breeding or any other cause. In respect to animals which herd together in large numbers, and which are periodically exposed to severe vicissitudes of climate and periods of scarcity of food, this would be in a great measure true; but there are portions of the earth where some classes of animals, particularly those of lower organizations and solitary habits, cannot be supposed to be subject to such casualties, or to any which would have the effect of regularly weeding out those pos-

essed of less than the average of strength and hardiness. And I apprehend we shall find no natural laws necessary for the protection of animal life and vigor, enforced in respect to the higher and not the lower organizations, or which require a special and local set of circumstances to bring their benevolent effects into operation.

Interbreeding between near relatives becomes fatal to physical imperfection, but the drift of testimony goes to show that it is innocuous to perfection.*

* A majority of the most celebrated breeders and improvers of English cattle have been close in-and-in breeders, such as Bakewell, the founder of the improved long-horn or New Leicester cattle, Price, "the most successful Hereford cattle breeder on record until twenty years ago," the Collings, Mason, Maynard, Wetherill, Sir Charles Knightly, Bates, the Booths, &c., &c., breeders of Short-Horns. In the first volume American Short-Horn Herd Book (edited by Lewis F. Allen, Esq.,) are diagrams showing the continuous and *close* in-and-in breeding which produced the bull Comet, by far the most superb and celebrated animal of his day, and which sold, at Charles Colling's sale, for the then unprecedented price of \$5,000. His pedigree cannot be *stated* so as to make the extent of the in-and-in breeding, of which he was the result, fully apparent except to persons familiar with such things, and such persons probably need no information on the subject. But this much all will see the force of: the bull Bolingbroke and the cow Phenix, which were more closely related to each other than half brother and sister, were coupled and produced the bull Favorite. Favorite was then coupled with *his own dam* and produced the cow Young Phenix. He was then coupled *with his own daughter* (Young Phenix) and their produce was the world-famed Comet. One of the best breeding cows in Sir Charles Knightly's herd (Restless) was the result of still more continuous in-and-in breeding. I will state a part of the pedigree. The bull Favorite was put to his own daughter, and then to his own grand-daughter, and *so on to the produce of his produce in regular succession for six generations*. The cow which was the result of the sixth interbreeding, was then put to the bull Wellington, "deeply interbred on the side of *both sire and dam in the blood of Favorite*, and the produce was the cow Clarissa, an admirable animal and the mother of Restless. Mr. Bates, whose Short-Horns were never excelled (if equalled) in England, put sire to daughter and grand-daughter, son to dam and grand-dam, and brother to sister, indifferently, his rule being "always to put the best animals together, regardless of any affinity of blood," as A. B. Allen informs me he distinctly declared to him, and indeed as his recorded practice in the Herd Book fully proves. It is true that his Duchess family became impotent—ceased to breed; and this has been seized on as a proof of the danger of in-and-in breeding. But Mr. Bates did not so regard it. He continued his previous course of in-and-in breeding with his other animals until his death, and with triumphant success. The editor the American Short-Horn Herd Book writes me: "As to Mr. Bates' cows being barren, that defect related to one family only, the Duchesses, which was constitutional in the first of them, and probably accidental." To the point of their ceasing to breed, they apparently grew more perfect in every particular. Mr. Price, whose Herefords were the best in England in his day, declared, in an article published in the British Farmers' Magazine, that he had not gone beyond his own herd for a bull or a cow for forty years.

It is not denied that Bakewell selected his original flock of long-wooled sheep from different flocks and families wherever he could obtain most perfection, but after that he bred in-and-in to the period of his death, and the Dishley sheep did not evince their subsequent feebleness of constitution when under his direction. The same statement will apply to Jonas Webb, the great breeder of South Downs. The Stud Book is full of examples of celebrated horses produced by close in-and-in breeding. Favorite varieties of the pig have been produced in the same way. There are families of rabbits, game fowls, pigeons, etc., which have been bred

I do not recommend it *per se*, for who shall decide what perfection is? There comes a time generally when close in-and-in breeding between the *artificial species which have been partly moulded by man*, produces loss of vigor and degeneracy, and sometimes this fatal overthrow is but one step away from the pinnacle of apparent success.

But I would quite as sedulously abstain from running round from family to family and individual to individual to obtain a perpetual recurrence of disturbing and *unnecessary* crosses.

And when crossing is resorted to, let it be in a uniform way and direction. Let every breeder establish his own standard and breed steadily to it. The French did this. Mr. Jarvis did this. Both, therefore, succeeded in establishing a new variety, not as uniform as an old variety, yet far more so than if either had pursued a deviating and changeable course.

The sheep owner who changes the family and style of his rams every two or three years—now, for example, getting short, thick fleeced, and now long, open fleeced ones; now yolky and dark, and now dry and light-colored ones; now low, broad carcassed, and now tall, narrow ones, &c., &c.,—will never attain that degree of uniformity which is essential to a decently bred flock.

There is another kind of crossing between varieties of the *same breed* for a different object than the one I have discussed, viz., to bring one of the varieties so crossed to the standard of the

in-and-in for a long course of generations without deterioration of constitution and with a constant improvement of the points regarded in such animals.

But the misfortune of it is, that while in-and-in breeding is the readiest road to uniformity and perfection in the thoroughly competent breeder's hands, it is the "edge tool" with which the incompetent one is sure to inflict swift destruction on his animals and his own interests. And there is another misfortune. Every man who owns animals fancies himself a competent breeder. He who has spent his life in other pursuits, reads a few books, picks up a few phrases, watches the proceedings of his shepherd a little, and then fancies he is a *breeder!* And he is not more mistaken in this supposition than is the unreading man, brought up on the farm, who has no knowledge on the subject outside of its traditions, and who, with the cant of "*experience*" ever on his tongue, never tried a carefully and properly conducted experiment in his life. No man can be a really able breeder who has not an abundance of theoretical knowledge, and an abundance of experience and long observation united. And even then I am inclined to think that, like the poet, he must be *born* to his business! Inasmuch then as it requires so much skill to detect those qualities and *tendencies* (some of them invisible and only to be ascertained by inferences drawn from numerous minor facts) which should prevent in-and-in breeding in one instance, or indicate its propriety in another, it is perhaps best that the time-honored public and traditionary belief on the subject should remain unshaken, viz., that interbreeding between animals of any degree of affinity is wrong and highly dangerous. As long as mankind started peopling the earth in this way, under the direct eye and provision of their Creator, it will hardly do to pronounce it *malum in se*, but let it be considered *malum prohibitum*, if the public pleases, in the strongest sense!

other. In this no middle line between the varieties is aimed at, but to give the offspring the characteristics of the best one by crossing steadily towards the best one. I regard this as strictly legitimate breeding. For example, if a flock master has one hundred ewes of Mr. Jarvis' family, described under No. 1, and wishes to convert them into such sheep as those described under No. 2 or No. 3, it is his true course then to breed them steadily to rams of the preferred flock, and so far as possible to those of the same individual character. If the Merino blood is absolutely pure on both sides, the assimilation will usually go on pretty rapidly and surely. Many former owners of good Saxons even, who had judgment to select proper American Merino rams, and who have held on in a steady line, now own flocks superior in actual value to very many pure American Merino flocks.

I have alluded in a preceding note to the former admirable Saxon and Spanish flock of James M. Ellis, Esq., of Onondaga—called Saxon in the wool market, but built up on an early Spanish Merino foundation.* Fifty ewes were taken from this flock in 1852, the fleeces of which weighed from $3\frac{1}{4}$ to $3\frac{1}{2}$ pounds. They and their descendants were bred steadily to heavy but fine fleeced American Merino rams. In the year 1860 the flock was 284, and yielded an average of five pounds of thoroughly washed wool, (with an excess of 11 pounds on the whole flock,) and such was its condition on the sorter's table, that it lost but $5\frac{1}{2}$ pounds out of 1431 pounds, including strings and everything else rejected. It sorted as follows: No. 1, 71 lbs.; No. 2, 331 lbs.; No. 3, 493 lbs.; No. 4, 195 lbs.; fribs, 189 lbs.; No. 5, 102 lbs.; No. 6, 29 lbs.; No. 7, 12 lbs.; No. 8, $3\frac{1}{2}$ lbs. The wool of this flock, from its beautiful quality, style and condition, has sold for 50 cents a pound for five years past—within half a cent of the average price of the best wool during that period in the Boston market. It thus gives on the average \$2.50 net to the fleece. How many unpampered flocks of American Merinos will equal this? This is the fruit of a true cross. These sheep belong to James Geddes, Esq., of Fairmount, Onondaga Co., N. Y.†

In attempting thus to change the character of a flock, violent

* Gen. Ellis (father of James M. Ellis) purchased several sheep of Col. Humphreys, and kept a ram and ewe for his own use. Their blood mingles in that of the present flock.

† There are other excellent flocks of a similar cross, and a number of excellent American Merino flocks in the same county, but I am in possession of no definite statistics in relation to them.

crosses are to be avoided so far as materials will allow. First, the inferior variety should approach the characteristics of the superior as far as practicable; second, even the superior variety should avoid the greatest extremes in certain particulars, and unquestionably so in size. In breeding up a Saxon flock to the American Merino standard, that cross should not be commenced with an overgrown ram of the latter. How far this rule applies in respect to the qualities of the fleece, &c., there is a difference of opinion. The Germans are disposed to avoid too great disparities in all particulars.

SELECTION OF FLOCKS.

Carcass. In a climate like ours, and under a general system of sheep husbandry like ours, carcass is unquestionably the first point to be regarded even in the fine wooled sheep—because on the proper constitution, or the proper structure and connection of its parts, depends the health, vigor and hardiness of the animal; and without these, all other qualities are houses built on sand. Plump medium size, for the breed or variety, is the most desirable one. The body should be round and deep, not over long, and both the head and neck short and thick. The back should be straight and broad; the bosom and buttock full; the legs decidedly short, well apart, straight and strong, with heavy forearm and fullness in the twist. This “pony-built” figure, as farmers term it, indicates hardiness, easiness of keep, and a predisposition to take on flesh.

Skin. The skin should be of a rich, deep, rosy color. The Spaniards ever justly regarded this a point of much importance, as indicative of the fattening or easy-keeping properties of the animal, and of a normal and healthy condition of the system. The skin should be thinnish, mellow, elastic, and particularly loose on the carcass. A white skin, when the animal is in health, or a tawny one, is rarely found on a high bred Merino. A thick, stiff, inelastic skin, like that found on many badly bred French sheep, is highly objectionable.

Folds. The Spanish, French and German breeders approved of folds in the skin, considering them indications of a heavy fleece. The French have bred them over the entire bodies of many of their sheep. I have seen two hours and a half expended by an active and skilful shearer, in my barn, in getting the fleece decently off a ram of this stamp. This might do better in a differ-

ent climate, and in countries where labor costs nothing; but the additional quantity of wool will not pay for it in this.* Besides, it is unsightly, because excessively unnatural. A deep, soft, plaited dewlap on both sexes, and some slight corrugation on the neck of the ram, were all our older breeders of the Merino desired in this way. The fashion has extended to heavy neck folds, particularly on the ram, a short fold or two back of the elbow, and some small ones round and on the roots of the tail and on the breech—the latter running in the direction of lines drawn from the tail to the stifle. Gentle corrugations over the body, which can be pulled smooth in shearing, are also tolerated.

Fleece. Wool long enough to do up in the fleece is not desirable on the nose under the eyes,† or on the legs below the knees and hocks, though a thick coat of shortish wool on the latter, and particularly on the hind legs, is regarded as a good point. The arm pits and most of the base of the scrotum must necessarily be

* I mean additional quantity *caused* by the folds of the skin, for as a mere “*sign*” of a thick fleece they amount to nothing. The cost of additional labor is not the sole consideration. It is frequently a difficult thing to find time to shear a large flock of sheep between the rain storms from 15th of June to 10th of July. The farmer is often compelled to house his flocks for twenty-four hours in succession, to keep them dry for the shearers; and besides getting miserably dirty with green dung, they become so hollow and lank, (for they will scarcely touch dry hay,) and their skins so flabby, that it almost doubles the difficulty of shearing them. And this is *very* injurious treatment to ewes having young lambs. Prime shearers are scarce. What then would he do, who had 300 or 500 such sheep as I have named in the text, to get sheared! Suppose he obtained five or even ten pounds more wool from 100 sheep, would it not be vastly more economical to go to the expense of keeping one or two additional sheep to obtain it? There is no sensible point of view in which this excessive folding or wrinkling of the skin over the whole body is not an unmitigated *nuisance*!

† Long wool on the nose under the eyes is, like the preceding, a *nuisance*, on account of the obstruction which it offers to the sight. I have several sheep which would become totally blind at least twice a year, by the wool closing over their eyes, if it was not cut away. And long before it thus closes over, the sheep can only see laterally, so that they can be closely approached in front or rear, by man or dog walking noiselessly on the grass, or amidst the other noises of the barn yard. When they at last discover the approaching body so near them, they bound away in an agony of fright even from their familiar keeper. This obstruction of the sight is therefore very destructive to the quietness and docility which should characterize a well managed flock. And such sheep do not do as well in the winter, unless the wool is repeatedly clipped from around their eyes, because their companions are constantly taking advantage of them at rack and trough. Let us have no such “*fancy*” monstrosities as this and the preceding inflicted on our *valuable* American flocks. But a good foretop is justly regarded as a fine point. It should be of good length, dense, and the wool stand at right angles to the forehead. It should descend in a curve on the nose a little below the line of the eyes, circle round the eyes at just sufficient distance not to obstruct the sight, and join the wool on the cheeks and upper part of the neck, without break or opening.

I have omitted speaking of the ears. They should be small, coated with thick, soft, mossy hair, about half way to the roots, so as to give them a feeling of thickness and softness; and the remainder of the outer surface should be covered with wool. A thin, hard, and especially a naked ear, is highly objectionable.

bare; but these cavities should be as small as the freedom of movement permits; and all the other parts of the body and limbs should be densely covered with wool of as uniform length as is attainable. It is a specially fine characteristic to see it of full length on the belly, forehead, cheeks, and on the legs as far down as the knees and hocks.

The wool should stand at right angles to the surface, except on the inside of the legs and on the scrotum; it should present a dense, smooth, even surface externally, dropping apart nowhere; and the masses of wool between those natural cracks or divisions which are always seen on the surface, should be of medium diameter. If they are too small, they indicate a fineness of fleece which is incompatible with its proper weight; if too large, they indicate coarse, harsh wool.*

The good properties of wool are too well understood to require many words. *Length* is no longer an objection to the finest staple, as it once was.† The maximum, both of thickness and length, cannot be attained on the same animal, and the object of the breeder should be to produce that particular combination or co-existence of these properties which will give the heaviest fleece.

Fineness. The grower knows his market, and must produce an article adapted to it. In the American market there is a much larger demand for medium than fine wools, and the former commands much the best price in proportion to cost of production. It is to be hoped, however, that the demand for fine wools will increase. Whatever the quality aimed at, it should be the same throughout the flock so far as it is practicable.

Evenness. Evenness of quality in every part of the fleece, so far as this can be attained, is one of the first points of a well bred sheep. Jar is very objectionable, but not as much so as what the Germans term dog's-hair—hair growing out through the wool on the thighs, the edges of the neck folds, about the roots of the

* Mr. Fleischmann gives the German standard of their diameter at one-sixteenth of an inch. I should say one-quarter of an inch was quite small enough for the American Merino. Viewed very closely, these masses are not, in many high bred American Merinos, strictly flat on the surface, but slightly butroidal, each tuft composing it having a rounded end. Pointed ends, particularly if their extremities are curled or twisted, and have a hairy appearance, indicate thinness and unevenness of fleece.

† The long fine wools, say two inches and over, are now manufactured into delaines, &c.; and as already said, broadcloths are not made in our country.

horn in rams,* or standing scattered here and there through the fleece or inside the legs. This indicates bad blood or a defective course of breeding.

Trueness and Soundness. Wool should be of equal diameter from the root to the point of the fibre. It should especially be free from any finer and weaker spot or "joint" in it, occasioned by a temporary illness or other low state of the animal. This can often be detected by the naked eye, and always by pulling the fibre. Wool is said to be sound, when it is strong and elastic.

Pliancy and Softness are considerations of the first importance, not only as indicia of other qualities, but intrinsically. If we can suppose two lots of wool exactly to resemble each other in every other particular, but that under the same treatment one is comparatively stiff and hard to the touch, while the other has a silky pliancy and softness, the latter is decidedly the most valuable, because it will produce manufactured articles far superior in beauty and for actual use. But in point of fact, full blood wool is almost invariably soft in proportion to its fineness, and is always so in proportion to its marketable value. A practiced buyer can decide on that value in the dark.

Style is, perhaps, a word which has rather vague boundaries to its meaning; but it includes that combination of useful and showy properties which give value to the choicest wool, viz: fineness, clearness of color, lustre, uniformity and beauty of curving, and that peculiar mode of opening on the body, or disposition of the fibres in the sheared fleece, which indicate the last extreme of pliancy and softness. These qualities, in combination, present an appearance which at once, without a sufficiently close inspection to discover the separate fibres, or even without a touch of the hand, point out the best fleece in the pile.

Yolk. This, in its most usual form, is a semi-fluid, unctuous secretion from the skin, found in the wool of various breeds of sheep, and particularly in that of the Merino. Sometimes there is only enough of it to lubricate and make a shining coating on every fibre. In others, it appears additionally in little brilliant globules among the fibres. In others still, it forms a separate, visible and abundant mass in the lower part of the wool. In some instances it is as thin as the most delicate oil; in others,

* When the back of a ram's head has been severely bruised in fighting, hair sometimes succeeds to the original wool, and offers no proof of bad breeding.

pasty and viscid; in others it has the spissitude of soft wax, and appears in particles or even in concretions of considerable size within the wool;* and when it is sufficiently abundant in the fluid form to ooze constantly to the outer extremity, it catches and retains dust, the pollen of hay, &c., and gradually inspissates into that black gummy mass now so eagerly sought for by a class of Merino breeders.

Vauquelin, a celebrated French chemist, found that various specimens of yolk contained about the same constituents: 1. A soapy matter with a basis of potash, which formed a greater part of it. 2. A small quantity of carbonate of potash. 3. A perceptible quantity of acetate of potash. 4. Lime, whose state of combination he was unacquainted with. 5. An atom of muriate of potash. 6. An animal oil, to which he attributed the peculiar odor of yolk. He found the yolk of French and Spanish Merinos essentially the same.

This substance is, then, substantially a soap—and the usual terms of grease, oil, etc., are not correctly applied to it. It washes freely from the hands, except that an unctuous feeling is left by the trace of fatty matter in it. The hands of shearers, kept covered with it for a number of days, grow perceptibly softer and whiter at every washing.

With a few hours previous soaking, it will wash almost entirely out of wool in soft, warmish brook water, except, perhaps, the external black gum. Let sheep be exposed to a warm rain long enough to *wet through* the wool, and let them then be thoroughly washed the next day in soft water falling in a swift, heavy current over a mill-dam, or from an aqueduct, and the owner will find (perhaps to his consternation) that even his black gum has disappeared, unless, perhaps, on old rams and a few incorrigibly dirty and “gummy” ewes. Yolk of any form that will remain in visible masses in the wool after such a washing, is improperly there; and he who cultivates it pursues an illegitimate line of breeding. Few or none of our farmers wash their sheep thus, on the ground that buyers will make no adequate compensation for the cleaner and lighter condition of the wool.

In the hard water of the limestone regions, wool washes much less cleanly. And I am informed by experienced wool buyers

* In the fleece of the first imported French Merino I ever opened—not apparently a very yolkly one, and quite light colored externally—I found some of these concretions as large as an ordinary bean flattened.

that much more yolk appears in the same wool and sheep, in some regions than in others. Ohio and Michigan fine wools are said to be ten per cent. freer from yolk than New York wools, and New York ten per cent. freer than Vermont wools.* I know by my own experience that sheep driven from the wheat soils of Onondaga county become lighter colored in Cortland county. Taken back, the same sheep again resume their dark color.

There are some incidental and easily explainable reasons for a part of this. On wheat lands, sheep are put on stubbles and become dirtier. The heaviest fleeced flocks of Vermont, from which high-priced breeding sheep are sold, are sheltered in summer as well as winter from rain, and thus all their natural yolk is retained.

There is another explanation of the difference in this particular between Ohio, New York and Vermont wools. This is in the breed of the sheep. Ohio has a smaller proportion of the heavy fleeced yolk Merinos than New York,† and New York a less proportion (though a larger number in the aggregate) than Vermont.

The uses of yolk have been stated by all writers to render the wool pliant and to promote its growth. The structure of wool, discovered by modern investigation, suggests other uses. Wool is covered with sharp projections, running in a uniform direction

* I am not sure that this remark applies to all parts of Ohio.

† According to the census of 1850, the average weight of fleeces in Ohio fell not greatly below that of New York; but that, I take it, was owing to the fact that the common, low grade, dry-wooled farmer's sheep of Ohio are larger and heavier fleeced animals than those of New York. If limestone land and water, feeding on stubbles, etc., either increases the yolk (which is very doubtful) or increases the amount of dirt caught and retained by the yolk, and if limestone water *fails to remove* these as thoroughly as soft water, (both of which are undoubtedly facts,) then much of the grain growing portions of both Ohio and New York should produce heavier washed or unwashed fleeces than New England, or than the southern tier counties of New York; and so I have no doubt they would, if all other circumstances were made strictly equal. On the best wheat lands of New York, sheep do not require to be fed on stubbles to get dirty. Those lands are generally seeded down with red clover, which does not, under any circumstances, form so close a sod as the timothy, June grass, white clover, etc. of the grazing regions, and particularly not where it is broken up every two or three years in the usual way for grain. It is rare to see a clover pasture in the grain regions closely fed down, where the ground is not in every direction visible between the stools of clover; and the sharp hoofs of the sheep loosen the dirt in summer, so that in one way or another it soils the surface of the wool. In the *old* pastures of many portions of New England and our own southern counties, it would be difficult to see the ground on one hundred acres. Unless the sheep have it blown on them from the roads or plowed fields, by the winds, they scarcely come in contact with a particle of dirt during the summer. These facts explain the differences in the color of the sheep in the two regions. The violent and pouring rains of the Southern states prevent a great accumulation of either yolk or dirt, so that all Merino sheep from the North grow lighter colored there, and climate *may* add to the effect.

from the root towards the outer end. They may be compared to the projections on the beards of wheat or barley, only they are so fine that it requires a powerful microscope to observe them. Mr. Youatt, the discoverer of them, found 2,560 in the space of an inch on fine Merino wool, 2,720 on an inch of Saxon wool, and that their number increased in proportion to the fineness of the fibre. These inconceivably minute points occasion the felting of wool. Remove them by heated combs, as is done in the manufacture of worsteds, and wool will not felt more than hair.

Every motion of the sheep causes the portions of the fleece between the surface cracks to slide on each other. Those cracks are the joints of the fleece. If these masses were utterly dry, instead of being lubricated with yolk, the continual friction of their sides would cause injurious abrasion. The sharp processes which cause felting would be rubbed off from a portion of the wool, and that property of the wool proportionably damaged. Again: if the wool were dry, heavy rains, rubbing together and other circumstances, would unquestionably cause felting on the carcass, and in the case of very fine wooled sheep, to a destructive extent. I have never seen either of these uses of yolk suggested before; but am I mistaken in supposing that the facts are too obvious to admit of question?

To what extent yolk should be propagated in wool, is a matter of some doubt. If the manufacturer will pay the same price for it he pays for the wool, it is certainly profitable to add as much of it to the fleece as is consistent with the greatest product of wool. But I think it admits of no dispute that the excessive amount sometimes seen—giving to the long fleece, under a hot autumn or spring sun, the appearance of having been literally soaked in some oily fluid, is not often the accompaniment of a specially thick fleece, or of one which gives the best account of itself after scouring.* The heaviest fleeced flocks of our country do not present this appearance. Perhaps such an excess of secretion in one direction withdraws it from other and concurrent channels. This suspicion is certainly reasonable, if yolk, as has been believed among both the learned and unlearned, constitutes a portion of the pabulum of wool.

Few persons, perhaps, understand how great a quantity of yolk

* The idea advanced by most of our early writers on Merinos, that the more the yolk the finer the fleece, is now utterly exploded.

is really found in some fleeces. Chester Moses, an intelligent woolen manufacturer of Marcellus, New York, writes me that in 1861 he cleansed a ram's fleece which weighed in the yolk $19\frac{1}{2}$ lbs., and "found 4 lbs. of wool." The owner had paid a large price for the animal. Mr. Moses has reported to me, in conversation, a number of other equally strong cases, but as he asks in his letter to be "spared from saying more," I do not feel at liberty to cite them.

All Merino rams' fleeces waste much more in cleansing than ewes' fleeces, but will any one undertake to say that it is good legitimate breeding to grow rams even whose natural fleeces will shrink nearly four-fifths in washing! Breeding such sheep may lead to one excellent result. When it has become sufficiently general it will *drive* manufacturers to make juster discriminations than they now do between moderately yolky and excessively yolky wools, but the moment that desirable object is attained, the sheep which produced the change must go out of fashion.

These *wet* looking sheep do not bear excessive cold as well as those having only a reasonable amount of yolk. Every flock master has found that they soonest "curl up" and shiver in the biting gale. Soap is not as warm as wool, and the congellation of this soap towards the outer extremity of the wool leaves open these surface cracks so as to let in wind and cold more than they are let in through drier fleeces.

I have already given a criterion for deciding what kinds or qualities of yolk should certainly be regarded as improper. Our best breeders, however, go further and decidedly object to much internal "gum," whether it will wash out or not. They think the wool should open freely on the back and sides of the animal and without sticking together, except at the end, at any period of the year. They desire a liberal quantity of yolk in its most fluid form, and of consequence cannot object to a moderate degree of external "gum;" but neither the excessively wet looking sheep I have mentioned, nor those which look as if they had a thick, continuous coating of tar and lamp-black extending three-sixteenths of an inch into the wool, are in favor among the best breeders.

Vauquelin assumed that the yolk left in sheared wool begins to injure it after a few months if not scoured out. I find by inquiry that the same opinion prevails among our manufacturers. The

best brook-washed Merino wool, exposed to the air after shearing, gradually loses its lustre and softness and turns yellowish. For a time it acquires a waxy feeling, but gradually becomes dry and harsh.

Formerly, like many other breeders, I attached considerable importance to the color of yolk, believing that it must be white, or rather colorless, so the wool would open a pure white; but Mr. T. S. Faxton, of Utica, N. Y., Mr. James Roy, of West Troy, N. Y., and Mr. A. W. Hunter, of Schenectady, N. Y., all practical woolen manufacturers, to whom I addressed special inquiries on the subject, assured me that the color of the yolk is of no consequence to the manufacturer; and they also say that its quantity and consistency are only important so far as they cause loss in scouring. Mr. Faxton, however, excepts black "gum" on the outer end, which he says he clips off. He manufactures fine cassimeres.

Mr. Roy puts the cost of removing the yolk at "not over a quarter of a cent per pound," and the shrinkage in scouring of "fine fleeces, fairly washed before shearing," from 35 to 50 per cent.; "Merino flocks seldom under 45 to 50 per cent." He thinks "it makes no difference to the farmer what appearance the oil [yolk] exhibits."

Mr. Hunter puts the cost of cleansing at one-half to one cent a pound; says he "always obtains the strongest staple from healthy, well-fed and consequently oily [yolky] sheep, and the tender, poorly grown wool from ill-conditioned and lean sheep;" and he sets down the shrinkage in scouring (brook-washed wools he undoubtedly means) at 25 to 50 per cent., and "even a higher percentage of loss on rams' and fat wethers' fleeces."

Mr. L. Pomroy & Sons, woolen manufacturers of Pittsfield, Mass., write that "the yolk has more tendency to grow the wool together, and cannot be scoured out to take even colors, particularly an indigo blue." The word yolk is undoubtedly here used (as some writers have used it) to signify that bright saffron-colored substance which appears on wool, which is technically termed "yellowed," and which is accompanied with more or less felting on the back, or "cotting," as farmers term it. In "cotted" fleeces the felting sometimes extends but a little distance from the skin, sometimes far enough to prove very injurious.

I find the color of the yolk in the original Spanish sheep alluded to but by very few writers. But Lord Somerville, who

visited Spain in 1802 for the purpose of examining its Mérimos and bringing home a flock, and who is generally a very accurate writer, makes the following statement in his Essay on Sheep: "By yolk is meant that *yellow* substance which escapes from the skin and is to be found in the wool of every Merino sheep when in health and good condition." And the very name of yolk for this substance, which I believe came from Spain, would, if I have not mistaken its derivation, imply the same fact. I take it for granted that it obtained that name from its resemblance in color and consistency to the yolk of an egg.

I have pursued this question of color thus far because the establishment of an imaginary criterion of excellence is always very unfortunate to the breeder. It not only directs his time and efforts towards an object of no importance, but inasmuch as the attainment of any real or fancied excellence is generally accompanied by some sacrifice in other quarters, it causes him, so far as that sacrifice extends, to exchange substance for shadow. I have seen a purchaser reject the obviously better animal because its yolk was yellow, while that of the selected one was white or colorless.

HOUSING SHEEP TO PRESERVE YOLK IN THE WOOL. EARLY SHEARING. PAMPERING.

As already remarked, the flocks of Merinos in Vermont and a few in New York from which high-priced breeding sheep are sold, are sheltered not only from the storms of winter, but from the rains of summer; and even in the pleasantest weather many of the flocks do not lie out of doors nights more than about two and a half months in the year.

This is done to retain all the natural yolk in the wool. Rain and even dew to some degree dissolve and rinse it out. The object of retaining it is to preserve that dark coating which is so much sought after, and because it forms an important auxiliary in the weight of those monster unwashed fleeces which is to be proclaimed to the world.*

* A class of sellers attain the first object, and to some extent the second, by a shorter and cheaper process. They color their sheep with a preparation of burnt umber and oil, which forms a coating so closely resembling that of a highly yolky housed sheep, that it requires considerable experience to detect the difference. This is termed in Vermont "the Cornwall finish." No Vermont breeder of character thus colors his sheep, but many of the "Merinos" driven from that State and hawked through the Middle and Western States for the last twenty years, have been thus colored.

The sheep which are to be sold are usually sheared about the first of May, and some of them earlier.

If a number of sheep were selected from the same flock so closely resembling each other that if divided into two parcels one could scarcely choose between them, and then if one of these parcels were treated as above described, and the other in the ordinary way—that is to say, if the latter were wholly unhoused except in the winter, and not sheared until near the first of July, no inexperienced person who should examine the two parcels in the ensuing fall or winter could be made to believe they were sheep of the same quality. Explain to him fully the difference in their treatment, and still the effect produced upon his eyes would so far control his judgment that he would pay twice as much for the housed and early sheared sheep.

The leading breeders of Vermont are guilty of no deception in these particulars, for they frankly avow their treatment and their motives for it. And they might ask if it is not as legitimate to put a sheep as a horse or any other piece of property in its best form for sale.

But it is undeniable that the practices named lead to many disappointments. The buyer never finds his sheep looking so dark-colored again, and he is astonished sometimes to find that after he has sheared them once these supposed prodigies are no "woolier" than sheep he owned before. Besides, the sheep which has been carefully housed from storms all its life does not always do so well when exposed to them.

It costs no trifling sum to house sheep in the summer. On a large establishment and with flocks scattered in distant fields, the expense and trouble would be highly onerous. The early shearing, too, causes much additional labor in protecting the sheep from the cold spring weather. It is not seriously claimed that either of these practices benefit the sheep* or add to their product of cleansed wool. If all flock masters were to adopt them they would not even help the interests of the seller.

Without wishing to attach any censure to such honorable per-

* In some places housing is necessary against dogs; but in that case they should be housed *all* the year.

Some claim that the early sheared sheep winter better; but five months' growth of wool before December ought to be quite sufficient for the protection of heavy fleeced and winter-housed sheep. Others claim that early sheared sheep "coat over" better (grow darker colored with yolk); and this is probably true. At all events they become dark colored earlier in the season.

sons who now employ these modes of fitting their sheep for sale, *as avow them to all persons wishing to purchase, whether questioned on the subject or not*, I may be permitted to express the hope that such a purely unnecessary waste of labor and capital may not become customary throughout the thoroughbred flocks of our country.

I should not satisfy my convictions of duty if I did not utter my earnest protest in this connection against another practice introduced and to some extent keeping pace with the preceding ones—that of over-feeding sheep not intended for slaughter. A portion of those people who shelter their flocks in the summer and autumn, commence giving them grain at the same time, and the only limits to their feeding in winter are the appetite of the animal and the necessary care for its immediate safety. Very high condition not only adds to the size, roundness, apparent compactness and “nearness to the ground” of the carcass, but quite as materially to the growth of wool and the secretion of yolk. Between a ram allowed to run with ewes, unsheltered except in winter, and in all respects treated in the ordinary way, and the same ram used to ewes singly, sheltered from rain and dew, and constantly fed to the verge of safety, the difference in the weight of even the washed fleece will not fall short of about 20 per centum; but if the fleece is weighed in the yolk, as is the custom among owners of *show* sheep, the difference will often reach 33½ per centum.

What is the object of this pampering? Under any circumstances, and especially in connection with early shearing and summer sheltering, it fits sheep entirely to outshow and excel in the product of wool far better unpampered ones; and these considerations influence buyers just in proportion to their inexperience and ignorance of “the tricks of the trade.” No sensible man will seriously pretend that, taking one year with another, the actual increase of wool by such means will pay for the employment of those means. Every experienced flock-master knows that it destroys the hardiness of the animal. Most of these pampered sheep go down at once, or gradually fail in vigor, and at length succumb to the slightest casualty, if put back on common feed and subjected to the ordinary treatment. And even if the forcing system is continued, the constitution eventually becomes so effete that it requires extra care and skill to guard against

accidents. The slightest one produces fatal consequences. It is next to impossible to combat any disorder successfully in a long-pampered sheep, or raise it up again if it becomes poor or debilitated. The vital energies appear to be all exhausted.

How often has a zealous beginner paid an extraordinary price for animals (whether Merinos, South Downs, Long-wools of this or that designation, Short-Horn cattle, &c.) to find that with his utmost pains he cannot keep up either their appearance or their productiveness? His Merino sheep produce a third less wool. The word of promise was kept to the ear but broken to the hope. He was told with *verbal* truthfulness that they had yielded this or that enormous amount of wool and yolk in a year, but he was not told that it was in part produced by an unnatural and destructive system of *forcing*; that he was buying a spent hot-bed, capable under no circumstances of another such yield, and soon to become worthless.

If the sheep breeder *has* as good a right as the horse breeder to "fit his animals for sale," it would be an insult to common morality and common decency to claim that either of them has the right purposely and materially to impair the constitution and value of his animals, to obtain a readier sale and a higher price than neighbors who do not resort to such swindling tricks. The only pretence of justification is the old one: "If my neighbor does so, I must or sell nothing." If this excuse is valid, then every man has a right to steal to *keep up* with thievish neighbors!

Fortunately the practice is comparatively new and limited in our country, so far as regards the American Merino sheep. If leading breeders will rigorously eschew and brand it with their outspoken condemnation, it will soon disappear. If they will not, at least the buyer has a patent duty in the premises, and that is to avoid every highly pampered flock as tainted by *fraud*; and can he who attempts a fraud in one particular be trusted in others? Are his *pedigrees* of sheep of any value?

While I intend to be distinctly understood as not including early shearing and summer sheltering, if avowed, among frauds, I again call attention to the fact that they can be and are made potent auxiliaries by those who pamper for dishonest purposes, and therefore they have the odor of bad association on them. Is this not an additional reason for abandoning them? Is it not the safest, fairest and best course, on the whole, to abandon *all*

unnecessary* and over artificial, and, for all legitimate objects, wholly profitless systems in the management of our sheep? These remarks imply no objection to *good* keep in summer and winter and to good winter shelter; and though a cavil might be raised as to where the demarcation line is to be drawn between good keep and pampering, every flock master possessing common sense will fully understand the distinction, without any explanations.

BREEDING.

The art of breeding is the art of selecting and coupling together those males and females which are best adapted to produce an improved and uniform offspring. Some of its important principles have already been alluded to under preceding heads. The first great rule of breeding is that like produces like. But this must be held to extend to blood as well as individual characteristics, or else it is a rule which will mislead the inexperienced. Let two mongrel animals of the closest resemblance be coupled together and there is not the least certainty that they will reproduce themselves in their offspring, or that their offspring of different years will be like each other. I have already spoken of the cropping out of base blood.

In selecting animals for coupling, especial pains should be taken not to interbreed those possessing the *same* defect, because in that case observation proves that the offspring inherit something like the aggregate of the defect of both parents—that is to say, if the ram is defective in the crops (in proper fullness back of the shoulders) to an extent expressed by 2, and the ewe to an extent expressed by 3, their offspring will possess the defect to something like the extent of 5. Of course this rule is not invariable, and would not continue to apply to its full extent if breeding between the produce of these similarly defective animals was continued, for in that case they would soon have no crops at all. I like the arithmetical form of the statement, however, because it holds up before the mind in a tangible and impres-

* There are places, undoubtedly, where it may be more prudent to shut up sheep nights to protect them from dogs. Where this is immediately stated to you by a gentleman like William Chamberlain in regard to his costly imported sheep, you feel that there is a necessity for it; and if he frankly adds that he prefers thus to preserve the color of his sheep, according to the German system to which they have ever been used, you are fully satisfied with *his* motives.

sive form the consequences of one of the worst errors of bad breeding.*

A defect may be an individual or family one. The latter is far more likely to be transmitted to the progeny. The other sometimes appears to be accidental, and is not forcibly transmitted. I would rather breed from a slightly defective animal from a very perfect family, than from a very perfect animal from a slightly defective family.

The obstinacy with which family peculiarities are sent down to remote generations, finds constant exemplifications. Do we not, in the red and tawny and occasionally black spots which appear on the legs, ears, and even bodies of new born Merino lambs, find traces of the fine-wooled flocks of those colors in Spain, described ages ago by Strabo, Pliny and Columella? Between 1824 and 1826 David Ely, of Pompey, N. Y., purchased an imported Saxon ram of surprising individual excellence, but marked with this peculiarity: his ears were not half the length or breadth of the normal ear.† He transmitted the same peculiarity to his offspring, and they retransmitted it. I have seen animals of the fifteenth or twentieth cross away from these "little eared sheep," as they are called—that is, no ram possessing that characteristic was used in all those crosses—and yet the peculiarity was fully preserved. I have seen large, coarse-wooled mutton sheep, with Mr. Ely's Saxon blood nearly all bred out, arithmetically speaking, carrying the same distinctive mark. If it disappears for a generation or two, it often crops out again in full vigor.

The defects of one parent should be met by peculiar excellence of the other parent in the same point. If the dam is "high on legs," she should be bred to a ram with short legs; if thin-fleeced, to an uncommonly thick-fleeced ram, and so on.‡ This, however,

* It would be strictly accurate to say that if animals possessing the same defect are interbred with each other, the offspring should be *expected* to inherit that defect to a greater extent than either parent, and that continuing such a course of breeding would soon increase the defect to the greatest practicable extent, and in the case of defects affecting the constitution of the animal, to a fatal extent.

† I think Mr. Grove told me that this peculiarity first originated accidentally or as a monstrosity in Saxony, but that as it occurred on a very superior animal, the owner continued to breed from him and his descendants. They failed, however, to obtain a permanent standing, as their ears did not admit of either of the German systems of numbering on those members.

‡ I have already alluded (under head of crossing) to a German theory in opposition to "violent crossing," even to get rid of defects. So far as size is concerned, I have no doubt of its accuracy, but after thirty years observation I have yet to learn that a ram can be *too perfect*

is to be understood within certain limitations. These counteractions are to be sought within the circle of proper excellence and proper uniformity in other particulars. The distinguishing features aimed at in the flock are neither to be sacrificed nor constantly changed or disturbed for the purpose of producing a sudden amendment in a single point.

There is a practical fact of the utmost importance in the selection of breeding rams. All do not transmit their qualities in an equal degree to their offspring. The power to "mark offspring," as it is termed, according to my observation, depends most on two properties. The first and by far the most influential of these is blood. By blood I mean nothing mysterious or unexplainable. I simply mean that blood which has flowed so long in one distinct channel, and through animals so closely alike in all their properties, that it has acquired a power resembling that of species—a power continuously to reproduce animals of the same family and almost the same individual characteristics. Under this definition the unsightly ass may have as high and pure blood as the winged courser of Arabia—the miserable, hairy, broad-tailed sheep of Asia and Africa, as the far descended Merino of Spain.

The ram should not only then have a faultless pedigree, but, if practicable, be drawn from an old, distinct, well-marked family of Merinos that have been the same as a whole and uniform among themselves for a long course of generations. I used to notice, when I dabbled in crosses between Merinos and coarse breeds, that a ram which was the produce of in-and-in breeding stamped his properties on the mongrel offspring with peculiar force; and I am not certain this rule does not obtain to some degree among full bloods. I am inclined to question whether the great cavanas of Spain, some of them once numbering 40,000 sheep, would ever have acquired their remarkable identity of characteristics without that in-and-in breeding to which they were subjected. Some intelligent observer of them in Spain, fifty or sixty years ago, whose name I do not now remember, said that in every hundred there were ten rather better and ten rather

in the characteristics desired, to be coupled with the most imperfect ewe. Nay, I would go a step further in the direction of violent crossing, by coupling animals of *opposite extremes* in many points. For example, I would (other things being equal) breed dry-wooled French or coarse-wooled sheep to my yolkiest fleeced ram, even though that ram was too yolky fleeced to be used with ewes which already had enough yolk. If this is correct breeding, it follows that a defect is sometimes counteracted by a defect, or by an opposite excellence carried so far as to become a defect.

worse ones, but that the other eighty could hardly be distinguished one from another.

The second property I have noticed in the ram, which gives him the power strongly to impress his qualities on his offspring, is constitutional vigor. He should be thoroughly masculine. He should be compact and massive in every part—his large scrotum almost sweeping the ground. He should not have a particle of a “ewe-look” about him. Even his fleece should not be as fine as a ewe’s fleece. He should have strength to knock down an ox. He should have undaunted courage and delight in battle—fighting with desperate determination until slain or acknowledged master of the flock! I have often seen a ram that if shut in a barn would go through the side of it at a single blow like a catapult. Other things being equal, such are more usually, according to my experience, the rams which transmit their characteristics to their descendants.

But where blood and constitutional vigor are apparently equal, there is still an undeniable difference in this particular—how occasioned it is impossible to say. No one can pronounce confidently that he has a prime sire ram until the ram has been actually tested. Unless found to produce highly excellent and *highly uniform* offspring, the showiest and costliest animal should be promptly abandoned.*

The wonderful ram of mine mentioned in Sheep Husbandry in the South,† whose wool Dr. Emmons proved, by actual admeasurement, to be finer than most Saxon wool, and who yet produced a heavy fleece for those times—highly-bred and far descended, a model of beauty—did not reproduce his own traits very strongly in his offspring—certainly not his exceptional fineness. And this exhibits the effects of another well-settled rule, that the reproduction of exceptional valuable traits—exceptional either to the variety or family—can never be counted on with confidence. It seems to me, indeed, that they are less reproductive than exceptional bad traits. Nature appears to have intended that the improvement of her handiwork should be a high art, calling out

* The noblest figure of a ram I ever saw, without an exception, and an animal for which the owner had paid a high price two or three years before, was under my eye a short time since. After looking at him, I asked to see the lambs gotten by him the preceding year. The owner had none to show. He had not used him “because, &c.,” but had used a ram of comparatively insignificant appearance. In the face of such a fact, all the excuses in the world would not tempt a sensible man to give \$10 for a brute which cost over \$200.

† At page 135.

observation and intellect, not the bungling process which ignorance and folly are to stumble on.

A ram of no extraordinary individual qualities is sometimes found to be a remarkable sire. He who obtains one of these highly valuable sires, should cling to him as he would to gold, whether individually he ranks in the first or second class. This "marking" property is sometimes carried so far that a familiar and observing eye will promptly detect its effects in a strange flock, picking out every animal got by the particular ram, and even picking out his descendants, if bred among each other, for all subsequent generations.

PRESENT COURSE OF BREEDING IN THE UNITED STATES.

I shall introduce this topic with the following pregnant words from a letter recently received by me from an observing manufacturer. He writes :

"If I had time I should hesitate to attempt to answer your interrogatories, for the reason that the interests of wool-growers and manufacturers from present stand-points are conflicting and will conflict so long as the grower *can sell grease and tar and yolk and oil at same price as wool*. Our farmers have no desire to learn how little wool they sell ; they prefer to be instructed in the secret of adding dirt and unwashed tags and dung-locks covered with fleece and wound with two to four ounces of rope yarn called twine."

This is a fair statement of the case on both sides, only the writer should have added that in many cases farmers have intentionally and greatly lowered the quality of the wool itself in order to get more weight. I have already clearly taken the ground that medium wools are more profitable than the finest for general production in our country ; but is it not a pity to see the good, even, true, elastic, sound and soft wool which the American Merino inherited from his Spanish ancestors, degraded in every particular—put on a par in value with half-blood wool—mixed with hair and jar—and all this done intentionally ? Yet who is to wonder at it and at the additional commixture of filth and rope yarn, if the wool buyer will pay within three or four cents a pound as much for this compound of abominations as for good clean wool !

And there is another party who is found quite as ready to encourage this line of breeding and management as the manufacturer, namely, the ram buyer. Does he inquire what amount of good, well-washed, clean wool is produced by the animal he wishes

to purchase? By no means. He only wishes to ascertain what aggregate of wool, yolk and dirt can be sheared from it and called a fleece. He has two objects in view. He wants a ram surcharged with yolk for the purpose of breeding up a flock surcharged with yolk, and he wants one whose weight of fleece he can boast of and perhaps publish, for he has some eye on becoming a ram seller himself by-and-by. He has learned that these highly yolky rams greatly increase the weight of fleece when bred with a dry-wooled flock, and he strives therefore to make his flock as yolky as possible. He has not learned that beyond a certain point this source of increased weight prevents a further and still attainable increase of weight.

Here, too, the manufacturer is responsible, for the same means which would correct illegitimate wool-growing would correct illegitimate breeding.

Whence arises this want of discrimination in prices on the part of our manufacturers—this strange abnegation of their own real interests? We have no more honorable or intelligent class of business men. I believe none see more clearly or deplore so deeply the present course of things. It is the result of a system almost forced on them by circumstances, and from which it is not easy to escape. Our farmers do not and will not send their wools unsold to market. The depot system was tried and failed. Americans choose to do their own bargaining. There is but now and then a locality where there is wool enough to pay for sending an experienced agent to it, and to each scattering lot of wool within it, and the same agent could not traverse a large region of country before the clip of the year would be picked over and the most desirable lots bought in by other purchasers. Accordingly to get an even chance to buy from first holders, an establishment which works up great quantities of wool must have an army of agents promptly at work as soon as shearing is over; and for the reason already stated, local agents must be principally relied on. A portion of these are excellent judges of wool, but where the demand is active, inexperienced ones are necessarily employed. To keep his agents duly informed, and to protect himself from their indiscretions, the principal, from time to time, sends out prices which are not to be exceeded. The agent works for a commission, and is of course anxious to make large purchases. If the competition is to be active, a scramble commences

at shearing time. Three or four or half a dozen agents start out from every village. Relying more on the reputation of each flock than on a business-like inspection of the quality and condition of the wool, the least experienced agents buy most rapidly, and then rush along eager to keep the lead of or again repass other agents whose horses are smoking on the same road. The excitement increases. All wools worth within ten or fifteen cents of the maximum price are dragged up within two or three cents of it; heavy yolky wools are purchased at about the same price with clean ones; in short, scarce a shadow of judgment is employed.*

This system operates most injuriously on the producers of the best and cleanest wools who do not live near good markets. The maximum price is a Procrustean bed to which they must be cut off, though their neighbor has been stretched to its length! If they refuse to sell when all their neighbors are selling, they have reason to fear no more buyers will come in to pick up half a dozen scattering small lots in a whole county. So they often reluctantly succumb and get only two or three cents more on the pound than other men whose wool is fifteen per cent. coarser and fifteen per cent. dirtier. This soon drives them out of wool-growing or into growing coarse, dirty wools.

I *fear* that the manufacturer has looked with rather more toleration on this system, because sometimes perhaps he thus gets enough good wool under price to offset overpayments on bad and dirty wools. However this may be, one thing is certain, that if he continues to permit the sacrifice of friends for the benefit of enemies, he will within a few years not have enough of the former left to keep up the present equipoise in his over and under payments. The soap sheep, as they should be called, are rapidly spreading everywhere, and farmers seem to wash their wool more and more poorly.

Am I asked what practical remedy can be adopted? It is not easy to point it out. But I have always believed that if each

* A farmer gave me an amusing instance of this. His wool was just off. He stood in his barn door, and saw two agents approaching with "fast nags." The first one rushed into the barn and asked the price of the clip, and it came within his maximum. He asked where the wool was, and was told it was in a dark granary. "Never mind," said he, "I can tell just as well by feeling." So he stepped into the granary, touched a few fleeces, took the farmer's offer, jerked out \$25 to "bind the bargain," sprang into his sulky and was off in a whirlwind of speed. What the seller thought remarkable was, that he could *feel* wool so well through his black kid gloves which he forgot to take off while in the barn! And he had never handled the wool before.

manufacturer would select his regions for purchase, buy in those regions every year, and employ a few trusty and experienced traveling or local agents, tied down by no maximum price which *disregards quality and condition*, instructed to buy the different qualities* and pay for each the fair market price, he would soon acquire his circle of customers, who, for safety and from motives of policy, would wait a reasonable time for his agents. At least this would be the case with holders of prime lots, and there would be no scramble and overpaying for inferior lots by themselves. There is nothing chimerical in this idea, certainly, when it is notorious that some manufacturers already practice on it successfully, and that much of the other produce of the country is bought and sold in that way.

Substantial wool merchants planted in each wool-growing region, would afford a vast relief from the present system to the producers of good wools.

In respect to selling an outrageous excess of yolk and dirt for wool, because somebody will buy it, I shall raise no questions of casuistry; but whether known or unknown to the purchaser, it should be below the aim of the elevated breeder. If we cannot breed the admirable domestic animals which have been given to us, without purposely alloying and degrading them, let us abandon them and turn to other occupations.

SUGGESTIONS AS TO THE FUTURE OF FINE WOOL HUSBANDRY IN OUR COUNTRY.

I am strongly impressed with the opinion that the production of MUTTON, has been too much disregarded as a concomitant of the production of wool. Near large meat markets, mutton is the prime consideration and wool but the accessory; remote from such markets, the converse of the proposition is true. But it does not follow in either case that the secondary object is to be *unnecessarily* neglected.

The increase in the numbers and in the early maturity of sheep, enables England to support a vastly larger population than it possibly could have done 100 years ago. It is hardly too much

* If it be said a single manufacturer does not want all the different qualities, let him, in regions where little is grown, buy *all* in order to keep his customers and his *region* to himself, and re-sell those he does not need. In regions where larger quantities are grown, different buyers would find room, and they might buy through the same agent.

to say that the continued sustenance of its people and the fertility of its soil depend upon these animals. England proper, with an area of 50,922 square miles, has thirty millions of sheep. Without these, its soils could not be maintained in their present productiveness, and its population of 17,000,000 supplied with animal and vegetable food. It is now a conceded fact that an equivalent result could not even approximately be obtained by the substitution of any other animals.

It is not safe in a country of vast territory and sparse population, like our own, to decide economic questions exclusively by English analogies and modes of reasoning. But in our own older Northern States, we are making some advance toward English conditions, at least in the circumstance of having a large class who are not agricultural producers; and we shall continue to make nearer approaches in that respect.

We read much of the traditional "roast beef" of England, but mutton now is the favorite animal food of her luxurious classes and the cheapest animal food of her laboring classes. The same tastes and economic considerations are beginning to obtain a rapid prevalence in this country. Every experienced meat producer knows that a pound of well fattened mutton can be grown more cheaply than a pound of any other well fattened meat. And our consumers are discovering that it is as palatable and nutritious as any other kind of animal food, and wastes materially less in cooking than beef.* The choicest qualities now command higher prices in our markets than the choicest qualities of beef. Its consumption is rapidly increasing in cities† and also in small

* The Report on Sheep Husbandry made to the Mass. Board of Agriculture in 1860, by a committee appointed by that body, thus condenses the result of various experiments on this subject: "English chemists and philosophers, by a series of careful experiments, find that 100 lbs. of beef, in boiling, lose 26½ lbs., in roasting 32 lbs., and in baking 30 lbs. by evaporation and loss of soluble matter, juices, water and fat. Mutton lost by boiling 21 lbs., and by roasting 24 lbs.; or in another form of statement, a leg of mutton costing raw, 15 cents, would cost boiled and prepared for the table, 18½ cents a pound; boiled fresh beef would, at the same price, cost 19¼ cents per pound, sirloin of beef raw, at 16½ cents, costs roasted 24 cents, while a leg of mutton at 15 cents, would cost roasted only 22 cents.—(See Secretary's Report, p. 97.)

† The Report just quoted from states that, "at Brighton (near Boston), on the market day previous to Christmas, 1839, two Franklin county men held 400 sheep, every one in the market, and yet so ample was that supply, and so inactive the demand, that they could not raise the market half a cent a pound, and finally sold with difficulty;" that "just twenty years after that at the same place, on the market day previous to Christmas, 1859, five thousand four hundred sheep changed from the drover to the butcher." (Sec'y's Report, p. 96). This is but an example of the general change. It has not been produced so much by increase of population, as by a change in the habits of our population.

inland local markets and on farms, because prime lamb or mutton can always be supplied in the latter places, whereas meat from large well fattened beeves cannot be, unless in cold weather, as such animals make more meat than can be disposed of unsalted in such situations.

Consequently vast droves of grade sheep from the Northwestern States traverse New York from midsummer to the approach of winter, directly for our Eastern cities, or to be sold in their vicinity for feeding.

Why not meet a large part of this demand, now supplied from abroad, with our full blood Merino sheep? Even the epicurism of England has decided that this breed produces prime mutton. Sir Joseph Banks, in a report made in 1802, says: "Experience has demonstrated already, both at Windsor and Weybridge (the royal residences), that Spanish mutton is of the best quality for a gentleman's table." Mr. Wilson, the present Professor of Agriculture in the University of Edinburgh, in a recent excellent paper on "The various breeds of Sheep in Great Britain," furnished by him to the Royal Agricultural Society's Journal,* says: "They (the Merinos), are hardy, and not more subject to disease than our other breeds; they thrive very well on moderate keep, and may be fed up to 110 to 120 pounds weight at two years old; the mutton is considered to be of very good quality."

The report of Tessier and Hazard made to the Institute in France, in the year eight of the Republic, shows that the same opinion prevailed even thus early in France. They say: "The experiments we had formerly made in feeding of Spanish sheep have not been fully detailed. It has been undeniably proved that all those animals were fattened, and their flesh was at least as delicate as that of any other breed of sheep." Various French writers confirm these views.

It is to be remembered that in England the Merino mutton had to encounter long established and obstinate prejudices. Its people were accustomed to carcasses of a particular form, fat laid on in a particular way, and more of it in proportion to the lean meat than the Merino readily takes on.

On the other hand, the great body of Americans are neither accustomed to, nor do they choose, excessively fat fresh meats of

* Vol. 16. It is republished in the Transactions of this Society, 1857, p. 219. The extract I make will be found at p. 239.

any kind, and particularly mutton. Most of them after attempting to eat well cooked New Leicester or Dishley mutton, with two and a half or three inches of outside fat, turn away from it with loathing, or eat only the leaner parts. Yet the English factory operative or farm laborer finds just what he wants in that mutton, because its fat will in soups, &c., convert a large amount of vegetables into more palatable and nutritious food, and thus it will go further in imparting the effects of animal food than any other meat.

The meat of the Merino when well fattened and properly treated,* is juicy, short-grained, high-colored and well flavored. In all these particulars American taste adjudges it superior to the meat of the English long-wooled sheep. Though the scarcity and value of full blood Merinos have prevented many of them from appearing in our markets, the grades have always been favorites with the butcher and consumer. The former finds that they weigh well for their apparent size and get to market in excellent condition. There is not a drove that sweeps from the plains of the northwest that does not exhibit a sprinkling of this blood, and if they are merely grass fed, the twenty fattest and least travel-worn sheep in the drove will usually be found those which, by a little darker tinge of their wool and its greater thickness and "squareness on the ends," betray more Merino blood.

Those people who pay such prices in our cities for South Down lambs in February and March, are not perhaps aware they are paying for grade Merinos. Ewes having no Merino blood do not allow themselves to be impregnated (that is, generally and with regularity) early enough in autumn to produce these lambs. The grade Merino ewes are bred to the South Down ram, which gives the offspring additional size and the dark-colored legs which satisfy fashionable purchasers.†

* A portion of our population cook and eat mutton as soon as it is killed!

† Samuel Thorne, Esq., of Dutchess Co., one of the most intelligent and successful breeders in our State, writes me on this subject:

"The sheep purchased for breeding market lambs are usually the ordinary Ohio Merinos, sometimes bought from the droves as they arrive, and sometimes from the farmers who have kept them over one season. I always prefer the latter, the difference in price alone causing me to purchase the former. When selecting them, the point of the greatest importance is to get good milkers, that governing the choice more than anything else, as the object is to get prime early lambs. When there has been a chance to select ewes with a cross of either of the mutton breeds, I have always availed myself of it, though the difference in price between them and the ordinary ones is generally too great to make it as profitable. All things being equal, large sheep are of course preferable to small ones. Ewes with a strong tincture of

The full blood Merino produces as good mutton as the ordinary country and western Merino grade, if killed as young and in as good condition. I have never discovered that it did not fatten as easily. It costs no more, in proportion to weight of carcass, to keep it. Its wool is worth from a third to a half more per head. Wherever, therefore, it is profitable to grow the common grade sheep, partly for mutton and partly for wool-growing purposes, it is more profitable to grow full blood Merinos. In the State of New York we could, by the substitution of fine, heavy fleeces for those now carried by our grade sheep, profitably grow 200 per cent more of mutton in the wool-growing districts than we now do.

I shall nowhere, however, be understood to advance the idea that it would be advisable in the mutton districts proper (where access to a good market is quick and cheap) to substitute the Merino for the best English mutton varieties. Though I am not prepared to speak from adequate experience on that point, the tenor of reliable testimony would seem to be clearly the other way.

For mutton purposes the Merino can promptly and readily be rendered more valuable than it now is without a diminution of

Merino blood take the ram with more certainty early in the season than those deeply crossed with the mutton breeds. It is, however, no advantage to have the lambs come too early, as they do not bring so large a price before as they do in the regular season. My own ewes are turned with a South Down ram the 1st of September, thus bringing the lambs the first part of February. They are made to grow and fatten as rapidly as possible, and are turned off to the butcher when they reach 40 pounds in weight. They are thus all disposed of by the 1st of June, and the ewes have the entire summer to fatten in. The sheep are bought usually a few weeks before the ram is to be turned with them, and have cost from \$2.50 to \$3.00 each. They are kept upon hay alone until just before the lambing time, when a daily feed of turnips is given. After the lambs come they are given also a feed of meal or bran slop. A place is partitioned off for the lambs, and they are regularly fed. The feed going directly to the lamb, makes growth of fat with more profit, in my opinion, than when given through the mother's milk. I cannot say with any certainty what the percentage of increase with my common sheep has been, as when possible to find any one to take a twin lamb, it is always given away, that its mate may have the better chance—one *good* one bringing in the early season a corresponding price, when poor ones cannot be at all disposed of. They never, however, average less than 100 per cent. of sale sheep. * * * The lambs go to market from two and a half to three months old, and have, of course, at that early age to be in fine condition to bring the price they should do, or in fact even to meet a sale. My own have always averaged me \$5 per head, bringing more when first sent off, and less later in the season. The ewes having only to provide for themselves during the summer, are by fall in very good condition and require a very little grain (which is first fed to them as soon as the frost injures the grass) to fit them for a good market. They have always averaged \$5 also. To this is to be added the fleece, when you will see the return has always been a good one. It, to be sure, costs more and requires more care and attention to fit lambs for the early market, but the extra price they bring and the better chance which is given the ewes to fatten by getting off their lambs so soon, much more than compensate.”

the quality and quantity of its wool. It probably could not be made to assume so early a maturity as the New Leicester or the South Down, or their peculiar forms; but Prof. Wilson has told us what the pure Merino will weigh at two years old, when fed as the other English breeds are which exhibit such marvellous earliness of maturity. Early feeding and early maturity have an inseparable connection, and those who have bred English New Leicester sheep, and fed them only hay and grass, and treated them as we treat our other sheep, have found that much of their early maturity has vanished. But without reference to this consideration, we have not, in a country so large in proportion to its population, and where it is so easy consequently to supply the demands of its meat market without killing animals at an early age, occasion, certainly in large portions of it, for the early maturity of animals so necessary in England, provided ours will pay well for the additional expense of longer keeping.

I have, as already stated, kept Merino sheep more than thirty years. During all the vicissitudes of that period the fleeces of the flock (without counting those of wethers which I have never kept in any considerable number) have averaged over two dollars a head per annum. On the best lands of the State it now costs about two dollars a head annually to keep Merino sheep. Any one, then, is sure of his lambs and manure as *clear gain*. Wethers of the same flock would produce fleeces worth about three dollars, and the clear gain on them annually would be a dollar a piece and the manure.

The object of keeping sheep is to convert the vegetable productions of the farm into the most money and the most manure. Under the circumstances I have stated, and in regions where wool-growing is the primary object, this is as well done by animals of longer as of shorter lives. The truth is, nobody could afford in this country to kill his Merinos at two years old, if they were perfectly matured and fit for the butcher at that age.

Nor do I believe the Merino could readily be made to assume that form which, like the most perfect New Leicester or South Down, puts every ounce of meat on the part where it is nominally most valuable. At all events, I should decidedly object to tampering seriously with its present *best* form. How many American purchasers, in looking for a sweet, juicy piece of mutton, are very careful to examine the angle of the rump, or study the exact

taper of the thigh, provided there is nothing specially defective in the shape? Are there not little shapeless breeds of mountain sheep in Wales whose mutton outsells that of the South Down? Are there not little, hardy, round, mountain cattle in Scotland whose beef is chosen before that of the rectangular Short-Horn? These refinements are very well in theory and doubtless of some practical value, but they are not in our markets essential to the saleableness of mutton, which the great body of the American people already prefer to that of the improved English long-wooled breeds, and constantly eat, believing it to be South Down mutton or other of equal quality.

The only change which is necessary or desirable to make in the form of the Merino, to improve it as a mutton sheep, is the same which it requires to improve it as a wool bearing sheep, viz.: to convert the flocks which now deviate from that standard, into low, round, hardy, easily kept sheep. Good lungs, good health and good animal vigor will alike promote the secretions which produce meat and wool. And in the wool growing regions generally, I should not even consider it expedient to seek to increase the present size of what may be termed good sized American Merinos.

The wethers may at some future day be turned off at two years old, under a system of feeding analogous to the English, but it is doubtful whether this will be found most profitable. Prime full blood ewes will probably never be turned off before they are six or seven; indeed, until their number is enormously increased, they never will be turned off at any ago to the butcher. They have twice or three times the longevity of the improved English breeds, in which early maturity is, indeed, the precursor if not the cause of an equally early decline. Merino ewes not unfrequently raise good lambs at fourteen or fifteen years old, and the dam of the once famous "Robinson ram," I am informed had a lamb in her twenty-second year.

In regions sufficiently accessible to market, it may become ultimately the most profitable way of disposing of full blood ewes, to adopt Mr. Thorne's system with them; raise February lambs and fatten off the ewes in the fall when they are from six to eight years old. Older ewes should be allowed to produce no lambs the season they are to be fattened.

One more question remains in regard to our future. It costs

twice as much to keep a sheep in New York as on the plains of the Northwest, and four times as much as on the prairies of Texas. Can we continue to bear up under this competition? The same question may as well be put in regard to most of the principal agricultural necessities of life—for the difference in the cost of production is equally great in regard to them—and several of them, too, are as portable as wool and more portable than mutton. Do the New England farmers get a poorer living than they did before the competition of the twice as valuable lands of New York opened *close* upon them? Are prices lower in New York since the vast West and Northwest became populated farming lands?

The increase of the non-producers has more than kept pace with that of the producers; and nearness to market, the consequent ability to take advantage of its fluctuations, the greater certainty of finding ready sales, and the lesser cost and risk of transportation, give the cultivator of our New York lands advantages over the cultivator of remote and cheap ones, which tend in a considerable degree to equalize their profits. Were this otherwise, what help is there for us? Can we let our costly lands lie idle because there are cheaper ones in the West and South? The only question with us is what staples we can grow *most* profitably.

Besides, on our grain-growing soils, at least, sheep are an absolute necessity of good farming. The growing of wheat, clover seed, &c., cannot be carried on economically and systematically without some depasturing and manure-producing animal. For both of these purposes, the sheep is a vastly more profitable animal than any other. Mr. Johnson, of Geneva, and Gen. Harmon, of Wheatland, two as good wheat farmers as there are in the State, have thrown a flood of light on this subject by their experiments and their writings.* Leading clover-seed raisers assure me

* Since the above was written, I have received a letter from Mr. Johnson on the subject. He says that "sheep and wheat farming ought to go hand-in-hand in this country," that what "he has made in the last forty years has been in a large proportion by sheep." He has "fed (fatted) sheep in winter for over thirty years, and with the exception of 1841-2 they have always paid the cost of feeding, and some years left a handsome profit." That is to say, for every year but one, during that period, he has converted the hay, grain, &c., of his farm into manure *on the farm*, and got back the full price of those products and cost of feeding; and in some years he has done better than this. "His profits have been better since 1840 when he commenced wintering on straw and oil cake or grain. After 1846 he kept no regular flock, but bought them in the fall and sold them usually in March or April. In some instances he held them until after shearing but found that he seldom did as well as by selling earlier."

that they must have sheep to carry on that culture profitably. Sheep would be more profitable than cows on a multitude of the high, thin-soiled dairy farms of our State; and every person who has kept the two animals ought to know that sheep will enrich such lands far more rapidly than cows.* On the imperfectly cleared and briery lands of our grazing regions, sheep will more than pay for their summer keep, for several years, merely in clearing and cleaning up the land. They effectually exterminate the blackberry (*Rubus villosus et trivialis*), and raspberry (*Rubus strigosus et occidentalis*), the common pests in such situations, and they banish or prevent the spread of many other troublesome shrubs and weeds.† They also, unlike any other of our valuable domestic animals, exert a direct and observable influence in banishing coarse, wild, poor grasses from their pastures and bringing in the sweeter and more nutritious ones.‡

Gen. Harmon, and I think a majority of wheat farmers who have sheep, prefer keeping a permanent breeding flock. This is a question of convenience—depending upon incidental considerations which this is not the place to discuss.

* If milch cows are not returned to their pastures at night in summer, or the manure made in the night is not returned to the pastures, the difference in the two animals in the particular, named in the text, is still greater. Even grazing cattle kept constantly in the pastures, and whose manure is much better than that of dairy cows, are still greatly inferior to the sheep in enriching land. The manure of the sheep is stronger, better distributed, and distributed in a way that admits of little loss. The small round pellets soon work down among the roots of the grass, and are in a great measure protected from sun and wind. Each pellet has a coat of mucus which still further protects it. On taking one of these out of the grass, it will be found the moisture is gradually dissolving it on the lower side, directly among the roots, while the upper coated surface remains entire. Finally, if there are hill tops, dry knolls, or elevations of any kind in the pasture, the sheep almost invariably lie on them nights, thus depositing an extra portion of manure on the least fertile part of the land, and where the wash of it will be less wasted. The manure of the milch cow, apart from its intrinsic inferiority, is deposited in masses which give up their best contents to the atmosphere before they are dry enough to be beaten to pieces and distributed over the soil.

† Two years since I hired forty acres of pasture, five or six of which were partly overrun with blackberry and black and red raspberry bushes. I stocked the land heavily with sheep. The next year almost every bush was dead, most of them apparently untouched by the sheep, certainly bearing no marks of having been stripped of their bark. I had not dreamed of the sheep effecting anything like such a rapid and wholesale extermination; but it was generally attributed to them, and no other cause for it could be even conjectured. Many of the bushes had been peeled by the sheep, and the extremities, buds, flowers, &c., nipped off. Sheep will frequently attack the elder (*Sambucus Canadensis et pubescens*) at particular periods of the year. Indeed the tender leaves and buds of few bushes escape them. They attack some weeds, but banish more of them by manuring the land and increasing the growth of grass, so that the weeds are run out. Where the Canada thistle (*Carduus arvensis*) is not tall and rank sheep will generally keep it from becoming so, where the land is not very rich, by nipping off the tops and the flowers. I do not know however that it meddles at all with the common thistle (*C. lanceolatus*).

‡ They effect this principally through their superiority as manuring animals. I have used the term "valuable" domestic animals, for I suppose the goat would probably produce the same effect with the sheep, in these particulars.

Yet dairying is wholly driving out wool growing in the grazing portions of our State, and grazing cattle are preferred to sheep on probably a majority of our grain farms. The remarkable decrease of the latter in proportion to our population is made apparent by the following table compiled from the United States and State censuses. Mr. Kennedy, Superintendent of the United States Census office, has kindly furnished me with statistics of the census of 1860, in advance of their official publication :

Year.	Number of sheep.	Pounds of wool.	Population.
1840 -----	5,118,777	9,845,295	2,428,921
1845 -----	4,505,369	13,864,828	2,604,495
1850 -----	3,453,241	10,071,301	3,097,394
1855 -----	2,630,203*	9,231,959	3,466,212
1860 -----	2,617,855	9,454,473	3,880,728

The State census of 1845 gives separate returns of sheep over and under one year old, and those over one year old are alone placed in above table; for if lambs were included we should get no idea of the average number of the year or the average weight of fleeces. The annual number of lambs does not, however, equal the number killed, driven out of the State, or which die from disease, for otherwise the aggregate number of our sheep would not be steadily decreasing. The United States census of 1850 and 1860 gives only sheep one year old and over; but the State census of 1855 gives the entire number of sheep without respect to age, and the number is 3,217,024.† If this number were placed in the table, it would convey a wholly erroneous impression of the actual number left in the State after the usual annual decrease from the causes above stated, a wholly erroneous impression of the average weight of fleeces, and it would be inconsistent with the rest of the table.‡ For these reasons I have given the number of fleeces instead of sheep returned in 1855. This should approximately give the number of sheep in the State at shearing time over one year old; and as it would mainly exclude both the annual increase and decrease, it would unquestionably approach

* Number of fleeces.

† I state this fact on the authority of Mr. Johnson, the Corresponding Secretary of the State Agricultural Society, who has examined the State census for me, a copy of it not being in my possession.

‡ Except, perhaps, United States census returns of 1840, which I think were taken in the same way.

about as near to the average number of the year (though a little over it) as is arrived at by any other method.*

Mr. Kennedy also prepared for me the following table, illustrative of the increase and decrease of certain leading branches of husbandry in the State of New York for a period of twenty years :

	1830.	1840.	1850.	1860.
Horses	No returns.	†474,543	447,014	303,725
Milch cows	do	} 1,911,244	931,324	1,123,634
Working oxen	do		178,909	121,702
Other cattle	do	} 5,118,777	767,406	727,837
Sheep	do		3,453,241	2,617,855
Wool, pounds of	do	9,845,295	10,071,301	9,454,473
Butter	do	} No returns of these separate.	79,766,094	103,095,679
Cheese	do		49,741,413	48,548,288

Had the United States census of 1830 contained returns of sheep in the State, I have no doubt that a considerably greater decrease would have been indicated between that year and 1840 than between 1840 and 1850.

While the vastly higher priced lands of England carry nearly two sheep for every inhabitant, and within a fraction of 590 sheep for every square mile of territory, it appears that New York has now less than one sheep to every inhabitant, and less than 56 sheep for every square mile; and it further appears that our sheep have steadily decreased for twenty years, and are still continuing to decrease.

But this temporary decay of a great branch of husbandry admits, I think, of reasonable explanation. The history of the introduction of Saxon sheep has been given, their spread over the State and almost total absorption of the Spanish sheep between 1824 and 1835, their ceasing to be remunerative after 1837, and their banishment from our farms in 1846. The great flocks of this State kept for wool-growing purposes anterior to 1840, were mostly of this blood, and when they were abandoned no other wool-growing sheep proper was left to supply their places. For the few improved American Merinos left in the country in the hands of *breeders*, comparatively large prices were asked. It was

* After the amount of public money that is expended on the Federal and State censuses, it is vexatious to find their want of uniformity and glaring want of accuracy. Discrepancies are visible at every step. In looking at the returns of sheep from a single county, in the State census of 1855, (received from Mr. Johnson,) I find that in some towns the whole number must have been returned, in others the sheep which have been sheared, and in others, still, the number of fleeces given considerably exceeds the aggregate number of sheep of all ages! It is certainly very unfortunate if the proper officials cannot hit upon suitable instructions for the marshals, express them in terms which men of common intelligence can understand, and find men of common intelligence to execute them.

† This includes horses and mules.

not strange that our farmers, recollecting the overthrow of the Spanish Merinos in 1815, smarting under their recent losses with the Saxon, and discouraged by legislation which was prostrating a large branch of the woolen manufactures of our country, were wholly disinclined to venture on any new and costly experiments in fine wooled sheep. In fact that prejudice which should have been directed against visionary investments, injudicious management and vascillating legislation in respect to sheep, became directed against these valuable animals themselves.*

Dairying took the place of wool growing. It proved a steadily and highly remunerative department of husbandry. Fashion, custom, and the farm training of youth tend rapidly to absorb the rural population in a prevailing and profitable pursuit. A generation has been growing up familiar with and attached to dairying and unacquainted with sheep husbandry. And it is not to be denied that the former, in proper situations, cannot be surpassed in profit by any other rural pursuit. Besides, the dairying region proper of the United States bears no proportion, in extent, to the wool-growing region, and therefore competition is less to be feared at home; and as it cannot come from abroad, this interest has less to fear from legislation.

The course of events for the last few years, however, has turned more attention throughout very large portions of our country to wool culture. It is time, in my judgment, when that culture should revive in this State. Our people must now be consuming annually something like 20,000,000 lbs. of wool raised outside our own borders. There is little doubt that instead of thus paying out a large sum for the raw material of a necessary of life, which we have abundant room and time and materials to cultivate for ourselves, we might to grow all the wool we need, and a surplus of 50,000,000 lbs. annually, without diminishing any other product which is even approximately as remunerative.

Dairying, under the best circumstances, is far more profitable than sheep husbandry with inferior or middling animals; but the best sheep are as productive as the best cows, and require far less labor. No dairy farmer who has suitable land and fix-

* The destruction caused among sheep by dogs, has also essentially contributed to the prostration of sheep husbandry. It not only has inflicted serious and, in the aggregate, enormous losses on our people, but it has of late years, as population and curs have increased, driven multitudes of persons out of sheep husbandry, and prevented still more from embarking in it. Proper legislation would do much to correct this evil.

tures for his business, is called upon to give up the avocation he best understands and sacrifice his fixtures and cattle to embark in a new pursuit, because he has found a single year of depressed prices. No farmer engaged in any highly remunerative husbandry should abandon it for another. We want no more Merino *manias!* The proper increase in wool production can be attained by putting sheep on soils too poor for profitable dairying, by weeding out useless and unprofitable horses, by substituting sheep for grazing cattle on grain and other farms where they are most profitable, by depasturing lands now uselessly in timber, brambles, &c., and by raising proper crops to assist in cheaply wintering sheep.*

And the growth of wool is peculiarly adapted to the pecuniary means and the circumstances of a portion of our rural population. Their capital is mostly in land. Hired labor is costly. Sheep husbandry will render all their cleared land profitably productive at a less annual expenditure for labor than any other branch of farming. By reason of the rapid increase of sheep, and the great facility of promptly improving inferior ones, they will stock a farm well more expeditiously, and with far less outlay than other animals.† And, lastly, the ordinary processes and manipulations of sheep husbandry are simple and readily acquired. On no other domestic animal is the hazard of loss by death so small. It is as healthy and hardy as other animals, and unlike all the others, if decently managed, a good sheep can never die in the debt of man. If it dies at birth, it has consumed nothing. If it dies the first winter, its wool will pay for its consumption up to that period. If it lives to be sheared once, it brings its owner into debt to it, and if the ordinary and natural course of wool production and breeding goes on, that indebtedness will increase uniformly and with accelerating rapidity until

* Sheep can be better and far more economically wintered on hay, straw, and turnips, or beets, than on clear hay. By raising these roots then the farmer can save considerable meadow land and increase his pasture, and thus the farm be made to carry more sheep.

† Soon after shearing, 15 and sometimes 20 ordinary coarse grade ewes can be purchased for \$30, the price of a dairy cow. On common keep, these will yield an average of three and a half pounds of washed wool at the next shearing, and so small a number of this class of sheep ought to raise 100 per cent. of lambs. If a *choice* Merino ram is used, the lambs, when grown, will shear at least a pound of wool more a head than their dams. And nearly an equal improvement can be made in the *next* generation. I have, more than once, witnessed a more rapid improvement than this. Even the common fair Merino rams of the country often increase the dam's fleece half a pound in the progeny for two or three generations, commencing on low grade ewes.

the day of its death. If the horse or the steer die at three or four years old, or the cow before breeding, the loss is almost a total one.

I am aware that it is easy to warm one's self up in praising a favorite pursuit, and to make a plausible show of reasons for what will not stand the test of experiment. But here we deal with fixed data. I refer you to the column of prices for which wool has sold in our country. If the cost of keeping sheep through the same periods is fairly estimated, it will be seen that with prime animals no other branch of agriculture has yielded better or more uniform returns on the capital invested.

The examples of France, Germany and England all show that vastly higher priced lands than any in New York must carry sheep to be made profitable; and in the two first named countries the wool producing sheep is preferred to the mutton sheep—though the growers are exposed to the competition of the far cheaper wool producing lands of Southern Russia and Hungary near by, and of the Cape of Good Hope, South America and Australia further off.

NOTE.—I wish to express my own thanks and the thanks of the Society for which I have prepared this paper, to the various breeders, wool-growers, manufacturers, wool-merchants and brokers, officers of the Society, and other persons who have contributed statements and facts for it. These thanks are, in a special manner, due to George Livermore, Esq., of Boston, for his indefatigable labors in my behalf.

APPENDIX.

A.

Tariff of 1861.

	Specific duty per pound.	Specific duty per square yard.	Ad va- lorem duty.
Unmanufactured wool costing less than 18 cents a pound at the place from whence exported	-	--	5
Same exceeding 18c. and not exceeding 24c. a pound	3	--	--
Same exceeding 24c. a pound	9	--	--
Sheep skins with wool on, washed or unwashed	--	--	15
Carpets, Wilton, Saxony, Aubusson, Axminster patent velvet, tournay velvet and tapestry velvet, Brussels wrought by the Jacquard machine, medallion and whole carpets and carpetings, valued at \$1.25 or under per square yard	--	40	--
Same valued over \$1.25	--	50	--
Brussels and tapestry Brussels do., printed on the warp or otherwise	--	30	--
Treble ingrain and worsted chain Venetian do.	--	25	--
Druggets, bockings, felt carpeting, &c., printed, colored or otherwise	--	20	--
All others not otherwise specified	--	--	30
Mats, rugs, screens, covers, hassocks, bed-sides and other portions of carpets, same as carpets of similar character	--	--	--
All other mats, screens, hassocks and rugs,	--	--	30
Woolen cloths, shawls and manufactures of every description, wholly or in part wool, not otherwise provided for	12	--	25

	Specific duty per pound.	Specific duty per square yard.	Ad va- lorem duty.
Flannels valued at 30c. or less per square yard	--	--	25
Same valued above 30c. do., and all col- ored, printed or plaided, or composed part of cotton or silk	--	--	30
Hats of wool	--	--	20
Worsted yarn valued at 50c. and not over \$1.00 per pound	12	--	15
Woolen and worsted yarn valued over \$1 per pound	12	--	25
Same valued under 50c. not exceeding in fineness No. 14	--	--	25
Same exceeding in fineness No. 14	--	--	30
Ready-made clothing, wholly or part wool,	12	--	25
Blankets, wholly or part wool, value not exceeding 28c. per pound	6	--	10
Same valued above 28c. per pound, but not exceeding 40c.	6	--	25
Same valued above 40c. per pound	12	--	20
Shawls of which wool is the chief compo- nent	16	--	20
Delaines, cashmere, muslin and barege de- laines, wholly or part wool, grey or un- colored, and other grey or uncolored goods of similar description	--	--	25
Bunting, and all stained, colored or print- ed, and all other manufactures of wool or of which it shall be a component ma- terial, not otherwise provided for	--	--	30

The above act was approved March 2d, 1861. An act amend-
ing it passed August 5, 1861, but none of the amendments of the
sections in regard to wool or woollens, require to be mentioned
here. It is anticipated that another tariff law will be enacted
during the present session,

B.

Value of Ohio fleece wool in October of each year, from 1840 to 1861.

	Fine.	Medium.	Coarse.
1840 -----	45	36	31
1841 -----	50	45	40
1842 -----	Price all round, $33\frac{1}{2}$ a35		
1843 -----	41	35	30
1844 -----	42	37	$32\frac{1}{2}$
1845 -----	$36\frac{1}{2}$	30	26
1846 -----	34	30	$26\frac{1}{2}$
1847 -----	$33\frac{1}{3}$	29	25
1848 -----	32	38	34
1849 -----	41	37	32
1850 -----	47	42	36
1851 -----	41	38	32
1852 -----	49	45	40
1853 -----	55	50	43
1854 -----	41	36	$32\frac{1}{2}$
1855 -----	50	42	34
1856 -----	55	47	37
1857* -----	56	47	41
1858 -----	53	46	36
1859 -----	58	47	35
1860 -----	54	47	37
1861 -----	45	45	50

Prepared by Geo. Wm. Bond & Co., Boston, Mass.

Prices current of New York State fleece wools, from May 1st, 1855, to January 1st, 1862:

Year.	Month.	Choice Saxony and Saxony.	Full blood.	
1855.	May -----	45a48	37a40	
	June -----	45 48	37 40	
	July -----	45 48	37 40	
	August -----	45 48	37 40	
	September -----	45 48	37 40	
	October -----	46 49	40 42	
	November -----	46 49	40 42	
	December -----	44 48	38 40	
	1856.	January -----	44 48	38 40
		February -----	44 48	38 40
		March -----	47 50	40 42
		April -----	50 53	43 45
Average -----		46a50	39a41	

* We give the price in August, there having been no sales in October.

Year.	Month.	Choice Saxony and Saxony.	Full blood.
1857.	May	50a53	43a45
	June	50 53	43 45
	July	50 53	43 45
	August	50 53	43 45
	September	50 53	43 45
	October	50 53	43 45
	November	53 56	47 50
	December	53 56	47 50
	January	53 56	47 50
	February	58 60	52 55
	March	58 60	52 55
	April	58 60	52 55
	Average	53a56	46a49
1858.	May	56a58	49a52
	June	56 58	49 52
	July	50 53	45 47
	August	53 56	47 49
	September	53 56	47 49
	October	-----	-----
	November	-----	-----
	December	38 41	31 33
	January	38 41	31 33
	February	38 41	31 33
	March	38 41	31 33
	April	39 43	32 35
	Average	38a41	33a35
1859.	May	39a43	32a35
	June	40 43	33 36
	July	40 43	33 36
	August	42 45	37 39
	September	43 46	38 40
	October	43 46	38 40
	November	46 48	41 43
	December	49 52	44 46
	January	50 58	45 47
	February	50 58	45 47
	March	50 58	45 47
	April	51 54	45 47
	Average	45a50	40a42

Year.	Month.	Choice Saxony and Saxony.	Full blood.	
1859.	May	51a54	45a47	
	June	51 54	45 47	
	July	49 52	44 46	
	August	49 52	44 46	
	September	49 52	44 46	
	October	50 54	45 47	
	November	50 54	45 47	
	December	50 54	45 47	
	1860.	January	50 54	45 47
		February	50 54	45 47
		March	50 54	45 47
		April	50 54	45 47
Average		50a54	45a47	
1861.	May	49a52	44a46	
	June	49 52	44 46	
	July	49 52	44 46	
	August	49 52	44 46	
	September	50 53	45 47	
	October	50 53	45 47	
	November	50 53	45 47	
	December	50 53	45 47	
	January	46 48	40 42	
	February	46 48	40 42	
	March	46 48	40 42	
	April	46 48	40 42	
Average	48a51	43a45		
1862.	May	46a48	40a42	
	June	46 48	40 42	
	July	34 38	34 38	
	August	34 38	34 38	
	September	34 38	34 38	
	October	40 45	40 45	
	November	47 52	47 52	
	December	47 52	47 52	
	January	47 52	47 52	
	Average	42a46	40a44	

Prepared by Telkamp & Kitching, New York, Jan. 14, 1862.

Mr. James Roy, of the Watervliet Mills, West Troy, N. Y., furnishes the following list of average annual prices paid by that establishment for wool since 1852. The purchases include six or seven hundred thousand pounds per annum, and are made in New York, Ohio, Michigan and Vermont.

1852.....	37 $\frac{1}{2}$ cents.	1857.....	41 $\frac{3}{4}$ cents.
1853.....	48 $\frac{1}{4}$ do	1858.....	34 $\frac{1}{3}$ do
1854.....	36 $\frac{1}{3}$ do	1859.....	44 $\frac{1}{2}$ do
1855.....	36 $\frac{1}{10}$ do	1860.....	45 do
1856.....	39 $\frac{5}{8}$ do	1861.....	33 $\frac{1}{3}$ do

Mr. Faxton, of Utica, N. Y., sends me the following :

Mr. FAXTON :

Below is actual sales made by me in September of each year, and though in many years great changes have followed, it is perhaps as fair a show of prices as can be given :

	Coarsest.	Finest.		Coarsest.	Finest.
1848	22	35	1855	32	46
1849	25	40	1856	35	48
1850	35	52	1857	36	55
1851	32	42	1858	30	45
1852	36	53	1859	40	50
1853	42	58	1860	40	55
1854	30	40	1861	37 $\frac{1}{2}$	40

Yours truly,

JAS. ROCKMER, *Utica.*

January 15, 1862.

C.

The following is taken from a report of the Secretary of the Treasury in 1845:

Value of imports of woolens into the United States :

Year.	Value.	Year.	Value.
1821 -----	\$7,437,737	1831 -----	\$12,627,229
1822 -----	12,185,904	1832 -----	9,992,424
1823 -----	8,268,038	1833 -----	13,262,509
1824 -----	8,386,597	1834 -----	11,879,328
1825 -----	11,392,264	1835 -----	17,834,424
1826 -----	8,434,974	1836 -----	21,080,003
1827 -----	8,742,701	1837 -----	8,500,292
1828 -----	8,679,505	1838 -----	16,512,920
1829 -----	6,881,489	1839 -----	18,575,945
1830 -----	5,766,396		

It was my intention to ascertain what proportion of the imports of unmanufactured wool fell below the dutiable price, but the scanty time afforded me has not permitted it. As a specimen, however, I append the following table compiled from reports of the Secretary of the Treasury :

Imports of Wool.

	Av. imp'ts of 1837, '38, '39.	Av. imp'ts of 1840, '41, '42.	Imports of 1843.*	Imports of 1844.	Imports of 1845.	Imports of 1846.
Wool not costing to exceed 7 cents a pound,	\$558,458	\$759,646	\$190,352	\$754,441	\$1,553,789	\$1,107,305
Exceeding 7 cents a pound	801,087	1,004,312	54,695	97,019	136,005	26,921
Total	\$1,359,545	\$1,763,958	\$245,047	\$851,460	\$1,689,794	\$1,134,226

* The fiscal year 1842 ended on 30th September. Since then returns of imports and exports have been made up to 30th June. This year, therefore, embraces imports of nine months only, ending June 30, 1843, and subsequent years end 30th of June, 1844, 1845, and so on.

D.

THE WOOL PRESS.

This article has been so much improved recently, and that improvement is so little known, that I am induced to call attention to it. Most wool-growers are acquainted with the excellent press previously in use, consisting of a trough about four feet long and ten or twelve inches in height and breadth, set on legs, with a stationary cross piece at one end and a movable one drawn towards it by a strap and lever with slits for twine, &c. This does up wool more rapidly and vastly better than any person can do it by hand. But in the case of large fleeces it requires too much weight applied to the lever for the operator conveniently to press it down and hold it down with one foot while standing with the other in a convenient place for tying up the fleece. Several contrivances were applied to remedy this difficulty, but finally the true one was hit upon by Mr. James Geddes, of Fairmount, N. Y. By substituting a crank, ratchet wheel, pair of rollers, and the necessary straps in the place of the lever arrangement, even a small boy is strong enough to compress the fleece, and the ratchet wheel and dog will cause it to be held compressed as long as is wanted by the tyer; the crank being then reversed, carries back the sliding cross-piece to the opposite end of the trough again. It is now apparently a perfect machine. No patent has been taken out for it. The machines are excellently manufactured by Storrs Wilber, of Fairmount, N. Y., and cost from \$6 to \$7. If Mr. Wilber should leave, Mr. Geddes will doubtless see that another manufacturer takes his place, so that it would be as well to address to care of James Geddes.

E.

PROPORTION OF WOOL TO MEAT IN SHEEP OF DIFFERENT AGES,
SEXES AND SIZES.

The President of the State Agricultural Society, the Hon. Mr. Geddes, kindly drew out the following information for me, on the above heads:

POMPEY, ONON. CO., N. Y., *January 27, 1862.*

HON. GEORGE GEDDES, *Dear Sir:*

Yours of the 15th inst. was duly received, and it is with some considerable pleasure that we can reply so satisfactorily.

Our flock consists of 180, of several grades, one-half to three-fourths Spanish Merino, and a portion of the largest one-fourth French Merino. The base of the flock, but a few years since, was Saxony.

We sheared on the 26th and 27th of June last, and took the trouble to weigh every sheep and every fleece; and to record it on the spot. They were sheared promiscuously, and we have taken the trouble to classify them for our own convenience, both by age and weight. The heaviest sheep weighed 133, the lightest 43. The heaviest fleece weighed $9\frac{1}{2}$, the lightest $3\frac{1}{4}$. We sold our clip for 40c. it would have brought in six days after, 47 or 48. We sold 24 of the heaviest wethers Oct. 1st for \$95, and 24 of the oldest ewes Nov. 1st for \$60.

We had about 50 lambs dropped, we raised 35. Some of the remainder died, but the most of them we killed. They had fleshy tumors on their necks, and we were told by many that it was owing to high keeping; we did not believe it then, and have since proved that it was transmitted by the sire. To construct the next to the last column (in subjoined table) we divided the carcass by the fleece, and to construct the last column, we added ciphers to the amount of wool and divided it by the gross weight. We conceived that to be the proper method. If it is not, it can readily be reconstructed, as we are confident that the weights in all other respects are absolutely accurate. You will not fail to notice that the 26 wethers in the first class four years old gave a greater percent. than those three years old, and those of from 110 to 121 pounds in weight more than those above or below that weight. Those two exceptions comprise the same sheep. Were these two excluded, the column of percentage, would gradually

decrease from yearlings to four years old, and from 43 to 133. Were these four years old not subdivided, the percentage would be 5.58, and we do not know but that, if the classes above were subdivided in the same way it would be with similar results. If you can think of any way in which our data can be any more thoroughly elaborated please inform us, and we will do it with the greatest pleasure.

Respectfully yours,

SWEET BROTHERS.

Classified by age; except those four years old which are subdivided by sex. The four year old ewes all had lambs, and 35 reared them.

Number in class.	Age.	Sexes.			Gross weight.	Weight of Carcass.	Weight of wool.	Average weight of carcass.	Average weight of fleece.	Pounds of carcass to one of wool.	Per cent. of wool to gross weight.
		Ewes.	Wethers.	Bucks.							
32	1	19	11	2	2,160.25	1,991	169.25	62.21	5.23	11.11	7.83
20	2	15	14	1	2,508.37	2,347	161.37	78.23	5.37	13.98	6.43
51	3	9	42	....	5,013.25	4,700	313.25	92.15	6.14	14.10	6.24
26	4	....	25	1	2,921.13	2,736	185.13	105.11	7.12	14.76	6.33
41	4	41	....	....	3,738.00	3,557	181.00	86.75	4.41	19.65	4.84
180	1 to 4	84	92	4	16,341.00	15,331	1,010.00	85.17	5.38	15.17	6.18

Classified by weight; in divisions of ten pounds each.

Number in class.	Weight of Division— from	Sexes.			Gross weight.	Weight of carcass.	Weight of wool.	Average weight of carcass.	Average weight of fleece.	Pounds of carcass to one of wool.	Per cent. of wool to gross weight.
		Ewes.	Wethers.	Bucks.							
5	43 to 51	5	....	....	256	234	22	46.80	4.40	10.65	8.59
14	50 to 61	10	4	....	871	803	68	57.35	4.85	11.80	7.80
20	60 to 71	14	6	....	1,427	1,320	107	66.00	5.35	12.33	7.49
34	70 to 81	21	12	1	2,742	2,567	175	75.50	5.14	14.66	6.38
39	80 to 91	19	20	....	3,566	3,355	211	86.00	5.41	15.87	5.90
34	90 to 101	11	22	1	3,453	3,252	201	95.64	5.91	15.42	5.82
18	100 to 111	4	13	1	2,016	1,905	111	105.83	6.16	17.16	5.50
11	110 to 121	....	10	1	1,353	1,273	80	115.72	7.27	15.91	5.89
5	120 to 134	....	5	....	657	622	35	124.40	7.00	17.76	5.32
180	43 to 134	84	92	4	16,341	15,331	1,010	85.17	5.38	15.17	6.18

Note to the Messrs. Sweet's statement: The American Merino ram, whose measurements are given in Petri's table, weighed, in fair ordinary condition and with between nine and ten months fleece on, 122 lbs. He has yielded an unwashed fleece, of one year's growth, of 20 lbs., 12 ozs. His wool is not unusually yolky, and he has very little external gum. Here, then, we have on a moderate estimate a pound of *unwashed* wool for less than five and one-half pounds of carcass.

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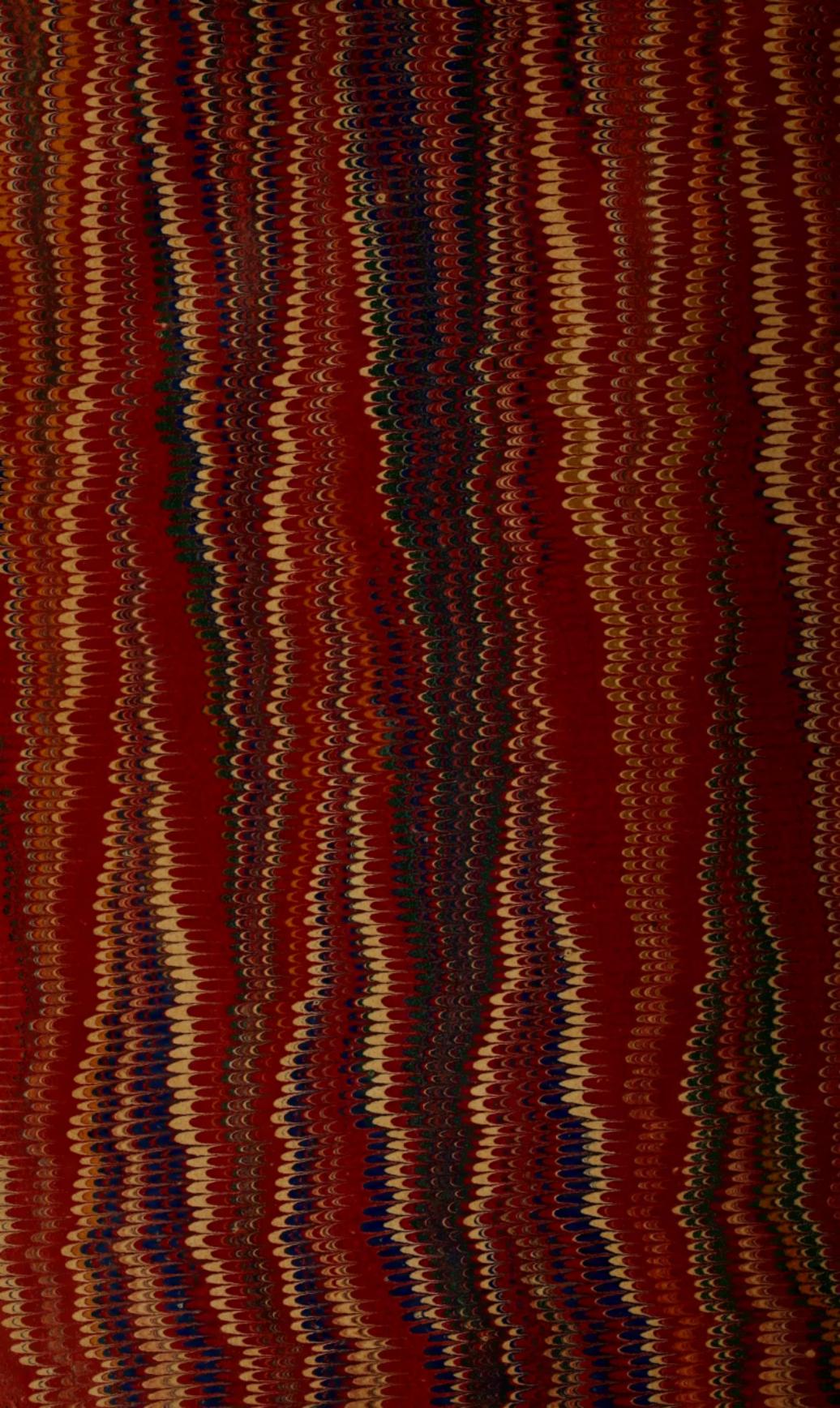
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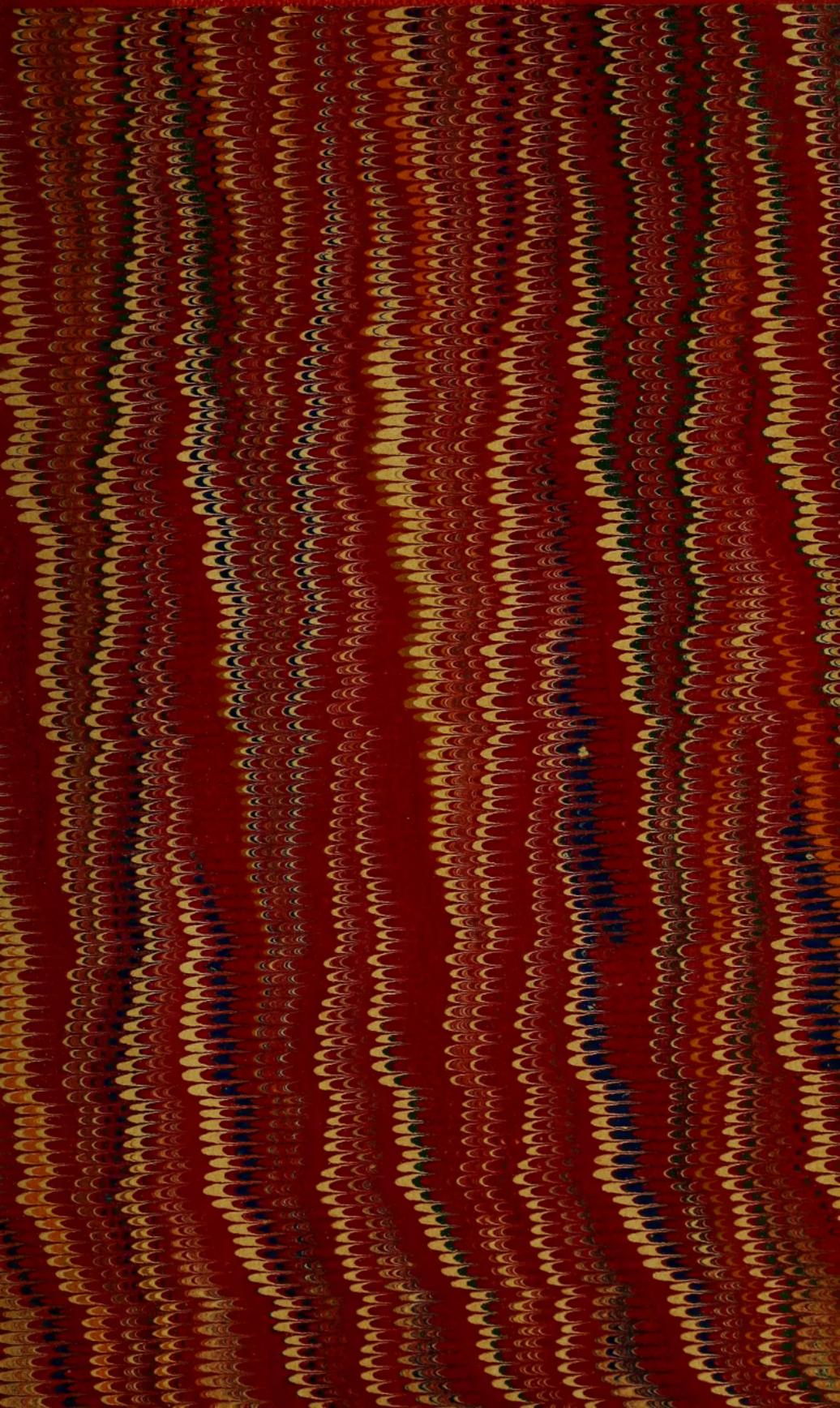
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FINE WOOL
SHEEP HUSBANDRY.

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