The Sheep Fold.

Long-Wooled Sheep.

Too little attention is given to the merits of long-wooled sheep. They produce not only excellent mutton, but very heavy fleeces of a quality of wool that is in prominent demand. A correspondent in the *Michigan Farmer* writes as follows:

I see by your paper that the long-wooled mutton sheep have not been represented of late by any of your correspondents, and now, when that kind of mutton is beginning to be appreciated, and worth more in market than beef, I do not see why they should not be brought more prominently before the public. They will lay on more meat for food consumed than a hog or a bullock, producing their fleece in addition; why, therefore, are they not more profitable?

The Cotswolds have been very popular in England for more than half a century to my knowledge, and the Cotswold ram sales have averaged from $50 to $75 per animal for every year since 1830 to the present time, showing plainly that such mutton is appreciated there, and the breed a popular one. The Lincolns are of a similar character and it is almost impossible to say which breed deserves the ascendancy; both have strong supporters. I am fully satisfied that they have derived benefit from each other, and where the silvery, curly wool of either has been a prominent feature, the flock has always been superior, for under this curly wool you are sure of finding quality of mutton with aptness to lay it on; you also invariably find symmetry under such a covering. This fact has been much overlooked; the most prominent breeders of Cotswolds in Gloucestershire, England, discovered this secret and bred for it, and I know in two instances resorted to superior Lincoln ewes to obtain it, and found rams from them created the desired improvement sought for, while still retaining the character of the Cotswold from the ram. Some clear faces and bare poll were produced, while the weight of carcass was preserved.

Those called Leicesters in Canada, are more like Lincolns; the majority of them have the clean white face, long ears, and more curly wool of that breed. The original Leicesters of Bakewell had the blue faces, short ears, with thick-set wool, straight and fine in fleece, and there is not a flock in existence to my knowledge. Many of the character crop out in the Canada flocks, but they are not patronized, because the curly coated ones are found to be more hardy and profitable, and those who adhere closely to this class in breeding are most successful. My opinion is that original Leicester will become extinct, and the character of Cotswold and Lincolns maintained as the taste for good mutton increases. Both of these breeds are becoming very popular in Canada and in this country, and will ultimately be bred with as much care here as in England, where the long-wooled sheep has always been considered the poor man's friend, whilst the epicure valued the Southdown mutton more highly; but a good leg of Cotswold or Lincoln is sufficiently palatable, and brings the highest price for its meat.

Wool-Growing a Success.

We are asked why wool-growers do not fail as other men sometimes do. We answer simply because the growth of the wool, and the increase is as perpetual as the time in which they live. It matters not how dark the night is, the wool continues to grow, and it matters not how the wind blows or how it may storm, gestation is never longer than 150 days. The lambs will average one-half females, and often twins, and they breed the next year, making a double compound—a perpetual growth and no loss. Everything that does not go into market goes back to enrich the pasture; and though the landlord may be sick it does not stop the growth of the lambs.

Not so with other business. The mechanic or the man who works for salary has nothing to grow while he sleeps; when his labor ceases his income stops, and his expenses are perpetual. It is true there are perpetual expenses attending the sheep and goat business; but under the most unfavorable circumstances, where they can live on the commons without feeding, the meat of the wethers will pay all expenses without drawing on the wool or increase of the ewes. Hence it is like a perpetual stream flowing into a basin; it is only a question of time about filling it to overflowing. The drawback seems to be that men do not relish living away from thickly populated settlements and towns, depriving themselves of society for the sake of money. This objection can be obviated. In all new countries there are villages constantly springing up near which good sheep range can be had, where the owner can visit his flocks daily, and also give his family the benefit of schools and society.—*Facts and Figures.*

American Wool Production.—During the past three years, the great increase in the importation of wool, as well as the improvements made in the manufacture of shoddy, have had a tendency to render unprofitable the raising of a fine grade of wool at home. Last year 20,000,000 pounds of shoddy were used by American manufacturers, much of it being worked into the finest grade of woolen cloth. This is to be deprecated, not only from the discouragement it aids in disseminating in wool production, but from the tendency it will inevitably have of lowering the standard of American made woolen goods, which for some time back has been steadily being elevated, till, as in some other branches of American industry, the American reached a plane where it can successfully compete with foreign manufacture. In 1871 the importation of foreign wools was 50,000,000 more than in 1870 and in 1872 the increase was 70,000,000 pounds more. It is to be hoped that this and succeeding years will show a change in the tendency.

The Dairy.

Deep and Shallow Setting of Milk.

Mr. D. N. Farrand, of Morristown, writes to the Vermont *Farmer* that intending to adopt the deep pans or pails for his whole dairy, he engaged a supply which reached him when in so great a hurry in haying that only one-half of the pails were set, consequently the milk of every other day had to be put in the old-fashioned pans. His wife suggested that the cream be kept separate to see which produced the most butter. The cream in the pans made the most butter the first three days, when the following three experiments were made:

Weighed the milk, set one day in pails, the next day in pans, and so on for six days; then churned, and weighed the butter. In the second trial there was one more morning's than night's milking; in the third, one more night's than morning's milk. The depth of the milk in the pails in the first two trials was from seven to ten inches; in the third from ten to twelve; and in the pans from two to two and one-half. The temperature of the air was generally from 56° to 70°; that of the water from 60° to 66°; when the air was above 60° we cooled the milk set in pans before setting in the milk room. We skimmed the milk as soon as it began to change, which was in about forty-eight hours with the pails, and thirty six with the pans.

To make a pound of butter it took in first trial: with pails, 27 pounds of milk; with pans, 25 pounds. In the second trial: with pails, 25 pounds, 13 ounces; with pans, 24 pounds, 10 ounces. In the third trial: with pails, 27 pounds, 13 ounces; with pans, 25 pounds, 2 ounces. The trials were made in August, commencing the tenth.

Washing Milk Dishes.

I was somewhat exercised in mind by directions I lately read in a farmer's paper for washing dishes. The writer bids us wash our milk-pans, etc., first with boiling suds, then rinse them in boiling water, and then "wipe them with a damp cloth." She says she cannot tell the reason, but she finds that if tin things are wiped with a perfectly dry cloth "there is a stickiness left behind which soon becomes a sourness." I think I can tell her the reason. It is because the cheesy part of the milk has been scalded on the tin, and is only taken off (and but partially then, I am afraid) by the cool damp wiping cloth. I think that most good housekeepers prefer to wash the milk-pans first in water below scalding heat. It is very common in good dairies to wash them first in cold water (which does not remove the cream) then in hot suds (which does), then in a clear hot water rinse, wiping or setting them in the hot sun. Since reading the article refered to I have tried it many times, and have never found that the cleanest and driest of wiping cloths left any stickiness behind; but I never wash dishes in scalding water. I see people pile their dirty dishes into the dish-pan and pour boiling water over them, and I feel sure there will be some "stickiness left behind." Warm water, but below the scalding heat, is best, unless your dishes are soiled principally by fat and butter. Everything but grease scalds on instead of off. —*Agriculturist.*

Factory Butter.—The butter now made in factories uniformly brings a higher price than the butter made by farmers, and simply because it is better. Why it is better is what everybody making butter should understand. In the first place, persons are employed who are careful, industrious and conscientious. Secondly, everything is arranged for setting the milk properly, for keeping a given temperature, for skimming milk at exactly the right time, for churning under best conditions, and for working, salting, packing and shipping the butter in such a way that the original elements will retain all their fine qualities. By doing these things there can be no bad, nor even second-class butter, and every pound of it is strictly "gilt-edge." As butter is usually made, fully half is poor, even during the months most favorable for making it; and for want of proper subsequent management, a considerable portion of the best half becomes no better than the poorest half. The loss to farmers generally in making butter is so great that unless they adopt better methods it will be as well to engage in some other business.—*N. Y. Tribune.*

What is Said of Butter.—When a wholesale dealer is questioned as to the proportion of really fine butter he receives in his consignments, he replies "five per cent." A larger proportion than this comes to market as grease. The grocer will tell you that of all his stock good butter is the most difficult to procure, and costs him more time and trouble to select. We know there is no good reason why this should be. Here and there, scattered widely apart throughout the country, we know farmers who make excellent butter, which would be classed first quality in the market, and next door to those are neighbors who make trash unfit for food. On the counters of country stores may any day be seen rolls of butter most widely different in color, flavor and texture. One farmer is careful and cleanly; his wife keeps her dairy sweet, her pails and pans perfectly pure; another keeps a foul stable, milks in an unclean fashion, has rusty feed and foul water for his cows, while his wife is equally careless in her duty. How can the butter in these two cases be other than widely different in quality and value?—*Massachusetts Ploughman.*

Rheumatism.—A correspondent asks us to publish "some of the best cures" we know of for rheumatism. We don't know of any specific for that complaint. Physicians can only alleviate it—but cannot drive it from the system.

Home and Farm.

Roads and Road Making

There are but few duties performed by town or municipal authorities which are more important than making and keeping in repair the common highways. It is a duty, we are sorry to say, sadly neglected in many sections of the country; and in some localities the matter of road making is regarded as of no importance whatever, and the working out of highway taxes, by the residents of the towns or districts, is simply a farce and a fraud. Every good citizen should feel an interest in good roads, as they contribute immensely to the comfort of traveling, and save much in the wear and tear of carriages. It is true, we must not expect in the rural districts the well-cared-for, solid roads of suburban towns around cities; but there is no excuse for the rocky, neglected paths which are often found, and over which it is often positively dangerous to travel. If towns would attend to one point connected with their highways, that is, carefully remove, once in two weeks, during the Summer, every stone which is brought to the surface by rains or drought, it would render even bad roads very comfortable. These loose stones are not only a cause of great discomfort to travelers, but also of intense anxiety. They put in peril life and limb, as horses are very liable to stumble in passing over them, and carriages are often broken. Try an experiment. Ride over a neglected road in the country of a mile in extent, if you have the courage; then stop at a farm-house and give the farmer a couple of dollars to pick out the stones; ride back over the pathway again, and notice how great is the change. Upon your return you can trot briskly along, with a sense of comfort and security; whereas, in passing over it previous to the removal of the loose stones, you proceeded slowly and in misery. This illustrates how cheaply and expeditiously bad roads can be improved. If every town in those sections where lands are full of small boulders would provide simply for the removal of them from the pathway as often as once in two weeks during warm weather, the roads would be more comfortable than if ten times the cost was expended in dumping on loads of sand, or plowing up roadside soil and piling it on the driveway. We hope these hints will not be lost upon those who have our common highways in charge.—*Journal of Applied Chemistry.*

Velocity and Motion.

It is of eminent importance that farmers should have a more perfect understanding of the strength of the materials of which their implements are made, and the most economical and effective velocity for the moving of different parts of complicated machinery. Manufacturers of all kinds of farm implements should understand well the laws of force and motion; and whether a given operation is performed, for the most part, by *muscular force*, or by the *momentum* of a machine, as the great efficiency of the working parts of a machine depends almost entirely on the proper weight, or the most economical velocity, of those parts that perform the operation required. We illustrate our meaning: When a given operation is to be performed by machinery, if the work be light, it becomes necessary to increase the velocity in order to economize time, and to make a judicious appropriation of the force employed. When the work is heavy and the effective force limited, the velocity must be diminished. Were a person, when turning a fanning mill, to attach a crank to the journal that holds the wings or fans, and give the various parts of the mill the necessary velocity, the fatigue would be so great in a few minutes as to cause complete exhaustion. But by employing a system of wheels, so that the action of the muscles may be much slower the labor may be continued for several successive hours with but little fatigue. This principle holds good in constructing almost all kinds of hand and horse implements. There is a certain movement, or velocity, of the various parts of almost every implement or machine which will render the working parts more effective than they would be with a slower or quicker motion, or with a higher and lower velocity.—*Ex.*

Greasing Buggies and Wagons.—Greasing buggies and wagons is of more importance than some imagine. Many a wheel is ruined by oiling too plentifully. A well-made wheel will endure constant wear from ten to twenty years, if care is taken to use the right kind and proper amount of oil; but if this matter is not attended to, the wheel will be used up in five or six years, or it may be sooner. Lard should never be used on a wagon, for it will penetrate the hub and work its way around the tendons of the spokes and spoil the wheel. Castor oil is a good material for use on an iron axle; just oil enough should be applied to a spindle to give it a light coating; this is better than more, for the surplus put on will work out at the ends and be forced by the shoulders and nut into the hub around outside of the boxes. To oil the axletree, first wipe the spindles clean with a cloth wet with turpentine, if it won't wipe without it. On a buggy or carriage, wipe and clean off the back and front ends of the hubs, and then apply a very small quantity of castor oil, or more especially prepared lubricator near the shoulder's point.

There is a great knack in husking corn, and some men's hands and strong, horn-like thumb nails are peculiarly adapted to rapid work. The operation of breaking off the husked ear from the husks is very trying to the hands, and the skin between the thumbs and forefingers, if not unusually tough and leathery becomes blistered and sore. Mittens are inconvenient; gloves worse. I have tried and thrown aside the "husking gloves," armed with metal claws, etc., and have gone back to the simple old-fashioned husking pin made of hickory, scraped smooth, with a leather thong to go over two fingers, while the pin is held within the hands, across the base of the fingers.—*Ex.*

Miscellaneous.

Invention.

After the increase in the value of labor, we have as causes of invention—first, the progress of civilization; second, the increase of trade and commerce; and third, the spread of warfare. And, strangely enough, each of these is also responsible for the advancement of the very influence upon which each has depended for its own increase, so marvellously interwoven are the relations between invention and human existence and progress. For instance, trade and commerce languished until invention furnished them with facilities. These facilities widened the lines of trade and commerce, and these again involved the necessity for added invention to keep pace with their requirements. Again, conditions of warfare stimulated the invention of new implements; and the existence of these begat a feeling of security which impelled towards conquest. Finally, invention, while satisfying old desires, created new ones, which again stimulated it to renewed effort, and thus improved instruments and conditions pushed forward civilization. We find, then, that the causes and effects of invention have been correlative, and mutually reactive, which accounts, in a measure, for its remarkable strides during the period we have named. We find, also, that invention, while directed in so many thousand different ways, and bearing upon so many thousand different results, has really tended towards but three grand conclusions to which its details have only been subsidiary. These have been the advancement of trade and commerce, signifying peace; the improved facilities for destruction, signifying war; and the progress of civilization, signifying human perfection. To these distinct and vital purposes have been devoted the labors of invention, whether directed immediately towards agriculture, mechanics, or the arts of design. From gunpowder to the electric telegraph and the sewing-machine, one portion of mankind has invented to preserve itself, while another has labored for its own destruction. The principles of good and evil, of life and death, struggling for ever, as in the old Hindoo mythology, for supremacy. To invention we owe our present advanced condition of being, and to the same element we may charge all the evils which have kept pace with it. Invention induces us to cut down forests for ship timber, and to improve our dwelling places; and the loss of these forests changes the climate of localities, and renders them, to a certain extent, uninhabitable. Invention has enabled us to live in compact and closely-constructed quarters; and this mode of living breeds pestilence, poverty and famine. Invention improves, temporarily, our modes and styles of wearing apparel, and this begets extravagance, which, in turn, brings upon us bankruptcy. Invention has increased a thousand fold the quantity and form of our food; yet there are more starving ones to-day, and food is higher priced than it was five centuries ago. Necessity is the mother of invention, and the children of invention are still—necessity.—*Builder.*

Combination in Machines.

It is surprising, says our able cotemporary, the *Artisan*, when we come to analyze machine arrangements to find how much skill and inventive talent has been expended in the combination, or aggregation, of functions in machines, without adding to their efficiency, or even cheapening their cost.

The combination of several functions in a single machine presents to the unskilled the highest grade of novelty, and as all know, the distinction between novelty and utility is exceedingly difficult to understand and define. A machine that will drill, turn, mill, and so on, carries to the mind an impression of great utility, a kind of conviction that such a machine will perform all these operations at once and is equal to a drilling machine, a lathe and milling machine. Nor is this estimate by any means confined to the unskilled, as is proved by the great numbers of combination machines, both for wood and iron work, that are continually made and sold, especially in England.

In this day of dividing labor and shop processes, everything points to a division of machine function; the more a machine can be subdivided the greater the effect that may be produced; and the present wants in manufacturing machines and tools, as before said, point to "segregation" instead of "aggregation." Instead of machines to turn, bore and mill, we need machines directed not only to each operation separately, but these machines should again be subdivided into classes suited to heavy, light or special work. Combination in machines can have but few objects; the same frame may support two or more machines, but nothing is saved but the material in the framing, and sometimes floor-room; nearly always these considerations are more than balanced by a want of adaptation in the machines; that is, one function in the machine must be adapted to another, instead of to the work to be performed.

As a rule, a combined machine gives employment to but one attendant, and represents but a single machine while operating; its other functions being idle while only one is active.

Combination machines are useful in certain and exceptional cases. If one man can perform all the machine operations in a small shop, or all the irregular jobs in a large shop and a combination machine is so arranged as to cause no loss of time in changing from one operation to another, then such a machine may be used with advantage. An illustration of this is seen in the universal milling machines generally employed in the tool rooms of our large shops. Another, and perhaps, the most important object of combination in machines is to avoid changing tools when several different operations are to be performed on one piece, and when much time is saved and accuracy secured by a combination of tool-holding appliances, or a combination of spindles that may act successively.

Incrustation of Boilers, &c.—Of all the approbia of industrial chemistry, this is perhaps the greatest, and numerous and no less ingenious than unsuccessful have been the appliances to that end successively announced, tried, and discarded. Among the more recent are the resolvent fluid, patented by Mr. Hatfull and the sand-blast, both still upon their trial. The inconvenience and positive danger occasioned by incrustation are more evident than the success of either remedy. One of the latest examples of these, as regards water-pipes, we have from Boston, where, according to the *New York Times*, the local fire insurance companies are now calling attention to the condition of the water-pipes in that city. It seems that the water supply is greatly diminished by the incrustation formed on the inside of the iron pipes by the action of the water, so that a 3-inch pipe that has been laid ten years becomes reduced to 2 inches, those of 4 inches to 3, and the 6-inch mains reduced to 5 and 4 inches. A pipe was recently taken up in Howard Street through which one could not see, though water flowed slowly; and a pipe of 3-inch bore was taken up in Beacon Street filled up solid with rust. In the suburbs cement pipes are used, but it is said that they are hardly strong enough to bear the pressure of the Cochituate water.

Fruit Without Flowers.

At a meeting of the Academy of Natural Sciences, Philadelphia, Mr. Thomas Meehan presented an apple, which was borne by a tree at Kittaning, in Pennsylvania, and which tree never produced any flowers in the popular acceptation of the term; but always yielded an abundance of fruit. This specimen furnished a practical illustration of some morphological truth which could not often be demonstrated in the way this afforded the opportunity of doing. It was admitted that a fruit was a branch with its accessory leaves transformed. The apple fruit was made up of a series of whorls of leaves comprising five each. Cutting an apple through he found a series of five formed the carpels containing the seeds. Several series of whorls, very much retarded in development, probably formed the stamens, but this could not be so well seen in the apple fruit, as they seemed to be almost absorbed in the corolla series. This was the next in order that appeared in the divided apple—the green curved fibrous line which we find in all apples midway between the "core" and the "rind" is the dividing line between the series which forms the corolla and the outer series forms the calyx.

In this tree there are no pistils, the series which usually goes to make up this part of the fruit structure being either very rudimentary or entirely wanting. Hence there was no core to the fruit. The result of this want of development was that the usual calyx basin of the apple was in this case occupied by a cavity three-quarters of an inch across. There were no petals; but in place five gland or rather bud-scale-like processes, at regular distances, on the edge of the green fibrous outline before referred to. The outer whorl, which usually forms the calyx, was almost asepalous, as a mere scarious membrane marked the place where the calyx segments or sepals should have appeared. It was so easy in this specimen to trace the dividing line between the outer or calycine whorl and the inner or corolline whorl, which uniting and becoming succulent, formed the popular apple fruit, that it was worthy of note in this connection. But the most interesting feature in this specimen was what were probably, from their similarity in appearance, cork cells, formed abundantly on the outside of the apple. It would seem that with the lack of development in the inner series of whorls necessary to the perfect fruit, those which remained were liable to take on somewhat the character of bark structure.

Our American Horror of Cheapness.

There exists in our poor human nature an absurd but almost universal tendency to appear other than what we are. The summer idlers are already beginning to return from their vacations, and, when they are slapped on the back by a friend with kind inquiries as to their hollidays, half of them begin to reply by an explanation why they did not go to Newport or Saratoga. They may have been to some pleasanter and more rational place, but, before they will give you its name, they will explain the circumstances which induced them to go there rather than to the more fashionable resorts. A gentleman in the diplomatic service informs us that out of every dozen Americans who visited the Legation in Paris, three-fourths, when asked where they were stopping, would preface the information by giving the reasons why they were not at the Grand Hotel. No one ever crosses the ocean on a steamer of a cheap line without specifying some particular attraction which induced him to make the choice. We have known men who would never show you a silver watch without telling you how much they preferred it, at the same price, to a gold one. A gentleman who cannot afford to buy a solitaire diamond, will say that a pearl or an emerald is much prettier. If he dines at a cheap house on Third avenue, he will insist the dinner is better than Delmonico's. In short, the average American never will admit that cheapness has any attraction for him or costliness any terrors.—*N. Y. Tribune.*

The phosphorescence of the sea is due to two kindred causes, one being the light emitted by certain living creatures which have the faculty of becoming luminous—a faculty incidental to the discharge of their vital functions; the other being the light given out of the bodies of the same creatures while undergoing the process of decomposition. Which of these exercises the larger share in illuminating the ocean is yet uncertain, and the point is not, perhaps, very material; but what is more to the purpose, is that among the former are to be found three distinct genera, subdivided, in the case of infusoria, into almost infinite species. These three genera are the acalephæ (mauusæ and cayanceæ families) among zoöphites, certain mollusca and infusoria. Of the acalephæ or seanettles, the mammaria scintillans is the most remarkable. It is, when fully grown, no larger than a pin's head, and yet it has a luster which makes it almost as brilliant as the brightest star. It is more especially an inhabitant of the tropics, and is a great contributor to the glory which the sea in those latitudes has over the waters of colder zones.

Steam as an Auxiliary.—The increased price of coal in England is causing the reagitation of the question of the use of steam as an auxiliary power in ships. A writer in *Iron* says: A vessel for a long voyage should be of the following dimensions:—Length, 300 feet; breadth, 40 feet, depth of hold, 24 feet, with accomodations for passengers, officers and crew on deck, and a pair of direct acting engines placed in the after part of the vessel, below the main deck, capable of working to about 150 horse-power, with boilers to maintain a steam pressure of 60 pounds per square inch. The consumption of coal would be about 72 cwt. per diem, and the speed, with a folding screw propeller, about six knots in a calm. In a sailing vessel built from my design, the best day's work was from 330 to 360 miles for nine days. It appears to be a great pity to dispense with sails, when such results can be obtained, and if a small auxiliary power were introduced as above described, into a proper proportioned vessel, it would be the most economical and effectual carrier for ocean navigation.

New Method of Preparing Caustic Soda.—The crude lye is evaporated in cast-iron boilers. At a certain heat the cyanides contained in the pasty mass are decomposed, with escape of ammonia and decomposition of carbon. When this point is reached, the heat is raised to redness, and the mass becomes more fluid. A sheet-iron cover is then fitted upon the boiler, provided with an opening through which enters an iron pipe. This is plunged into the mass, and air is forced in. The graphite which separates rises to the surface and may be collected. The mass is tested from time to time to see if the sulphur is perfectly oxidized. When this is the case the blast is stopped, the mass allowed to become clear, and run off as usual.—*M. Heibig.*