A SHEEP DESTROYER.

JOHN R. CORYELL.

Growing on our Western plains is a pretty-looking kind of grass, resembling oats, and which is called, popularly, weather grass or needle grass—botanically, *Stipa spartea*. What may be its special sphere of usefulness to man or in the economy of nature, granting that it has such a sphere, is hardly worth considering in the light of its evil works.

Looked at casually, while in its growing state, it might be mistaken for immature or bastard oats, although a moment's inspection would reveal its true character. The seed, particularly, would serve to emphasize its unlikeness to its useful cousin, and it is this seed which, as a seemingly insignificant but really potent agent of destruction, claims our attention.

The seed in general conformation, but not otherwise, is like the oat. Its base is tipped with a tiny point as sharp and hard as that of a pin. Almost hiding this tip, and extending upward to nearly half the length of the seed, is a soft, silky, hair-like growth. The remainder of the seed, which has a total length of about three-quarters of an inch, is bare, smooth, and flinty. A minute depression, made by the unfolding of the edges of the case, runs the entire length of the seed.

From the upper end of the seed runs a long awn or beard, varying in length from four to seven inches. This awn is a simple but beautiful piece of mechanism, designed apparently for the sole purpose of enabling the seed to sow itself. It is tightly twisted, screw-like for two-thirds of its length, and then turns abruptly into a right angle, the remaining one-third being untwisted. They who are acquainted with the so-called animated oats or the wild oats will be familiar with the action of the twisted awn under the influence of wet or dry weather. The awn unloosens or tightens its twist according as it comes under the influence of wet or dry conditions, and the untwisted, right-angled end remaining quiescent enables the seed to writhe and turn and burrow deeper and deeper into the earth.

This application of its mechanical powers to the proper end of saving its life is both beautiful and pleasing, but, unfortunately, those powers, being mechanical, act with equal vigor to an improper end. Caught in the seemingly impenetrable wool of the sheep, and there subjected to the influence of alternate moisture and dryness, the awns do their work, and, incredible as it may seem, propel the seed so far as to cause the needle to penetrate the hide of the animal. The awns break off, and the needles penetrate the vital parts of the sheep, causing painful death. The harmless-looking silky growth on the needle, tending backward from the point as it does, acts as a barb to prevent any retrograde movement of the intruding needle.

The points, too, not only enter the body of the sheep in this way, but also stick in the nostrils, nose, and lips, where, however, they do less harm than when eaten and swallowed into the stomach, in which event death must follow.

The tendency to underrate the work of weak agents may lead to the thought that no material damage can be done by means of the *Stipa spartea* to sheep. How erroneous such a conclusion would be will be seen from a statement of Mr. Henry Stewart, who, in his work, "The Shepherd's Manual," says, referring to sheep in the Northwestern district, that "the most frequent losses are caused by a native grass, which bears exceedingly sharp awns or beards, and called popularly 'needle grass.'"

Sheep men guard against loss from this cause by frequent examination of the sheep during the period when *Stipa spartea* is ripe, and by burning the pasture in June, at which time the deadly grass has just commenced its growth. Prevention in this instance, as in others, is better than cure, for it is no easy matter to examine every sheep of a large herd so carefully that all the needles can be detected and withdrawn.

A SHEEP DESTROYER.

An Improved Cab.

Carriages with the driver's seat behind, after the style of the English hansom, have never been very popular in this country, although a great variety of two wheeled carriages has been introduced within the past two or three years. All our leading carriage manufacturers have, however, been competing to see which could build the best vehicle of this kind, and one that would at the same time take the popular fancy. One of the latest inventions in this line is a two wheeled vehicle recently patented by Messrs E. P. Hincks and G. H. Johnson, of Bridgeport, Conn. The front is a projecting one, and presents a three-sided figure, the center being straight, and the doors on the sides, forming an angle therewith, opening toward the wheels, the side springs being so arranged that the doors may be readily opened wide without interference. The springs extend beyond the hinges of the doors to near the front of the wheels, and are supported at their forward ends by goose necks attached to the rocker frame of the carriage. The vehicle is low hung, and so far forward on the axle that, with the driver's seat arranged behind, it makes a well balanced as well as very convenient and easy riding carriage, and one which presents an extremely neat and attractive appearance.

How a Bear Catches Fish.

I came suddenly upon a very large bear in a thick swamp, lying upon a large hollow log across a brook, fishing; and he was so much interested in his sport that he did not notice me until I had approached very near him, so that I could see exactly how he baited his hook and played his fish. He fished in this wise: There was a large hole through the log on which he lay, and he thrust his forearm through the hole and held his open paw in the water, and waited for the fish to gather round and into it; and when filled he clutched his fist and brought up a handful of fish, and sat and ate them with great gusto; then down with the paw again, and so on. The brook was fairly alive with little trout and red sided suckers, and some black suckers. He did not eat their heads. There was quite a pile of them on the log. I suppose the oil in his paw attracted the fish and baited them even better than a flyhook; and his toe nails were his hooks, and sharp ones, too, and once grabbed the fish were sure to stay. They also catch frogs in these forest brooks, and drink of the pure water in hot summer days, and love to lie and wallow in the muddy swamps as well as our pigs in the mire. They often cross narrow places in lakes by swimming, and also rivers, and seem to love to take a turn in the water. I once saw one swimming from the mainland to the big island in Moosemaguntic Lake, with just a streak of his back out of the water, looking like a dog moving along. Sometimes you see only their heads out of water; at other times half their bodies are to be seen. We account for this difference by condition. If fat, the grease helps buoy them up; if lean, they sink lower in the water.—*Lewiston Journal.*

Olive Cultivation in Turkey.

Consul Heap of Constantinople, in his last report, states that olives grown in Turkey receive little cultivation after the young trees reach maturity. At the end of the autumn, or early in winter, a trench of two to three feet in diameter and from eighteeen to twenty-seven inches in depth is dug round each young tree, and filled with manure, more or less rich, according to the age and strength of the tree. The manure is well covered with soil, so as to prevent it being disturbed, and to keep it as long as possible in the position best fitted to feed the roots of the tree. The ground between the trees is generally neglected. The olive tree generally comes into full bearing about its twenty-fifth year when it has been grown from slips, but when grafted it yields abundantly between its eighth and twelfth year. In both cases it continues to produce largely, every alternate year, for about fifty or sixty years, and if cultivated it will continue to yield, though less largely, up to the age of one hundred years. Under ordinary circumstances a young healthy tree that has reached maturity will produce about eighty-two pounds of fruit in a poor year, and with careful cultivation the same tree will yield in a good year double that quantity.

The trees vary in yield every alternate year. An acre will contain 120 trees, and each tree will yield an average of 100 pounds of fruit, so that the produce per acre will be about 12,000 pounds; and as it takes about sixty pounds of fruit to produce one gallon of oil, the yield per acre would be two hundred gallons. When olives are intended for pickling, a small portion is plucked while green to be pickled in that state, but the larger portion of the fruit intended for preserving is gathered when it has fully ripened and has turned black; in Turkey it is preferred in this state, and there is a very large consumption of black pickled olives. To preserve black olives for the table, the fruit is packed in casks or boxes with a large layer of common salt, three-quarters of an inch thick at the bottom. On this is laid a layer of olives, about two and a half to three inches in depth, upon which a light covering of salt is sprinkled, and so on until the cask or box is filled, the upper layer of salt being deeper than the others, except the lower one. The staves of the cask are left loosely bound to allow the bitter water from the olives to drain off. In preserving green olives, the fruit after being washed is packed in cases in its natural state. The casks have a small hole bored in the bottom to allow the water to run off slowly. They are filled with olives to about three inches of the top, and the cask is then filled to the brim with fresh water once in twenty-four hours, until the bitter taste of the fruit has almost passed off. The hole in the bottom is then plugged, an aromatized pickle is poured on the fruit, and after the pickle has taken effect a little oil is added, to soften the olives and reduce any bitterness that may remain in excess of what is required to give them piquancy or an agreeable flavor.

In extracting the oil the method practiced in the interior of Turkey is the same as was employed in the earliest ages. The fruit is collected in a large receptacle near the mill where the crushing is done; this mill is simply a large circular shallow tank with an upright beam in the center, which runs through a large stone and serves as a pivot around which the stone revolves. A horse harnessed to a horizontal pole attached to the stone sets it slowly and laboriously in motion. An improved apparatus has lately been introduced; this consists of two stones attached to the horizontal pole, and which are dragged round with it. When a sufficient quantity of the fruit has been thrown into a tank the machine is set in motion, and a man precedes the horse with an iron pole to push the olives under the stones. After a short time, about two gallons of water at boiling heat are poured in to assist the action of the stones, and more is added as required, until the mass acquires the consistency of a thick paste. The mass is then put into a large jar and conveyed to the press, where it is kneaded with more hot water into a square cloth of coarse material, which will bear the greatest power of the press without bursting. The paste is then formed into a square flat mass, the cloth being folded neatly over it, and tied with a string attached to each corner, and it is then replaced in the press. The press is turned down by means of a hand lever, and when more power is required, a rope is carried from the lever to an upright rotary beam at some distance, which is rapidly turned.

The oil and water which are expressed run into a trough roughly hewn from wood. This trough is divided into two parts longitudinally by a partition, which comes up to about two inches below the level of its sides, so that, when the oil and water run in together on one side of the partition, the oil coming to the surface floats over to the other side, while the water is conveyed away by a pipe, placed at the level at which it is desired to maintain the water within the trough. After the press has been screwed down as far as it will go, it is loosened, and hot water is poured upon the pile to wash off any oil that may remain on the cloths, and they are kneaded without being unfolded. More boiling water is poured upon each package, and they are again placed in the press, to be again removed and undergo for a third time the same process until no oil remains. The oil comes out a light green color, and is poured into a large jar near the press, whence, after depositing any water or dirt it may contain, it is poured into skins. It is next emptied into large earthenware jars four or five feet in height, where it remains for at least two months until all impurities are deposited.

Fatal Accident from a Dynamo.

On the evening of Sept. 27, at the Health Exhibition, London, Henry Pink, an attendant in the electric light shed, met his death by incautious contact with one of the dynamos used for supplying the electric light. It was Pink's duty merely to go round and oil the dynamos, and to ascertain that they ran smoothly and without heating; and he had been repeatedly cautioned never to touch them with both hands at once.

William H. Tilley testified that he was a visitor at the Health Exhibition; he went into the electric light machine room, and witnessed the working of the dynamos. He saw the deceased put his left hand on the brush of the 25 light dynamo, and rub his finger up and down close to where the witness saw some sparks issuing. He had until then been almost facing witness, at right angles with the dynamo shaft; but he now turned round, so as to directly face the dynamo, and put his right hand on the bearing at the top of the standard, as though to feel if the bearing were warm, and without removing his left hand from the brush. He then slowly brought his right hand toward the lower brush. Witness could not swear that he actually saw deceased touch the lower brush; but he observed him give a convulsive clutch, and then appear unable take his hands away. At that time he had both hands on the machine. His head went gradually back; and then he let go with his left hand, and fell backward against the barrier, where witness was standing. All this took place in the time one might count three. Deceased then fell back on his right side, when another attendant came up and caught him,

Rufus Porter.—A Representative of American Genius.

One of our English contemporaries, *Invention*, in referring to the life and genius of the late Rufus Porter, pays a compliment to the energy, ingenuity, and versatility of the American in contrast with the Englishman, whose idea, the editor thinks, is generally confined to fitting himself for a single pursuit in life.

"That the true genius of the American people is inventive and mechanical is a self evident proposition," says the writer, "and it would appear as though invention, relatively speaking, has flourished more in the United States than in all the rest of the world, making due allowance for time.

"Yet how short, comparatively speaking, has been the period since the great American people assumed the homogeneous form of a concrete nation! There has just died at New Haven, Conn., as our readers are aware, one of the most typical of American inventors—Rufus Porter—and his long life, protracted to within six years of a century, virtually covers the period included in the history of the United States, and brings together at once the two very antithetical eras of George the Third and Queen Victoria. Rufus Porter, Benjamin Franklin, and Count Romford, the great apostle of economical and quasi-scientific cookery, were all Massachusetts men, and all illustrious, although in varying degrees, as inventors. The stories of two of these lives are familiar enough to all Englishmen, but it may not be so generally known that the last survivor of this extraordinary triad of inventors was undoubtedly one of the most prolific and versatile of inventors the world has yet known.

"Born in the presidency of the illustrious Washington, Rufus Porter lived through the reigns of twenty-one American Presidents, and was himself a living representative of the genius of American invention for over three-quarters of a century.

"From the first he was the true type of the smart American boy, who, so far from being impressed by the Carlylean idea of the great dignity of personal work in its manual forms, was nothing unless a labor saving machine in its most comprehensive shape. Thus Rufus Porter began his long career of usefulness as an inventor of turbine water wheels, windmills, flying ships, rotary engines, and sundry contrivances for abolishing as far as possible agricultural labor. He was as a youth, too, an ardent patriot, and in truth half a dozen other things, each of which, if followed up fully, might have sufficed to secure to most men a reasonable amount of distinction and prosperity. He fought against the British, and this occupation—a mere interlude in a life crowded with incidents, and usually at the white heat of some newly found enterprise—naturally led to the elaboration of war engines; and his well known revolving rifle enabled Colonel Colt to produce the revolving pistol, which initiated a host of small firearms on the same principle.

"For Rufus Porter, however, there was neither rest nor supreme success in any decade of his singularly active and abnormally busy career. He was a schoolmaster, a portrait painter by turns, and he founded the SCIENTIFIC AMERICAN, the greatest and best of all American mechanical papers, and one that indeed is unsurpassed in its new lines by any journal extant.

"Clocks, railway signals, churns, washing machines, and other appliances were among the many fruits of his active brain, and it was doubtless to this fecundity that his comparative failure in a worldly sense was due. His inventions were in a manner cast aside as soon as he had roughly completed them, and, heedless of the commercial phases of invention, this wonderfully prolific genius passed on to make a fresh essay in the great work of saving human manual labor—which is the real end of all truly American progress, and the main object of American civilization.

"To give a detailed account of all that Rufus Porter accomplished or attempted in the great field of invention would altogether transcend the limits of our space; but although a contemporary, writing of this great and original inventor, has remarked, that in spite of all he did and wrote, and the very extraordinary length of time accorded to him, he has gone to the grave leaving a name 'writ in water,' we still think that in the world of invention his name will be fully blazoned as a material benefactor to his fellow men.

"No doubt this career, so rich in actual matter of fact result, illustrates fully the different conditions of life in England and America, in regard to the encouragement given to inventors in the respective countries. Here the whole course of education, and the entire bias of prejudice, is toward each man equipping himself for a single well defined pursuit. In no country in the world is the saying more relished than that of a Jack-of-all-trades and a master of none, whereas in the United States it is precisely the reverse. There, in a still new country, handiness and ready adaptability is everything, and every possible encouragement is fully given to that versatility which has so little, comparatively speaking, in this country with its well defined and strictly preserved paths of infinitely subdivided industries. Probably in both countries, 'the falsehood of extremes' is sufficiently illustrated, and each would gain by a process of mutual adoption and adaptation of native peculiarities.

"There can be no doubt but that in America, invention has been more versatile and, to borrow a now familiar phrase, more 'differentiated' than among ourselves, while here it has achieved in certain lines greater results, perhaps due only to the greater concentrativeness of the English mind.

"We believe for own part that it is wholesome for Americans to study English, and for Englishmen to study American inventors. The mutual lesson is sure to be mutually profitable. Meanwhile we may add in conclusion that although he has not in any sense attained the fame and eminence of Morse, a Howe, or Edison, Rufus Porter will live as one of the best and brightest examples of the versatility of American invention."

The Enforced Use of the Metric System.

In a communication to the Philadelphia *Public Ledger*, dated at Eisenach, August 24, Mr. Coleman Sellers, a member of the firm of William Sellers & Co., of Philadelphia, gives his impressions of the very slow progress the metric system is making toward general adoption among the leading nations of the world, together with a statement of his objections to the system. He says:

The Librarian of the Paris Geographical Society has recently prepared a table showing what countries have adopted the French metric system and have made its use obligatory. The total population of these countries is given, and it professes to show that the people who use this system are vastly more numerous than those who do not, and among the minority are mentioned Great Britain and the United States. Thus, those using the system aggregate, say, 241,972,011, as against 97,639,825 not using it.

I notice among those countries where this system is said to be in compulsory use Norway, Sweden and Denmark. Now, I have just visited these three kingdoms, and while there I made it my business, as I have done in other countries, to make a full inquiry into the practical operation of the French metric system. I find that the governments of the three countries above mentioned have adopted the system, and have appointed a date a few years in the future when its use will be obligatory; but as yet it is not in general use, except among the employes of the government or in the government depots. The people at large know little or nothing about the subject, and small progress has been made toward preparing them for the change. In the railroad stations may be seen charts hanging on the walls that give the system in a graphical way, and the weight of the luggage upon which an extra charge is made is computed in kilos, not in pounds; while everything weighed in the shops or markets is reckoned in pounds or measured by a "yard stick" which is 25 of our inches in length; this I give from actual measurement, although the shopkeepers say that the Swedish measure for cloth is two-thirds of the English yard. In Denmark, so little is known about the enforced adoption of the French system that an important shopkeeper told me that it was never to be adopted.

What I wish to make clear to your readers is, that the mere fact that the inhabitants of the countries using the metric system are more numerous than those of the countries that do not use it does not furnish so strong an argument in favor of the enforced adoption of this system as would at first appear. The interests involved and the industries that would be affected by the change must be considered. The uprooting of any established system of weights and measures is a matter of very serious import, aside from any question of the relative merits or demerits of the adopted or abandoned systems, and this is especially true of manufacturing countries, where vast and varied processes depend on established standards. It is not an exaggeration to assert that the confusion and loss caused by a change in the system of measurement in Russia, with her millions of peasantry, would be less than that sustained in the city of Philadelphia alone from a like cause. England and America combined control the majority of the commerce of the world. England and America combined lead the engineering output of the world.

To the merchant who buys and sells, it makes no matter if the yard is one of 25, or 36, or 39·39 inches long, nor if the pound weighs more or less than a pint of water; but to the engineer, the matter is of more vital importance. I have gone this summer through the workshops of almost all the great countries on this side of the water and in those of Germany. I have seen the practical use of the system that I have for so long a time condemned. I frequently asked engineers if they like the system, and if they use it, and I will give the answer of one in Berlin: "We use it because we have to, and it is better to have some uniform system than the many measurements that formerly prevailed in the German states. The unit of the machine shop is the millimeter in everything except bolts, nuts, and screws. All bolts and nuts are made to the English inch, because we use the Whitworth system. We do not like the metric system, because it has too small a unit, and the meter is too large and involves the use of decimals."

In Philadelphia, the firm of William Sellers & Co. adopted the French metric system in an important part of their works as long ago as thirty years, and have continued its use since, until their workmen are as familiar with it as with the inch. With all this long practice during my connection with the firm, I have written and spoken against the enforced adoption of the system, not only because of the expense involved in changing, but because it is not a practical system; it permits of no elastic gradation of shop or trade sizes. The millimeter is taken as the standard, to avoid the complication of the constant use of decimals, as nearly all measurements in machine work are less than one meter. This small measure involves many figures, and does not permit any good memorizable series. The inch cut up into the natural division by constantly halving permits the use of sizes best suited to the needs of the workmen.

The standard of the French system is a certain bar, kept for comparison; so is the English yard, from which we get our feet and inches. The high-flown notion that the meter is a measurable portion of the quadrant of the earth's circumference has been given up long ago, and the measurements of England and America are on a better basis of accuracy to-day than those of any other country. The French system theoretically predicates its weights on the weight of a cubic decimeter of distilled water at a temperature of 39·1 degrees Fahr., the weight of which is called the kilogramme, and is 2·2 of our pounds; but really the standard unit of weight is the platinum kilogramme weight deposited in Paris.

Swedish iron and steel are rolled to English inches in size; so, also, their boards are cut to the English inch, because their market is largely in those countries that use the inch. In the Russian machine shops, the English inch is used exclusively, and, as I have said, throughout all Germany it holds for all screw sizes. In France and in Belgium, the yard stick is the meter hung from a rod like the cross bracket of a drop gas light, placed about 18 inches above the counter. In Germany, the half-meter, or, 26 inches, about, is the measure used, and that held in the hand of a salesman by a handle at one end of the measuring stick. The Swedish machinist carries in his pocket a rule on which he has the English inch, and by its side the French measures; on the other side he has the two Swedish feet, one long in use, and one ordered to be used, but never put into practice. The Swedish roads are laid out now in kilometers, and marked by iron plates, giving at each 10 kilometers the distance from some place, while half way between is a sign "5 kilometers." This division of the roadway seems to them to be fine enough, as the old Swedish mile was 6⅝ of our miles, and 5 kilometers is a less distance.

In Germany you never hear of the kilo, but they sell by the pound, their pound being the half of 1 kilo; this they cut up as they please into smaller weights, and you can buy half a pound of grapes or butter just as well as you can in America. It is claimed that, given the meter, all weights, etc., can be deduced from it. In theory this is very well. The most skillful workmen, however, are not yet able to make two liters of water weigh alike to the utmost point of accuracy, and the cubical liter is not used, but is converted into a circular or cylindrical vessel, with all the trouble of the problem of squaring the circle.

If a bar of ordinary forged iron be planed up to measure 1 inch square, and the bar be 1 English yard long, it will weigh 10 pounds, and the tenth of such a bar will weigh 1 pound more accurately than will the ordinary liter of water weigh 1 kilo. The English engineer, in these days of iron, knows when he uses shapes of iron rolled of uniform section that the tenth of their weight in pounds per yard gives him the area of the section, and this one admirable incident will long fix the desirability of the present unit of England and America. When we consider the interest involved, it will be seen that the population now making practical use of the English standard is greatly in excess of that using, by force, the French system. Millions of those numbered among the people who use the French system have no occasion to use any or know any system whatever save in the crudest form.

Carefully as I have considered this subject of weights and measures during the time I have been from home, I am the more confirmed in my opposition to the enforced adoption of the metric system of France in my own country, and firmly believe that those countries that have adopted it are at a disadvantage as compared with even the most imperfect of our systems. America has entered on the line of simplification of its metrology, and that is the direction that should be followed, not by any means giving up what is good, but by making what has been found to be practical, better and simpler. One has not to be long in England to find out how firmly are the seemingly complicated systems of weights and measures of that country fixed with the people. They weigh by the stone and compute by the sterling currency as rapidly or more so than we do with our dollars and cents, and that because their unit is larger. The English shopkeeper knows nothing about decimals, and says, if you ask him, that he has never learned what they are. England has lately made legal the admirable standard manufactured by Sir Joseph Whitworth, and the chance of her adopting the metric system is not in the most remote degree possible.

A Church Built from a Single Tree.

A redwood tree, cut in this county, furnished all the timber for the Baptist church in Santa Rosa, one of the largest church edifices in the country. The interior of the building is finished in wood, there being no plastered walls. Sixty thousand shingles were made from the tree after enough was taken for the church. Another redwood tree, cut near Murphy's Mill, in this county, about ten years ago, furnished shingles that required the constant labor of two industrious men for two years before the tree was used up. The above statements are vouched for as true by Supervisor T. J. Proctor.—*Santa Rosa (Cal.) Republican.*

TO GIVE CASTOR OIL.—The French method of administering castor oil to children is to pour the oil into a pan over a moderate fire, break an egg into it, and stir up; when it is done, flavor with a little salt or sugar, or currant jelly.