CORN IN PORK MAKING.

In answer to an inquiry on the question, how many pounds of pork will a bushel of corn make and the relative value of corn per bushel, in comparison with the price of pork, we have examined the records of careful experiments by farmers, with a view to getting at facts. From these we have selected a number of cases bearing directly upon the question, the experiments being, of course, made by feeding in pens, since in no other way can the question be satisfactorily decided.

An impression prevails that when pork is worth five cents per pound, gross, corn is worth 50 cents to the farmer to feed. This is not far out of the way, where fair care and judgment is used in the feeding, being on the basis of ten pounds of pork per bushel of corn.

One of the experiments we present is by Mr. L. B. Bingham, Bloomington, Wisconsin, where 55 bushels of corn at 56 pounds per bushel, produced a gain of 667 pounds of pork; averaging a gain of a little over 12 pounds per bushel of shelled corn. Thus, if pork be worth six cents per pound, corn is worth 72 cents per bushel, etc.

Mr. J. M. Billingsby, Spring Valley, Indiana, fed 71 bushels of corn in the ear, at 68 pounds per bushel, which gave 760 pounds of pork. This average was a trifle less than 11 pounds per bushel of dry corn. At six cents per pound for pork the corn gave him 66 cents per bushel; at five cents, 55 cents per bushel, and so on down the scale.

The Iowa Agricultural Report for 1872, gives the record of five pens of swine, of two each, put up September 4th, the weight of the swine being given when put in and when taken out. They were of the following breeds: Native, Berkshire, Chester White, a cross between Berkshire and Chester White, and a cross of Chester and Suffolk. In all, ten hogs. On October 19th they were again weighed. Each of the five pens had been fed seven and one-half bushels of new corn on the ear, or 37½ bushels for the ten hogs. They gained in this time 515 pounds. This new corn fed averaged about 49 6-10 cents per bushel of corn fed. The number of pounds made per bushel of corn fed was not stated, but would be 13.44 pounds. The pork must therefore have brought him 83.62 per 100 pounds. This will correspond with the market price of pork at that time. In these experiments we get as an average gain for those we have noted, first, say 12 pounds per bushel of corn; second, say 11 pounds; and for the five pens, say 13½ pounds; an average for the whole, in round numbers, of 12 pounds of pork per bushel of corn fed, and including shelled corn, old corn in the ear, and new corn in the ear. Thus we think 12 pounds gain may be taken as a fair basis for the number of pounds to be gained per bushel of corn fed, when good care is used.—*Prairie Farmer.*

THE CHERRYMOYER.

We hear that fruit from the cherrymoyer, cashew tree (*Anacardium occidentale*, L.) ripened in San Diego Co., Cal., during the present year. We notice that the Floridians are growing it. Mr. Benjamin Hall writes to the *Florida Agriculturist* as follows:

This large, wide-spreading tropical tree is of the family of *Terebinthaceæ*. Its leaves are of a bright green color, entire and lanceolate. The fruit consists of a pear or cucumber-shaped fruit stem, on which is a large brown nut. The two are used both raw as well as cooked into dishes. The fruit stem when ripe has an acid taste, and the kernel, when peeled and roasted, tastes very much like chestnuts. Formerly the natives of Brazil went to war with each other on account of this fruit, and the conquerors established themselves about the trees till the fruit was all consumed. This tree is indigenous to the West Indies, Central America, Guiana, Peru and Brazil, and is cultivated to a considerable extent there also. The Portuguese transplanted this useful tree as early as the 16th century to the East Indies and the Indian archipelago. All its names point to an American origin. Its existence on the eastern coast of Africa is of still more recent date, while neither China, Japan nor the islands of the Pacific ocean are acquainted with it. Its fruit stem is sometimes longer and sometimes shorter, varying with the influence of cultivation. In the Asiatic plant the stem is always shorter. This beautiful tree appears to be deserving of much merit, and is in every sense worthy of a careful trial.

In the fall of 1876 your correspondent received seed from Mr. Codrington, of the *Florida Agriculturist*, and planted in November. In three weeks thereafter the young plants had broke ground, and grew vigorously until the extreme cold weather set in, when the mercury for two mornings registered 40° and 41°, which nearly checked their growth. They at this time are nearly eight inches in hight, stocky, with some 12 or 14 leaves five inches in length and two in width. The young trees are now looking fine, vigorous and healthy, bidding fair to be adapted to our soil and climate.

To the above the editor of the *Agriculturist* adds: The fruit and nuts are not the only values for which the cashew tree is famed. It produces a gum which is superior to gum arabic. The juice from the nut is very caustic, and produces a painful wound if it touches the flesh; it, therefore, requires to be well parched before being fit for use as food. The fruit is very fine for preserving, and makes a good wine.

FLY PAPER.—The hot weather last week brought us flies by thousands, if not more. We meet them thus, getting the hint from an exchange: "Powdered black pepper is mixed with syrup to a thick paste, which is spread by means of a broad brush upon coarse blotting paper. Common brown syrup will answer, but syrup made from sugar is preferable, as it dries quicker. For use, a piece of this paper is laid upon a plate and dampened with water. The paper may also be made directly at the mill by adding sugar to the pulp, and afterwards one-quarter to one-third of powdered black pepper, and rapidly working it into a porous absorbent paper."

FIGHTING GRASSHOPPERS.

Our readers will recall the appointment this spring of a Government Grasshopper Commission. The Commission undertakes, as a branch of its labors, the promulgation of the best means of fighting the insects. In order to do some good this season, there was sent out, a few days ago, a preliminary report of ways and means of destruction. We shall quote from this report some of the methods said to be most effective, as they are not uninteresting reading.

Heavy rolling, where the surface of the soil is sufficiently firm and even, destroys a large number of the newly-hatched young during the first eight or 10 days after hatching, and in the mornings and evenings subsequently. They then drive almost as readily as sheep, and may be burned in large quantities by being driven into winrows or piles of burning hay or straw. They may also be killed with kerosene, and by means of flattened beating implements.

But the best method is ditching. A ditch two feet wide and two feet deep, with perpendicular sides, offers an effectual barrier to the young insects. They tumble into it and accumulate and die at the bottom in large quantities. In a few days the stench becomes great, and necessitates the covering of the mass. In order to keep the main ditch open, therefore, it is best to dig pits or deeper side ditches at short intervals, into which the 'hoppers will accumulate and be buried. Made around a field about hatching time, few 'hoppers will get into that field till they acquire wings, and by that time the principal danger is over, and the insects are fast disappearing. If any should hatch within the inclosure, they are easily driven into the ditches dug in different parts of the field. The direction of the apprehended approach of the insect being known, from their hatching locality, ditching one or two sides next to such locality is generally sufficient, and when farmers join they can construct a long ditch which will protect many farmers.

We have not a doubt but that with proper and systematic ditching early in the season, when the insects first hatch, everything can be saved. When water can be let into the ditches so as to cover the bottom they may be made shallower, and still be effective.

A ditch three feet wide, unless correspondingly deep, will be more apt to permit the escape of the insects when once in than a narrower one. In hopping, the more perpendicular the direction the insects must take the shorter will be the distance reached. Of course the wider the ditch, if it be correspondingly deep, the more effectual it will prove. In exceptional cases, when the locusts are nearly full grown and the wind is high, so as to assist them, even the two-foot ditch loses much of its value.

One of the most effectual means of destroying the young locusts, and one which is too often overlooked, because its effects are not so directly apparent, is the preservation and multiplication of the native birds. Without undertaking at this time to specify the species which should be especially protected, and about which there is yet some difference of opinion, we believe that until the useless species in this respect are distinguished from those that are beneficial, it is best to protect all insect-eating birds, and if the laws of the State are insufficient for this purpose, let communities, townships and counties use all their lawful powers therefor.

Chickens, turkeys and hogs devour them in immense quantities, and thrive during years of locust invasion, or whenever these insects abound. Prairie chickens and quails devour them with avidity, and even hunt for their eggs; swallows and blackbirds pursue them unrelentingly.

We therefore strongly recommend the raising of as large a number as possible of hogs and poultry, both as a means of utilizing and of destroying the young locusts.

AN OLD-COUNTRY SHEPHERD.

Our readers will smile at the illustration upon this page, and deem it a fancy sketch, or at least an exaggeration, but it is not, it is a sketch from nature in the southwestern part of France. Portions of that country are exceedingly damp and marshy; as they afford excellent pasture for sheep, however, they are quite well settled, the inhabitants calling in the aid of stilts to aid them in locomotion over their oozy pastures. So accustomed to them do they become that in time walking *without* them goes as awkwardly with them, almost, as walking with them would with us. The thrifty shepherd in our engraving is improving his time with the knitting needles while his flocks are quietly feeding—the manufacture of the family stockings still being a masculine duty in some of the back countries of Europe.

AN OLD-COUNTRY SHEPHERD.

HENS IN FRANCE.—According to *Acclimatation*, there are in France about 40,000,000 hens, which are estimated to have an average value of 2.50 francs (50 cents) each, or 100,000,000 francs ($20,000,000) in all. Of these about one-fifth are consumed annually, at a market value of 25,000,000 francs. There are also hatched annually 100,000,000 chickens, from which should be taken 10,000,000 of producers destined to replace the adults that have been sacrificed. The quantity must be further reduced by 10,000,000, on account of accidents and disease. We have, then, the number of 80,000,000 of chickens, which, sold at 1.50 francs apiece, give a profit of 120,000,000 of francs. To this should be added, on account of the extra value of capons and pullets, a sum of 6,000,000 francs. Total, 151,000,000. The 40,000,000 hens lay each 100 eggs in the year, which gives a total of 4,000,000,000 of eggs, worth six centimes each, or in all 240,000,000 francs. Thus, a commercial movement of nearly 400,000,000 francs (880,000,000) a year is generated in French farmyards.

WOODBURY SCIENTIFIC EXPEDITION.—The plan is to charter a steam vessel and carry a load of professors and students around the world on a two-years' cruise of scientific study and observation. The plans are all laid and the ship will sail from New York city October 1st, 1877. Among the professors who will embark we notice Prof. B. G. Wilder, of Cornell; Prof. W. G. Farlow, of Harvard; Prof. S. I. Smith, of Yale, and half a dozen others. The enterprise is under the management of Mr. James Woodruff and Gen. Daniel Macauley, of Indianapolis, Indiana. We believe that applications for students' places in the floating university are still acceptable and full information can be gained by addressing the managers at the place named.

HAM FOR SANDWICHES.—A writer gives the following to the *Country Gentleman*: Boil as for the table; take one-third fat, two-thirds lean, chop fine, add a small teaspoonful each of pepper sauce and Worcestershire or Halford sauce, mustard and cayenne pepper; mix thoroughly and keep in a tightly covered bowl. To make sandwiches, cut white bread in smooth slices of uniform thickness, spread thinly with butter, then spread with the prepared ham thickly or thinly, as suits your taste; cut the slice across, and place the halves together with the ham between. In adding the cayenne pepper, put in a little at a time and taste, adding to suit yourself. I make a pint bowlful at a time.

CUBICAL CONTENTS OF A TON.—Few persons have any idea as to the amount of coal that can be stowed in a given space; we therefore give an example of the manner in which it may be figured up. A shed or room 15 feet high, 18 feet wide and 300 feet long will hold 200 tons of anthracite coal, and perhaps 10 tons less of Cumberland. Thus 15x18x300=8,100, divided by 40, average cubic contents of a ton of anthracite=202½.

HEAT.

In resuming his lectures at the Royal Institution, London, Prof. Tyndall, having caused a ball of lead to fall from the roof of the theater on to a stone, drew the ball up again and let it down gently with a string and pulley. The heat generated by the collision in the first instance was the exact equivalent of the heat produced in his finger and thumb and in the string in the second instance. The outlay of the muscular force expended in drawing up the ball was made obvious by causing the ball to be drawn up again by a small engine worked by compressed heat. The exact equivalent of the heat evolved by a quantity of coal, completely consumed by consumption with oxygen, sufficient to lift a weight of 50 tons to a hight of 100 feet above the earth, would be produced by the collision of that mass with the earth when allowed to fall. Given the velocity of a body, the heat generated by the destruction of that velocity could be easily calculated, and some time ago he was led to the conclusion that the stoppage of a rifle bullet would produce sufficient heat to fuse the metal. This conclusion was proved in the Franco-German war, when bullets which had been stopped by contact with a bone, showed on being extracted undoubted marks, in many cases, of a fusion. The same thing had also been illustrated incidentally in the experiments with gun cotton at Stowmarket. The old notion of heat was that it was a substance which could be squeezed out of matter as water was squeezed out of a sponge. A bullet squeezed in a hydraulic press acquired heat, which was rendered obvious in the galvanometer by the thermo-electric pile. Even as late as the time of Faraday, it was conceived that heat was something for which some bodies had a greater capacity than others. If compressed air from one vessel was allowed to pass into a vessel in which the pressure was much less, it would have been said that the motion of the air gave to the comparatively empty vessel a greater capacity for heat. The heat thus produced was shown by means of the galvanometer and thermo-electric pile; but the reason for that heat was, said Prof. Tyndall, quite differently understood now. The coefficient of the expansion of gases was next described with some minuteness; and, continuing the illustration of what used to be termed "capacity for heat," the lecturer said the explanation of different metals, when subjected to the same degree of heat, not possessing in themselves the same amount of heat, was that heat had two operations—one, the production of tremors (which was heat), the other the weakening of molecular attraction. Thus, if lead and iron were exposed to the same high temperature the lead would be much hotter than the iron, because in the former case less internal molecular work was performed, and more heat was expended in the production of tremors; while in the latter case more heat was used up in internal work, and less in the production of tremors. The same degree of heat was in operation, but the apparent results were different, and hence grew up the very natural notion that different bodies had different capacities for heat.

FLUX FOR WELDING STEEL.—An intelligent reader of the *Manufacturer and Builder*, who has had extensive experience in welding steel, and steel to iron, communicates the following formula and manipulation of the heated metals to be welded. He says: "To one part of flour of sulphur add two parts of sal ammoniac and 10 parts of borax. After having pulverized these ingredients, mingle the mass thoroughly in an iron kettle, put it over the fire, and continue a steady heat until every particle is melted. As soon as all the spume has disappeared from the surface, the flux should be poured out into another vessel and allowed to cool. Now reduce it to a fine powder, and it will be ready for use. When two pieces of steel are to be welded, the ends should first be heated to redness and all rust and scales be removed by filing or grinding, after which let the metal be heated in a clear and steady fire of charcoal until a welding heat is attained, when the heated steel will appear of a bright yellow. Great care must be exercised lest the surface of the steel be raised to a degree of heat above the welding point, which is always ruinous to good steel. Now sprinkle some of the flux on the heated bars, remove all scales, return the parts to the fire, bring them carefully to a welding heat, and unite the clean, smooth surfaces beneath the hammer. A skillful smith who has had but a limited experience in welding, will be able to perform a satisfactory job with little difficulty when welding steel to steel, or steel to iron."

CAR HEATING.—A new French combustible compound has a base of carbonized tan or wood bark, and this is mixed with a small quantity of nitrate of lead or spirits of niter, slaked lime or loam being added as agglutinative matter. It ignites easily, burns gradually and continuously in this state, and still slower by adding a small quantity of wood charcoal dust. Neither smoke nor odor are perceptible. A small quantity burned in a foot-warmer or chafing-pan, with a limited supply of air, will not be entirely consumed for about 16 hours, and during that time will develop heat enough to warm a compartment of an ordinary carriage. The dangerous railroad stove may be succeeded by an improvement on some such mode of heating as this. It may be that steam pipes, supplied with either live or exhaust steam, and connected with flexible gutta percha pipes, might be much better, but it is certain that some general provision of safety from this source of danger to life and property is needed.

GLACIAL ACTION.—The last English Arctic expedition promises to confirm the views of glacialists respecting the origin of the Parallel Roads of Glen Roy, in Scotland. In Greenland nearly every valley shows similar terraces, which have been found in fresh-water lakes, kept in place by barriers of pack-ice. That represents perfectly the condition of things when the Ben Nevis glacier dammed the valley of the glen, producing an extensive lake.