AGRICULTURAL.

The Bare Fallow.

To the Editor :

Sir,—In these days of small margins the farmer must economize so far as he can, not in one way but in every way that is reasonable, if he is going to have a margin on the right side which is worthy of the name. This season, owing to the excessively dry weather in some localities, to realize a margin of profit will be impossible under any circumstances. He must not only economize in regard to labour and expenditure generally, but he must also economize in everything that relates to the modes of working his land. The greatest extravagance in which he indulges in this respect at the present time is probably the extent to which the bare fallow still forms part of his system of rotation. He still clings to it in many localities as being indispensable both to the cleanliness of the farm and the successful growing of certain crops. The farmers of Ontario will be loth to believe that they are expending needlessly on the bare fallow annually what would cost them more than $1,000,000 by way of labour of man and team if all this had to be hired at current rates. It is my conviction, however, that such is the case, and that in all probability labour to the value of $2,000,000 annually expended in this way, rather than to the extent of $1,000,000.

It is impossible to ascertain with accuracy the amount of land set aside annually as bare fallow, as no statistics are collected under this head by the Bureau of Industries. The amount of land devoted annually to fall wheat is about 800,000 acres. The estimate is probably a moderate one which would put one-fourth of this acreage as grown upon the bare fallow. We have therefore 200,000 acres as the quantity of land annually cultivated in this way. The further estimate is not an extravagant one, as every farmer knows very well, which puts the cost of labor expended on the bare fallow at $8 per acre. If the assumption is correct that 200,000 acres are summer fallowed annually in this province, the cost of the operation to the farmers is therefore $1,600,000 annually.

My contention is that the larger portion of this expenditure is unnecessary. It is always unwise to be extreme. I do not take the ground that summer fallowing should never be resorted to, but rather that it is seldom necessary where farming is properly carried out, and that the bare fallow pure and simple should at all times be avoided. Where summer fallowing is a necessity some form of crop should invariably be grown upon it for plowing under to enrich the land and to benefit it in other ways.

Summer fallowing may be necessary sometimes in hard clay sections where hoed crops may not be grown with profit. It may so be necessary where land is both foul and poor. In the former instance rye may be sown upon the land the previous August, pastured the same autumn, and ploughed under the latter part of the following May, to the great advantage of the stiff soil, both mechanically and chemically. During the remaining portion of the season the cultivation may be the same as is ordinarily adopted with the bare fallow. In the latter instance rye may be sown in autumn and ploughed under in the end of May following. It may then be sown to buckwheat or rape, which will also be ploughed under when ready. Such land will then be capable of growing a crop. The amount of land requiring such treatment is not very large, especially where farming is carried on at all as it ought to be.

Where hoed crops can be grown, summer fallowing is not a necessity. The ground can be effectually cleaned while growing these crops. When done in this way no labour bill is incurred, as the crop grown almost invariably more than meets the cost of producing it. All forms of hoed crops are not equally well adapted to the cleaning of land. Potatoes are probably the least useful for this purpose. Corn is good, and rape is excellent. To be successful, however, attention should be given to weed destruction later in the season than is generally done.

It is a prevalent idea among farmers that the bare fallow imparts fertility to the land. This idea is probably grounded upon the fact that improved crops are generally grown upon such land. This, however, does not arise from any additional fertility imparted to the land by the bare fallowing process, but rather by the liberation of fertilizing substances already in the land through weathering agencies while the process of cultivation is going on. On the other hand, in wet seasons there is a serious loss of fertility, which to some extent arises from surface washing, but in a far greater degree from the teaching of nitrates out of the soil through the medium of the drainage water. This loss through leaching is almost entirely obviated in the season of vegetation by growing crop upon the land, as has been demonstrated by experiments conducted upon this farm and elsewhere.

I hope, therefore, that our farmers will give their serious attention to the reduction of this form of outlay to the lowest possible limit. Our farms can be kept clean without resorting to the bare fallow pure and simple. Why then should we not govern ourselves accordingly? This farm is being cleaned in three years throughout its whole extent without the bare fallow and without missing a single crop. On the other hand, we often get two crops a year while the cleaning process is going on; and what is being done here can be done elsewhere when the conditions of soil are at all similar.

When the bread-winner of a home is constantly employed, he has no serious difficulty usually in providing abundantly for the wants of his family, but let him have alternations of work and idleness and the supplies soon diminish. So it is with our lands. Let us keep them constantly at work and our returns will be continuous. By so doing it will be better for our lands and better for us, providing we manage them on the improved principles of a progressive agriculture. We cannot afford to let our lands lie idle in this time of small profits, even where the management is in other respects wise and prudent.

Yours etc.,
THOMAS SHAW.
Ont. Agric. Col., Guelph, July 17.

Home Cheese—How Made.

We have never lost a cheese, though some makers predicted such a result because we use whole milk and make soft cheese—so soft it can be spread like butter. We made sixteen last season; sold one, gave one and pieces from others to friends. The press, of oak plank, a home-made affair, bought of the estate of the Dow family, was probably in use at the time Lorenzo Dow, the eccentric preacher, was fulfilling the command "Go ye into all the world," etc. The press, with basket, two hoops and followers, cost 25 cts. Two yards of cheese-cloth (8 cts.) and two thin muslin flour bags, washed and bleached, were used for strainers; the edges of all the strainers were nicely overcast—for hems will leave a mark on the cheese. We had fine choice-grade Jerseys and Guernseys; but in July butter making is not profitable: besides we wanted cheese for home use. The rennet (25 cts.) was procured of our local butcher, cut into pieced about an inch square and put into a quart glass can, was filled with salt water, and, except when open to dip therefrom, kept tightly closed. Each night, as soon as the milk was drawn, it was strained into a tin boiler, a small tablespoonful of the liquid from the rennet-jar added immediately: after standing about forty minutes the curd was cut with a knife into squares about 1 1-2 in. each way; twenty minutes later it was broken up by the hand; then, when the curd had sufficiently settled the whey first as much as possible, afterward the curd was dipped into the cloth strainer fastened over the cheese-basket and left to drain all night.

In the morning the milk was served in a similar way, save that less rennet was used, for the cows gave less milk in the morning When the morning curd had drained sufficiently—usually about 11 o'clock—both the night's and the morning's curd were cut into dice containing about three-fourths of a cubic inch each, the whole immersed in a bath of the morning's whey heated no warmer than freshly drawn milk. After about five minutes the curd was drained through the strainer over the basket, salted to suit the taste, enclosed in a strainer (strainers are used all through the pressing process), put in the hoop, placed in the press with full amount of pressure, where it remained one hour; then it was removed from the press, taken from the hoop, the strainer rinsed or a clean one used, put back into the hoop the other side up from what it was during the first pressure, great care taken to have the strainer smooth over the cheese, and pressure again applied; turn at evening and again in the morning. Prepare a third and fourth curd according to the directions for the first and second, remove the cheese from the press and cut the partly-pressed cheese into small dice and mix it thoroughly with the third and fourth curds. We have now four curds, sufficient to make a complete cheese, and so near alike that when the cheese is cured no one can tell where one curd began or another ended. Now place in the hoop, apply pressure, turn in one hour, at night and in the morning as before, until forty-eight hours have passed.

Remove from the press, grease the cheese all over with sweet-melted butter, place on a square of white cloth on a board a little larger than the cheese. The rubbing with butter must be continued once each day, when the cheese is turned, which care must be continued for about eight weeks, when the cheese will be cured. Flies are attracted by cheese-making, and after a few days should a round hole or crack be noticed when turning the cheese investigate the broken place; if skippers are found dig them out with a knife and fill up the breakage with good cheese mashed between the fingers, then sear the place with a hot iron or cover with note paper, after which use butter till the surface is covered. Eternal vigilance is the price of good cheese. Should a cheese show a tendency to spread (as nice cheese generally does soon after being taken from the press) it should he bandaged, greasing over the bandage each day. Sometimes a cheese will leak after getting it on the board; mark that cheese and use it soon as ripened, for such cheese is apt to mould inside if kept long. Only two cheese can be made a week if but one press is owned—that is, if made as we make cheese. In winter we put the cheese into a barrel, place the barrel in a dry closet where the cheese will not freeze, and by looking at them occasionally and rubbing whenever mould appears, they will keep nicely. As in all other uses to which milk is put, every utensil—press, basket, hoops, follower, dippers and knives, and each cloth—must be kept scrupulously clean to produce best result.

The Apple Crop.

In some sections there will be a very fair crop of apples, and in others a very small one, while on the whole the crop of winter apples will be less than the average this year. Possibly the fall apples will show an average crop. Baldwins appear to have suffered the most and will make a very poor showing this year. Spies will be little better. Of fall apples greenings show up better than any other kind. It looks now, while we may have more apples to export than we had last year, that we will not have an average crop for export. The cause is uncertain. They did not show very large in blossom this year, but this does not appear to be any very certain criterion of the size of the prospective yield. Last year there was the largest show of blossoms we ever had and it was followed by the smallest crop. In the west—Essex and Huron—the prospects of a large crop are particularly good. The export trade in apples is no inconsiderable one as may be seen from the following figures:—

	Barrels.	Value.
1889	378,475	$ 993,163
1888	771,971	1,528,449
1886	402,141	852,890
1884	238,936	602,260

Overfeeding For Fairs.

It must be unfortunately recognized as a fact that show stock must be fat, very fat. But is it not time we got over that sort of nonsense? At the fat-stock shows it is part of the plan that the animal be fat. The theory is that it shall carry all the fat it can, and that then we shall be told how the fat was created and what it cost to make it. The fat-stock show is to show us the comparative value of animals as meat-producers, and the comparative cost of production. But the fair has no such purpose. If it had the fat-stock show would not be needed. A lean animal will give us as good an idea of the breed as a fat one, and a mighty sight better idea. The objection to this stuffing process by which animals are fatted for the fairs is that many animals are greatly injured by it.

When to Cut Grass.

The dairyman needs hay richer and more succulent in quality than the ordinary stock breeders. He needs hay which will sweeten his milk and give a characteristic spring-like flavor to the butter. Everything, nearly, has been tried to make the right article of food for the cows in winter, so they can be induced to give good milk, which will make butter of fine quality. The various mixtures now fed to winter cows are certainly superior to many of the old fashioned rations, but there can be a vast improvement upon the hay if it is cut earlier in the season.

The usual time for cutting hay is so late in the year that nearly all the juicy succulent portions of it have escaped, and cows will avoid it even when it is growing in the fields. They will leave the patches of full-grown hay alone, and search around for some younger growths. Every dairyman knows what a difference the early pastures have upon the milk flow, and how, later in the season, when the grass becomes mature, the milk and butter lose that fine fragrance and superior flavor. All of this argues that grass loses much of its valuable parts for the dairyman after it has reached a certain stage of maturity. We cannot expect hay made from such grass to be any better. The fine quality in the butter which the Spring grass produces cannot be obtained in the Winter from cows fed on over ripe hay.

The cutting and curing of hay earlier in the season will save for the cows a great deal of this mysterious substance which affects the milk so favorably. The haying season for the dairyman should not be the same as that now adopted by general consent by farmers who raise it for the markets or for general stock. There is no special week or month in which the hay should be cut and cured, but each one must determine it for himself. The cows will be the monitors. When they seem to like it the most, then is the grass in the height of its glory. It should be cut then, before it has time to lose this fine, succulent flavor. This necessitates early harvesting, and it also demands a repetition of it. Three cuttings may be obtained from one field in a season, or two cuttings at the least. It is doubtful then if there is any loss sustained in quantity if two or three cuttings are taken from the field.

The dairyman to get the best winter hay then should cut his grass before it has headed or blossomed. No carrots or daisies will then be in it to reduce its quality, and the stalks will be so sweet and tender that they can be readily masticated by the animals. All is nutriment, and nothing stored in the barn will be waste. Such grass should be cured in cocks, and taken under shelter as soon as the dew has dried off it. The hay will be soft and sweet-smelling, and the effect it has upon the milk and butter is truly remarkable. This may not be the best hay for stock of a general nature, but it is certainly the ideal dairyman's Winter fodder.

CAPTURED BY SAVAGES.

A Timley Shot Saves Five Sailors from Torture by Fire.

Capt. Joseph Perry, of the barkentine Hustler, has just arrived home from a long sea voyage. The Hustler was launched in Bath, Me., last November and sailed for Philadelphia light, thence for Seattle with a cargo of iron pipe.

While going round the Horn bad weather was encountered, and the vessel was wrecked on a sunken rock in Nassau Bay, forty miles west of Deceit Island. The crew left in the boats with nothing but what they stood in and rowed to an island ninety miles distant on which there was a missionary station called Ushurvia, with several mabel

English missionaries, and a station for the relief of shipwrecked sailors kept by the Argentine Republic, which also sends its prisoners there.

The captain says that five of the men who started across the country from Sandy Point bound for the missionary station were captured by savages, bound to trees and fires built around them, when one of the men managed to get his hands free and, drawing a revolver, shot one of the Indians, which so frightened the rest of them that they ran away and the men escaped. After having spent twenty-five days in this locality they left for Buenos Ayres, thence they went to Southhampton, England, from there to New York and thence home to Maine.

How Insects Breathe.

If we take any moderately large insect, say a wasp or a hornet, we can see, even with the naked eye, that a series of small, spot-like marks run along the side of the body. These apparent spots, which are eighteen or twenty in number, are in fact the apertures through which air is admitted into the system, and are generally formed in such a manner that no extraneous matter can by any possibility find entrance. Sometimes, says the *Lutheran Observer*, they are furnished with a pair of horny caps, which can be opened and closed at the will of the insect; in other cases they are densely, fringed with stiff, interlacing bristles forming a filter, which allows air, and air alone, to pass; but the apparatus, of whatever character it may be, is so wonderfully perfect in its action that it has been found impossible to injure the body of a dead insect with even so subtle a medium as spirits of wine, although the subject was first immersed in the fluid and then placed beneath the receiver of an air-pump. The apertures in question communicate with two large breathing tubes, which extend through the entire length of the body. From these main tubes are given off innumerable branches, which run in all directions and continually divide and sub-divide, until a wonderfully intricate network is formed, pervading every part of the structure and penetrating even to the antennæ.

The Flight of Bats.

It seems extraordinary to observe a number of bats in the evening flying back and forth through the trees with remarkable rapidity, but without ever coming in contact with the branches or hurting themselves. Spallanzani, the Italian naturalist, placed a bat in a dark enclosure, across which were stretched a number of threads, crossing and recrossing each other. The bat flew rapidly back and forth trying to effect its escape, but avoided the threads with as much ease as if they had not been in its way in the least. Whether this curious power was the result of a sixth and unknown sense was long a puzzle to naturalists. To decide this knotty point Spallanzani resorted to the cruel expedient of blinding a bat, and found that it still flew among the threads without being to all appearances, any more inconvenienced than if it still had its eyesight.

THE NEXT ROYAL MARRIAGE.

Princess Maud of Wales Will Probably Marry Duke Gunther.

The announcement made that Duke Ernst Gunther of Schleswig-Sonderburg-Augustenburg, the only brother of the German Empress, is paying arduous attention to the Princess Maud, the youngest daughter of the Prince of Wales, did not come exactly as a surprise. Over two years ago it was whispered in Berlin that the Princess was to be betrothed to the Duke, who is the head of the ancient princely house whose title he bears. He was born on the 11th of August, 1863, and is thefore 28 years old. His father was the Duke Frederick of Schleswig-Holstein, for whose rights Prussia and Austria declared war against Denmark in 1864, but who was never permitted to reign in the Duchies after they were taken from the Danes. Duke Ernst is a nephew of Prince Christian, the father of the Princess who was married yesterday at Windsor to Prince Aribert of Anhalt-Dessau.

Matters had gone so far two years ago, in fact, that the information was vouchsafed that the handsome mansion belonging to Count Pourtales, situated near the Imperial Palace in Berlin, would propably be chosen as the town residence of the young couple. Duke Ernst, who is a lieutenant in the Emperor's Hussars of the Body Guard stationed at Potsdam, was to be transferred to a cavalry regiment in Berlin after his wedding. It is thought to be not at all unlikely that the present visit of the Emperor and Empress of Germany to England will be followed by the official announcement of the marriage.

Such a marriage would be considered tantamount to the making up of the quarrel that began between the Kaiser and the English Court immediately after the death of Kaiser Frederick. Before that disturbance, both the Duke of Augustenburg and Prince Frederick Leopold of Prussia, the brother of the Duchess of Connaught, were looked upon as husbands for English princesses, but after the quarrel Kaiser Wilhelm showed his antipathy for "English blood," to which it will be remembered, he attributed all his bodily ills and humors, by getting Prince Leopold married off to one of the younger sisters of the Empress, much to the indignation of the English Court at the time. Now that Kaiser and the English royal family are reconciled, the marriage of Augustenburg and Princess Maud is quite in order. And for the English princess the union will be financially not a bad one, for though the Duke is not as rich as Prince Frederick Leopold, who is one of the wealthiest royal personages of Europe, he is said to have from $100,000 to $175,000 a year from the Prussian Government under the treaty that made Schleswig-Holestein a Prussian province and his estates in Silesia produce several thousand dollars a year. He is said to be a good fellow as princes go, and is especially fond of shooting, riding and racing.

SUCCUMBED TO CHLOROFORM.

W. H. Gladstone Died Under the Influence of the Anæsthetic.

The death of W. H. Gladstone, son of the Grand Old Man, was caused by the chloroform that was administered and was not the result of the operation. His mother, Mrs. W. E. Gladstone, is much distressed by the reports that certain newspapers have circulated concerning her son's illness, such as suggesting suicide, although it was well known for two years he had been in bad health. Since the beginning of his illness Mr. W. H. Gladstone had remained almost in the same state, neither gaining nor losing and at last he decided to have an examination of his head. On Thursday last he was put under chloroform, but as it was found to be dangerous to attempt to remove the tumor the operation was abandoned. He, however, never recovered consciousness, but being too weak to withstand the action of the chloroform he died from heart failure.

PURE CHLOROFORM NOT PROCURABLE.

In connection with the above the following paragraph from the Berlin correspondent of the London *Times*, dated the 24, should be read with interest. He says: "M. Raoul Pictet, the celebrated chemist and authority on the diffusion of gases, is at present in Berlin with the object of arranging with the manufacturers of chloroform here for the adoption of his new process. I understand that the negotiations in virtue of which Berlin will obtain the monopoly of his method are still pending, but I have obtained from a trustworthy source the following particulars of M. Pictet's discovery:

"It is a known fact that hitherto absolutely pure chloroform has not been procurable. All tests have shown the presence of certain impurities. But it is also an ascertained fact, proved by statistics, that impure chloroform is extremely dangerous, because of the uncertainty of its effects, and that the majority of cases of deaths under chloroform are traceable to the actions of impurities. Hence it is of the utmost importance that chloroform should be pure, and it has been the constant endeavor of medical men to obtain it in a pure state. M. Pictet has invented a process by which this result is obtained, and absolutely pure chloroform is procured. By this process he is able to reduce the temperature of the chloroform to 130 degrees Celsius below zero. The impurities can be separated at 23 degrees below zero. This surprising achievement is likely to have the most far-reaching results, and to be of the greatest value in the manufacture, not only of chloroform, but of many other products."

M. Pictet, who is about 49 years of age is a well-known savant, his reputation as an original investigator being due chiefly to his demonstrations that nitrogen, hydrogen and oxygen may be made to assume a liquid or a solid form at a very low temperature and under great pressure.

An Innovation.

Temperance Man: "I was glad to observe that at the recent launching your vessel was christened with pure water instead of wine."

Old Salt: "Quite correct. I just said to myself, 'Cap'n Seadog,' said I, 'this thing has got to stop. I ain't goin' to waste any more good liquor on such foolishness. We'll drink the wine and christen her with water.'"

Personal Experience.

Edward Hanlan, Champion Oarsman, says: "For muscular pains in the limbs, I have found St. Jacobs Oil a reliable remedy. Its results are the most beneficial, and I have pleasure in recommending it from personal experience."

With Two Eyes.

A little innocent misunderstanding is sometimes very useful in helping one over a hard place.

"Mabel," said a teacher last week at a London school, "spell kitten."

Mabel: "K-double-i-t-e-n."

"Kitten has two i's then, has it?"

Mabel: "Yes, ma'am, our kitten has."

A Bad Mistake.

Dr. Worl um (wrath)—Where is the blooming chump who put up that last prescription for Mr. Shaker?

Druggist (humility)—The head clerk, sir; he has gone to dinner. I trust there is nothing wrong.

Dr. Workum (more wrath)—Nothing wrong? Well, I guess. Why, the ass put up quinine in those capsules by mistake for sugar of milk and Shaker has got rid of that ague.

Wheels Within Wheels.

McGinnis—Your overcoat is awful dirty.

Gilhooly—Yes, I dropped it into the mud last night when I was coming home from the lodge.

"How did you happen to let go of it?"

"I didn't let go of it. I was inside of it when it fell in the mud."

Good Advice.

Grandfather—Tommy, what did you do with the two nickels I gave you yesterday?

Tommy—I spent one of them on candy, and the other I gave to a poor blind man.

Grandfather—Johnnie, what did you do with the two nickels I gave you?

Johnnie—I have got them yet.

Grandfather—Now let me give you two little boys some good advice. Tommy, you had better keep on the good side of Johnnie, as you'll need his assistance before you die. And Johnnie, you had better have as little to do as possible with Tommy when you grow up, or else he will always be borrowing money from you.