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JOURNAL OF AGRICULTURE

PUBLISHED BY THE DEPARTMENT OF AGRICULTURE FOR THE PROVINCE OF QUEBEC.

Vol. V.

MONTREAL, MAY 1883.

No. 1

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Goëmon-Biphosphaté.

We are desired by the Department of Agriculture of the Province of Quebec to give notice to Farmers and others, that the price of the Goëmon-biphosphaté will be for the future \$15.00 per ton, or \$2.00 a barrel. No quantity less than barrel will be sold. A description of the mode of distribution of this manure has not reached us in time for publication, but it shall appear in our next.

The Executive Council.

Copy of the report, dated 13th March, 1883, of the honourable Executive Council, approved by the Lieutenant Governor, 15th March, 1883.

N° 91.—ON THE APPROBATION OF THE DELIBERATIONS OF THE COUNCIL OF AGRICULTURE.

In a minute, dated the 13th March, 1883, the honourable the Commissioner of Agriculture and Public Works recommends, that in conformity with the act, 32 Vict. ch. 15, sec. 39, the deliberations of the Council of Agriculture of the 31st January and the 1st February, 1883, be approved, with the exception of the resolution of the 31st January, which reads as follows:

"That no Agricultural Society be allowed to offer prizes for any bulls except they be thoroughbred, and unless a pedigree be furnished proving beyond all doubt the pure descent of the animals in question."

Certified copy

(Signed) Jos. DEFOY, Clerk of the Ex. Council.

COUNCIL OF AGRICULTURE OF THE PROVINCE OF QUEBEC.

PRESENT: Messrs Massue, hon. Ouimet, Benoit, Browning, Gauthier, Guilbault, E. Casgrain, Blackwood, Lemyre, Marsan, A. Casgrain, Casavant, DeBlois, Pilote, Louis Beaubien, hon. J. J. Ross, and the ass. commissioner of agriculture.

The minutes of the last meeting were read and approved.

The annual report of the president of the council for the year 1882 was read.

A letter from Mr L. N. Gauvreau, explaining the reasons of his absence from the present meeting, was read.

Mr Benoit, seconded by Mr Browning, moved:

That the president's report be received, and that its consideration be postponed for the present: (carried).

Resolved: that Mr Massue be re-elected president, and Mr Browning vice-president, for the current year.

Resolved: that Mr A. Casgrain, L. Beaubien (president), Massue, Marsan, Benoit, and Browning, form the Executive Committee.

Resolved: that the committee on horticultural societies be as follows: Messrs Browning (president), Lemyre, A. Casgrain, and L. Beaubien.

Resolved: that the hon. G. Ouimet (president), Messrs Browning, Massue, rev. S. Tassé, and those members of the council who form part of the legislature of the province, compose the committee on the reforming of the act of Act of Agriculture.

Resolved: that the committee on schools be as follows: Rev. F. Pilote, Messrs Blackwood, Ouimet, E. Casgrain, Benoit.

The secretary read the reports of the different schools of agriculture for the year ending June 30th 1882.

Resolved: that the secretary be instructed to request the several directors of agricultural schools to send in a detailed statement of the receipts and expenditure connected with the farms at each school during the year ending June 30th 1882.

The secretary was also requested to ask the principal of the St. Francis' school to furnish more information as to certain parts of his report.

Session—2 p. m.

PRESENT: Messrs Massue, Ouimet, Browning, Benoit, Gauthier, Guilbault, Blackwood, E. Casgrain, A. Casgrain, Lemyre, DeBlois, Marsan, Pilote, and the ass. commissioner of agriculture.

A petition from certain farmers of the county of L'Islet was read, asking for leave to form a second agricultural society in that county.

Resolved: that as the county of L'Islet does not come up to the standard laid down by the council as regards its extent, the leave sought by the petition cannot be granted.

A petition from the society of the county of Chambly was read, requesting to be exempted from all competitions this year, that the said society might be enabled to employ all its funds in the purchase of a thoroughbred stallion for the use of the county.

This prayer was granted, on condition that the society prove the purity of race of the proposed stallion by showing to the council a pedigree duly certified by breeder. The council must be completely satisfied on this point before the grant will be paid.

The society of the county of Châteauguay prayed to be exempted this year from holding a competition for the best cultivated farms, that its funds might be employed in paying off a debt of \$600.00, contracted for the erection of exhibition-buildings for the said county.

Resolved: that the council having no right to exempt societies from holding competitions for the best cultivated farms, except under very exceptional circumstances, and not thinking the reasons alleged by the Châteauguay society sufficient, refuses the prayer of the said society.

A petition was read, from the agricultural society of the county of L'Assomption, asking, that as the competition for the best cultivated farms was of no use in that county, permission might be granted to hold an exhibition of cattle &c. and of domestic products, instead of a competition for the best cultivated farms.

Resolved: that the council must insist on the necessity of holding a competition for the best cultivated farms; but if sufficient disposable funds remain, the society is at liberty to hold an exhibition of cattle &c. and of domestic products.

The agricultural society of the county of Shefford requested leave to demand a price for admission to the exhibition of the said county: members of the society and their wives to be admitted free, strangers to pay, men 25 cents; women 15 cents.

This prayer was granted.

The agricultural societies of the united counties of Berthier

Joliette, and Montcalm, requested permission of the council to hold a district competition, this year, of three counties, and prayed the council to grant them the supplementary sum of \$600.00 to aid in the organisation of the competition.

Resolved that while the council admits the importance of these district exhibitions as an excellent means of advancing the interests of agriculture in the province, it regrets that it has no funds at its disposition to encourage these competitions, the necessity for which it at the same time admits.

The programme of the operations of the agricultural society of the county of Dorchester was read, and approved by the council.

The programme of the operations of the agricultural society of the county of Champlain was not approved by the council, except on the special condition that the society conform itself to the rules of the council, by holding a competition for the best cultivated farms, before holding any other competition.

The programme of the agricultural society of the county of Nicolet was read, and the council approved it, except as regards that part which concerns the purchase of animals. The council requiring that sufficient proof of the purity of the breed of the animals be produced, and postponing the payment of the grant to the society until the council be convinced of the purity of the animals proposed to be purchased by the said society.

The programme of the agricultural society of the county of Yamaska for the present year was read.

The council, while approving this programme, orders the money to be expended in the purchase of breeding stock, and that proofs, satisfactory to the council, of the purity of the said stock be produced.

Letters were read from Messrs J. Barr and A. Casavant, placing their farms, cattle, and buildings, at the disposition of the council for the establishment of school-farms.

Mr Benoit, seconded by Mr Lemyre, moved that the council, while it rejoices to see several offers of farms for the creation of agricultural schools, in addition to those already assisted by government,—many more offers of a like sort being shortly expected to be made; the council does not feel it to be its duty, at present, to express any opinion as to the offers in question, but prefers to postpone its decision in this matter, until all proposals of the kind shall have been submitted to the council, which will, then, be in a position to offer its advice on the subject to the government, with a thorough knowledge of the whole question involved. (carried).

Resolved: that the secretary be instructed to prepare a list of the pupils at the different agricultural schools of the province, pointing out the time they have spent at the said schools during the past two years.

Resolved: that the committee for visiting the schools be requested to study the question, if it be not expedient that the pupils of the said schools who are finishing their course be examined by the school-committee before their certificates be granted.

Resolved: that the secretary be instructed to forward to the different agricultural schools an extract from the report of the committee on schools, pointing out the improvements or alterations considered as being the most favourable to the teaching afforded in the schools, as suggested by the said committee.

The report of the visiting school-committee was read.

Resolved: that the report of the visiting school-committee be received and adopted, and that the thanks of the council be given to the committee for the excellent report which it has submitted, and for the valuable suggestions therein contained.

And the council adjourned till 8 p. m.

Session—8 p. m.

PRESENT: Messrs Massue, Blackwood, Marsan, Browning, E. Casgrain, Lemyre, Casavant, Guilbault, DeBlois, Benoit, and the ass. commissioner of agriculture.

After the discussion of the annual address of the president, it was

Resolved: that the president's address be received, and that the thanks of the council be voted to the president for the remarks full of wisdom contained in the address.

Acting upon the suggestion made by the president in his address, Mr Blackwood, seconded by Mr DeBlois, moved:

That the president, the vice-president, and the secretary, form a committee specially charged with the duty of visiting the agricultural colleges at Guelph and Lansing, for the purpose of study-

ing the mode of education pursued there, and reporting thereon to the council. (carried).

Mr Browning, seconded by Mr Benoit, moved that the money-prizes offered by the agricultural societies for the competition for the best cultivated farms will only be awarded to practical farmers, i. e. to those who, working their own farms, have no other occupation, and support themselves by the sale of the products of their farms.

Those farmers who are excluded by this rule may receive, in lieu of money prizes, a diploma or other recompense, when, in the opinion of the judges, they are found to deserve it. (carried).

Mr Browning, seconded by Mr Pilote, moved: that all the agricultural societies be requested to forward to the council, on or before 1st April next, a statement containing the most complete account of the breeding stock bought by them, the description and the age of each animal, the price paid, the name and address of the seller, and if the animal in question still belongs to the society; and if any animal has been sold, the statement should contain the name of the purchaser, the date of the sale, and the price paid. A regular pedigree of each animal, horse or horned stock, must also be sent to the council. (carried).

Mr Browning, seconded by the hon. G. Ouimet, moved: That all the agricultural societies that have not been exempted by the council from holding a competition for the best cultivated farms be informed, that if they do not conform to the regulations of the council as regards these competitions, the amount that they are bound to pay in prizes in the competitions will be deducted from their share of the government grant. (carried).

Mr Browning, seconded by M. Benoit, moved: That no agricultural society be allowed to offer prizes for any bulls except those of pure breed, possessing an authentic pedigree proving indisputably their purity of descent. (carried).

The evening session was wound up by a long and interesting conversation about cheese- and butter-factories. The council adjourned till the next day at 10 a. m.

Thursday, Feb. 1st, session 10 a. m.

PRESENT: Messrs Massue, Benoit, Browning, Blackwood, Casavant, Marsan, Gauthier, A. Casgrain, E. Casgrain, Lemyre, DeBlois, Pilote, Ouimet, and the ass. commissioner of agriculture.

Mr Gauthier considered, that the importance of the different reports submitted to this meeting of the council of agriculture, and the resolutions adopted concerning them, rendered it advisable that the council should order a certain number of copies of the reports and resolutions to be printed, and to be distributed among the members of the legislative assembly. (carried).

Mr Browning, seconded by Mr Benoit, moved: That ploughing matches be held this autumn in each of the districts of Quebec, Three-Rivers, and Montreal, and that a committee, Messrs Casgrain, Benoit, and the proposer, be named, with power to fix the time and place of the said meeting, the amount of the prizes to be offered, and to prepare the rules and regulations which are to govern these competitions. The amount of money to be expended in these meetings not to exceed \$2,000.00. (carried).

Mr Browning, seconded by Mr Blackwood, moved: That the date of the annual meetings of the horticultural societies be fixed for the months of September or October of each year, instead of January, as ordained by the 6th article of the rules, and that the reports and financial statements of these associations be forwarded to the council of agriculture on or before the 1st November of each year, instead of February as prescribed by the 16th article of the rules which govern the horticultural societies. (carried).

The rev. Mr Pilote, seconded by Mr Benoit, moved: that the government be requested to take into consideration the propriety of organising a general competition of the best cultivated farms in every district, and to prepare the ways and means for putting this project into execution. (carried).

Mr Casgrain gave notice, that at the next meeting of the council he would bring forward a motion, seconded by Mr Lemyre: That Canadian bulls be admitted to compete as thoroughbreds at the county and other shows, if, in each case, it shall be proved to the satisfaction of the judges that these breeds are the produce of five generations, without any admixture of foreign blood.

After several members of the council had made remarks on the

MAY 1883.

with a view to throwing some light on a more important subject, so actively mooted as at present. A question which was moved by Mr Casavant, moved:

The hon. Mr. Ouimet, seconded by Mr. Gauthier, requested to investigate that Messrs Gauthier and A. Casavant's bulls which is said to belong to the question, whether the breed of *l'Isle-aux-Coudres*, or to the *Race Canadienne* exists in reality, been informed, and to in that neighbourhood, as the council has reported thereon at the next session. (carried).

Mr Casgrain, at the request of the agriculturists of the society of the county of *l'Islet*, prayed that the society be exempted from holding a competition for the best cultivated farms, in order to expend their funds in the purchase or hire of land whereon to hold annual exhibitions.

Resolved: the council having decided not to grant any exemptions except under very exceptional circumstances, refuse to grant this request, the reasons brought forward not being sufficient.

Resolved: That in conformity with the former decision of the council, no agricultural society shall have the right to demand more than \$200 as entrance-money to the competition for the best cultivated farms in addition to the ordinary subscription required from all members of an agricultural society, and that a copy of the present decision be forwarded to the secretaries of the societies, with a request that they will conform thereto.

And the council adjourned.

GEORGES LECLÈRE,

Secretary of the council of agriculture, P. Q.

Certified true copy.

Annual report of the president of the council of agriculture for the year ending 30th June 1882.

GENTLEMEN,—In presenting to you this annual report, I think some explanations are due to you as to the circumstances which prevented me from offering you a report last year. In the first place, the advanced period of the season at which the first meeting of the council was held, and the duties incumbent on me as a member of the provincial parliament, were the chief reasons why I could not prepare such a report as would give you the satisfaction you deserve at my hands. Today, therefore, I intend to treat of the operations of the council of agriculture, and of the work which has been done by it during the past year. Trusting to your kindness I will make a few suggestions which I believe will be useful, and which I will submit with pleasure for your approbation.

AGRICULTURAL SCHOOLS.

As in former years, the agricultural schools of St. Anne, St. Francis, and L'Assomption, have been attended by pupils, holding scholarships (1) from the council, in the following proportion:

St. Anne's..... 23 pupils, on an average of 6 months.
L'Assomption... 18 pupils, on an average of 9 months.
St. Francis..... 10 pupils.

It should be remarked that at no period of the year has the number of pupils exceeded 10, the maximum number of scholarships granted to each school.

Alone of these, the St. Francis school has given instruction to seventeen supernumerary and paying pupils. Had it possessed accommodation enough, this establishment could have numbered fifty-nine pupils, including those holding scholarships. It is pleasant to see that, at least in this part of the province, people can be found who appreciate too well the value of agricultural education to grudge paying for it.

You will see by the report to be submitted to you, that, for want of sufficient accommodation the school of St. Francis has been under the sad necessity of refusing admittance to thirty-two pupils, who, if admitted would have raised to fifty-nine the number of young men desirous of instruction in that art which contributes in the highest degree to our national wealth. I beg to call your particular attention to that part of the report of the principal of this school where he says: "The corporation of St. Francis' College regrets deeply that it has been obliged to refuse admission to pupils prepared to make the regular monthly pay-

(1) What we call *scholarships* at the English universities, or sometimes *exhibitions*, answer, I believe, to the *bursaries* of the Scotch universities. Another instance of the way in which the Scotch retain French words and phrases. And no wonder, for while England was quarrelling and fighting with France, Scotland kept on the best terms with her: the wiser she! A. R. J. F.

ments, and it expresses its sorrow that it does not feel justified under the present circumstances in going to greater outlay to meet the wants of the moment."

The principal is of opinion that, with a guarantee from government, no difficulty would be found by the corporation of the college in finding sufficient means to make their school an institution which would do honor to the province. In addition, I submit to you an excellent and eloquent report from Mr Ewing, and another from the committee of the council, the members of which have visited the schools, and which will enlighten you, no doubt, on the relative positions which our different schools of agriculture occupy.

Several times have I, in my preceding reports, drawn the attention of the council to the importance of appointing a committee, specially charged with the duty of visiting the schools of agriculture at Guelph and Lansing, for the purposes of studying their management, and the method of education pursued.

The attention of these visits being to modify or improve the system followed in our own schools, if found necessary and practicable, several committees have been named for the purpose; but, I regret to say, for some reason or other, not one of these committees has performed its duty. I consider the study of this question so important, that I once more draw the attention of the council to the point, and I recommend that a committee, composed of three members, be named, with instructions to visit Guelph and Lansing during the present year; and I am convinced, beforehand, that the report of this committee will give us excellent practical ideas, which will be beneficial to our own agricultural schools, and to those who attend them. In this opinion I am happy to be supported by an excellent report of the commission of the province of Ontario, which, if it is not too flattering, leaves me under the impression that the Guelph agricultural college may fairly claim to serve as a model.

VETERINARY COLLEGE OF MONTREAL.

As in my former reports, I am happy to state that, under the skillful direction of principal McEachran, this college continues to retain its well deserved popularity. Pupils flock to it from all sides, even from the United States. Thanks to a system of admission by which the previous examination is made more strict, the pupils are obliged to possess greater attainments than formerly; thus offering a greater guarantee of success in the practice of an art, which exercised as it is on animals, demands no less knowledge than tact.

During the last year, the Montreal Veterinary College has been attended by the following proportion of students:

Province of Quebec.	French-Canadians	14
" "	English	15
" Ontario	"	3
United States	"	12
		44

And this year, from the province of Quebec alone, the French-Canadian element in the college is represented by 16 students holding scholarships, and the English element by 13 students, of whom 9 hold scholarships. This result, gentlemen, must be highly satisfactory to you, and at the same time it must prove to you the wisdom of the idea which presided at the creation of a French course of veterinary surgery at Montreal. You have not forgotten the modest beginning of the course, and the rapid increase in number of the French-Canadian students must be highly satisfactory to you. And be not afraid, Gentlemen; the numerous veterinary surgeons who are leaving, or who, in the future, will leave the College, will have for many a long day a vast field for the exercise of their talent and of their art. For you are not ignorant that in our day there are plenty of bold speculators who are not afraid to invest large sums either in the establishment of *ranches*, or in the exportation of high-priced cattle; opening, thus, a career as honourable as it is profitable to the veterinary surgeon who, having profited by sound instruction, has known how to gain the confidence of these enterprising men.

AGRICULTURAL SOCIETIES.

Eighty one Agricultural Societies have been organised in the province this year, and, with the exception of one or two, specially exempted to that end, they have each held an exhibition of agricultural products and of domestic manufactures. All these exhibi-

bitions have, if the reports forwarded to the council are correct, been crowned with full success. You, doubtless, remember that last year, the council of agriculture, faithful to its mission, and desirous of working as much as possible in the interests of the agricultural societies, and, therefore, in the interests of the country at large, passed a regulation exempting those societies which, instead of holding an exhibition, preferred to employ their disposable funds in the purchase of breeding stock of pure blood. Many of these societies have profited by this exemption, and have bought thoroughbred stallions and bulls, thus confirming the wisdom and the opportuneness of the regulation passed by the council, recommending that, in the county exhibitions, no male animal not thoroughbred should be awarded a prize, which regulation the government, for reasons unnecessary to mention here, refused to sanction.

Nobody knows better than you, Gentlemen, that the usefulness of our societies of agriculture, their greatest interest, their progress, and all that concerns them directly and indirectly, have always been the objects most studied by the council; and it is for this reason that no regulations should be imposed on them except after serious and mature consideration of the actual state of things. Thus, for more than five years, the council, seeing that the time had arrived for making certain innovations in the system, or in the reform of the county exhibitions, suggested, in a special manner, the importance of district competitions. To this end, the council asked for the entire re-modelling of the Act of Agriculture, and suggested the establishment of district competitions, presenting, at the same time, an excellent statement of the regulations for the guidance of these meetings. In spite, Gentlemen, of the repeated recommendations in all the reports which I have had the honour to submit to the council, nothing has been yet done on this subject, in spite of the importance, the necessity, and the opportuneness which every one admits belong to this question. In France, the utility of these competitions is well understood; they are assisted in every possible manner. The government takes great interest in them, and the beneficial effects which have resulted from them make themselves still more forcibly felt, by the direct influence which they exercise on the general cultivation of that country. I wish, then, to draw anew your attention to the necessity of establishing district competitions, convinced, as I am, that it is, perhaps, the only way of awakening and stimulating the apparent apathy of our agricultural population. In making this suggestion I do not deceive myself, and I know well that this measure will not meet with the approbation of every one. But is that a sufficient reason for us to draw back, when an alteration is in question which we know beforehand must be followed by beneficial results? I think not.

Great complaint was formerly made of the regulation established by the council, obliging the agricultural societies to hold a competition for the best cultivated farms. But to-day, the greatest enemies of these competitions are reduced to silence, and are obliged to admit the acuteness (*justesse*) and excellence of this order of the council. The wise regulations which have been laid down for their management are so fair and reasonable, and apply so well to the circumstances, that their execution assures, beforehand, the most complete success to those who practise them, and the best managed, as well as the most profitable form of cultivation.

Still, how much dislike and repugnance have people shown before they would accept this innovation, which seemed at first as if it should not be received without distrust, and as if it were the result of study based rather on theory than on practice.

I do not doubt, Gentlemen, that a more special study of the most pressing wants of our agricultural associations will show you that there are many more improvements demanding to be introduced: time and circumstances will bring them to light. And convinced, as I am, that you will always rise to the demands of your position, I hazard nothing in saying that, as in the past, you will know how, by the wisdom which guides your deliberations, to satisfy any new demands as they arise. Still, I cannot leave this important subject without asking for your kind assistance in obtaining from the government the most unlimited confidence in the decisions of this council, and the complete banishment of all obstacles which are thrown in its way; for, after all, the council does its work gratuitously, and endeavours to the best of its power to develop as much as possible the immense agricultural riches of this province,

CREAMERIES AND CHEESE-FACTORIES.

We have here, Gentlemen, a subject of the highest importance to the material prosperity of our province, a subject which deserves, in every respect, the attention not only of the council, but also, in a more especial manner, the attention of our rulers, more particularly of those of them who are charged with the duty of watching over the development of all our agricultural industries: I desire to say a word or two about our creameries and our cheese-factories.

In this case, as in all others which tend to the improvement of agricultural products, the council of agriculture has devoted itself to the study of the cheese and butter industry of the province; hence, in conjunction with Mr Browning and our secretary, I had the honour, last year, of presenting you with a detailed account of the immense advantages gained by the well managed operations of the creameries and the cheese-factories in the State of New York, and of some of those in Canada. To me it is a source of true satisfaction that enlightened farmers soon appreciated the advantage to be gained by entrusting the manufacture of cheese and butter to the hands of a specialist, rather than to the hands of their wives, who, on account of the care required for the management of their children and of their household, cannot devote the time and attention necessary to secure constant, uniform, and remunerative results from this important industry.

You will, doubtless, learn with pleasure that, in the course of last year, 155 new creameries and factories have been started in the province. The future promises to be still more prolific in these establishments. From a recent calculation, it seems that, at present, 250 cheese-factories, 47 creameries, and 28 butter-and-cheese-factories, are at work in the province of Quebec. You must have observed with satisfaction the foundation of a powerful society, composed of representatives of our principal creameries &c., regularly organised, and holding annual meetings, in which questions belonging especially to this industry are fully discussed. The associations should certainly be encouraged by this council and by the government, being, as they are, calculated to give the greatest vigour to an industry the advantages of which are only beginning to be visible. But in this, as well as in all other things, it is to be hoped that the government will only lend its assistance and support by favouring the production of a superior style of article. In the United States, the production of an inferior article has already nearly paralysed an industry, which, only a short time ago, used to command for its products the very highest prices on the markets of Europe. By making an article of inferior quality, they have compromised the prospects of this industry over the whole country.

As this new industry seems to be about to assume proportions of, at present, incalculable dimensions, I would suggest to the council the urgency of appointing one or more persons specially charged with the duty of visiting all our creameries and factories, and to make a detailed report, pointing out the results obtained, the mode of operation pursued, and the benefits derived from the different systems of management.

I should have a great deal to say on this subject, which is, perhaps, the one which will lead most surely to the improvement of the cattle of the province, and, in consequence, will force us to adopt a more perfect system of cultivation. For the production of milk being regulated by the food given to the cattle, it follows that all labour devoted to the production of the best sorts of food will also have the effect of increasing the production of milk. Now, to produce anything good necessitates a sound and careful system of cultivation, and it is thus that the manufacture of butter and cheese will be a powerful aid in encouraging our farmers to devote themselves more earnestly to the improvement of their farms by a more improved system of management. The necessarily limited scope of this report, however, will not permit me to enter fully into all these considerations, so I will refer those who desire more ample details on the subject to the different reports published this year in the general report of the honourable commissioner of agriculture and public works.

PROVINCIAL EXHIBITIONS.

During the last few years, you have doubtless remarked, the direction and management of our provincial exhibitions have been left in the hands of a special committee called "The Permanent Exhibition Committee."

The creation of this committee has had the effect of depriving the council of agriculture of the chief direction of these exhibi-

bitions, which was specially entrusted to it by the act of agriculture, and has transferred the charge to a committee composed of an equal number of members chosen from the council of agriculture and the council of arts and manufactures. Three successive exhibitions have been held under the new system, and without wishing to decide for or against what has taken place, I think I am interpreting correctly the views of this council when I say, that the results obtained have not fully answered the intentions of the promoters of the new system. For it stands proved by official figures, that the receipts from visitors to the exhibition have never arrived at a satisfactory amount, until the agricultural part of the show has been fully occupied. And this shows more than any other fact, the special interest which our agricultural exhibitions have for our population, composed, as it is, to the amount of at least four-fifths, of cultivators of the soil.

Firm in this conviction, and supported by the experience of 14 years, I desired to study this question in a more special manner, so, accompanied by your secretary, I visited the purely industrial exhibitions of New York and Boston, and arrived at the conclusion that, to make industrial exhibitions profitable, they must be kept open much longer than agricultural ones.

Without undervaluing the services rendered by the permanent exhibition committee, I am, nevertheless, persuaded that its composition leaves much to be desired; and this is proved superabundantly by the absence of unanimity of action (due to a certain want of good understanding), as has been too clearly proved by the resignation of some members, and the inactivity of others, whose practical knowledge is such as to assure the success of any agricultural exhibition.

I am not prepared to suggest, at once, an efficacious remedy for the difficulties I am pointing out. But, with land enough for the present, aye, for ten years to come, with buildings numerous, spacious, and admirably adapted to their destined use, I should with pleasure see this council interesting itself in this important question, and suggesting to the government the opportuneness of replacing the management of our exhibitions in the hands of a syndicate, or of any other association, composed of the persons best fitted to manage the exhibitions in such a fashion as to make them most thoroughly beneficial without their costing the State a halfpenny. The persons constituting the syndicate would, necessarily, undertake, on their own responsibility, the exclusive management and organisation of the exhibitions. The successful experiment in Ontario authorises me to conclude that exhibitions thus conducted would succeed equally in Quebec. This is only the expression of my personal opinion; it is for you, Gentlemen, to discuss the matter, and to suggest any other means which may appear the most likely to forward the end you have in view.

FORESTRY CONGRESS.

By special favour, the city of Montreal enjoyed, this year, the immense advantage of receiving a convention for the advancement of science, composed of specialists learned in all its branches. And among these different branches, that which concerns the cultivation and preservation of forest-trees occupied one of the chief places. The special aim of this science are the replanting of our forests, the judicious use of our forest-wealth, the ornamenting of our rural abodes by the planting of trees and shrubs of all sorts, &c. As president of this council, I had the inestimable advantage of being present at several of the interesting meetings, and of listening to many of the essays read on the subject. I confess, Gentlemen, that it was with great satisfaction that I heard the members of the Forestry Congress confirm fully the action of this council in offering, in the regulations for the government of the competitions for the best cultivated farms, ten points to the farmer who shall have planted a certain number of trees in a given space of time.

Owing, probably, to my position as president of this council, I had the honour to be appointed vice-president of the forestry-association of this province. I did not fail, when the opportunity offered, to cause the action of this council as to the replanting of our forests to be remarked, proving thereby that, as regards progress, the council has been always vigilant where the interests of the farmer are in question; and that if its well meant suggestions were attended to, it would be much less exposed to the charge of apathy which is often brought against it without any reasonable cause. I am thoroughly convinced that, before long, our intelligent population will sufficiently understand its own interests to accept with a good grace the recommendations of this council,

dictated, as they are, only by the interest which we all take in every thing which touches, closely or otherwise, the development of our agricultural resources and our personal prosperity.

CONCLUSION.

Before I finish, I may be allowed to repeat an accusation, often made by people who ignore the long debates and the earnest discussions which have taken place in this council on the question of imposing the observation of a rule admitted by every one to be just and reasonable, but unacceptable to certain persons, influential enough in their neighbourhood, because they have the misfortune to reside in a part of the country where the advanced ideas of the present time have not yet obliterated the lines (*sillon*) of ancient routine. It is often repeated, though no belief is felt in the assertion, that the council of agriculture is a useless body, composed of men who are ignorant of the first steps in agriculture, or who only know what they have read about it in books more or less well informed. It is not my business, Gentlemen, president of this council as I am, to praise my associates, or to demonstrate the wisdom and opportuneness of your decisions, but I may surely be allowed to affirm, what the most intelligent people admit at first sight (*d'emblée*) that the progress which has been made in agriculture in this province is chiefly due to the good guidance of this council.

Every year, persons not connected with the council bestir themselves, and suggest to the government reforms which, according to them, are of a nature to upset the present system entirely; and they do this, often, after simply reading one or two resolutions, without understanding sufficiently the reasons which have guided the council in passing these resolutions. The task of finding fault is easy enough to them, but they are soon brought to a standstill when they are required to point out a remedy for evils more imaginary than real. Well, Gentlemen, I do not hesitate to say, if the council has not done all the good which seems to have been expected from it, the default arises from the opposition of those who would have had all to gain by favouring the trial of the teachings of the council, instead of hindering their execution.

And this opposition frequently comes from those in high places. You have not forgotten, Gentlemen, how earnestly I have insisted in my previous reports on the importance of watching over the improvement of our cattle by means of our agricultural societies. I leaned, in demonstrating this, on the ever increasing importance of our exportation of butcher's cattle, an exportation which to-day has exceeded our most legitimate expectations.

To gain this end, I suggested the most efficacious means, and those recognised by long experience, as the only ones capable of affording certain results. In spite of the almost unanimous convictions of the council, the means suggested—and observe, Gentlemen, that these means were in perfect harmony and in indisputable conformity with animal physiology—were not allowed to receive general acceptance by our agricultural societies, on account of a misunderstanding between the government and the council.

It is not my business, Gentlemen, to ask from government the reasons for their action in this affair; but I may be allowed, I hope, to lay down a general rule that, if the government has nominated us as the natural advisers of the commissioner of agriculture, and as those whose duty it is to suggest to that minister the fittest means for the promotion of the agricultural interests of the province of Quebec; and if, after our deep investigations and our earnest and repeated discussions, our suggestions are not adopted, our mission as the council of agriculture ceases, and there is no longer any reason for its existence. It is with regret that I express my sentiments so frankly on this matter, but, in my opinion, to keep silence would render me the most culpable of men, and I have not, therefore, thought fit to resist the desire I felt to express my convictions in a manner as emphatic as it is sincere.

Lastly, a reproach has been uttered against the council as being composed of persons who do not represent sufficiently the different districts of the province. In this reproach, Gentlemen, there may be some truth. For, as you know, several districts are represented here by two or three members, while others are not represented at all. For my part, I do not hesitate to say that I see no objection in each of the twenty judicial districts of the province having a representative in the council. But I should be still better pleased if that council were composed of a still smaller number of members, the experience of the past having convinced me that small committees always do the most work.

In order to meet this objection, I will propose then, always with your approbation, that an humble address be presented to the government, pointing out the present position of affairs, with a request that a special committee be appointed, charged with the duty of enquiring into the remodelling of the act of agriculture. The mem-

bers to be appointed rather for their recognised abilities than for their political opinions.

To sum up, Gentlemen, I am ready, beforehand, to accept every other reform which you may please to suggest, convinced, as I am, that whatever your decision may be, it will be marked by that wisdom and devotion which have always characterised you since I have had the distinguished honour of knowing you, and of presiding over your deliberations. The whole humbly submitted,

L. H. MASSUE,

President of the Council of Agriculture, P. Q.

Quebec, Jan. 31st 1883.

OUR ENGRAVINGS.

Shorthorn Bull, Duke of Hilldale—43429: out of 7th Duchess of Hillhurst by 22nd Duke of Airdrie. Great grandson of the wonderful cow, 10th Duchess of Airdrie, still alive and breeding at the age of 15 years.

Imported English Shire Stallion, Devonshire; winner of the sweepstakes at the great La Fayette fair in Sept. 1882. It is rare to see so fine a head and neck, coupled with such a thoroughly draught-horse body. Quarters, tremendously powerful.

Incubators.—Voitelliers, Christy's, Eureka.

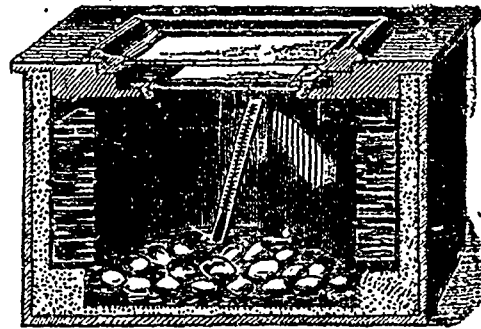
POULTRY BREEDING AND FEEDING.

BY JAMES CHEESMAN, ESQ.,
MONTREAL

In approaching the consideration of this subject I do not profess to offer anything new as to principles, but to restate well-founded truths, and perhaps to propose some fresh application of common rules of farm practice. We shall all agree that enough eggs and chicken flesh is not at present produced. Although I cannot offer elaborate statistics proving the consumption of these articles within the United States, there is very much evidence showing how large is the deficiency of the home supply. I believe that more than one million of dollars worth of eggs were last year imported from Canada alone. The extensive use of chicken flesh and eggs in the country, and more especially in the great cities, has undoubtedly stimulated poultry raising; and the use of incubators has enabled poultry-keepers to largely augment their produce. A reference to the market reports of every large city in any State in the Union at the present moment shows how high the prices obtained for winter eggs are. Take New-York, Boston, and the city of Chicago itself, and we have the lowest price as high as 28c., while the highest is 33c. the average being 31c. per dozen for fresh eggs.

How can we increase the supply of winter eggs? It seems to me that we must copy a leaf out of the book of the Danish Dairyman and secure early chicks, and get them laying at five to six months old. Many of your readers are aware that in Denmark the common practice of the farmers is to calve their cows in the late fall or early winter, just when fresh butter in the English markets will fetch the highest prices. These people get their cows to calve in November, December and January, and begin their feeding on 2 lbs of cake per head at once. They feed liberally and variously, and pay great attention to all the physiological requirements. Their cows are well housed in light, well ventilated, clean, comfortable buildings. The result is, physiological action goes on unimpeded, and the cows are on the best of terms with themselves and their keepers. As Huxley would say of the new beginner in life, as long as they are able to conform to the laws of their mother earth they get on splendidly with her and she makes the most of them—they as the ever obedient, and she as the ever beneficent mother, giving with overflowing generosity where much is already possessed, and withholding increase where there is little or none at all.

Now, how can we apply this example of Danish dairying to the requirement of the American poultry yard? In the first place the poultry man must have an incubator of some sort or other, unless he has secured a race of fowls with an incubating instinct which he can control in the same way as he can command any other animal habit. As we have no such race at present, it is better to use the artificial method and hatch out all the eggs one can as soon after the moulting season as is possible, consistent with the health and vigor of the birds. I believe it would be quite possible to begin in the first week of January and get a first brood by the end of that month. Of course, if incubators are resorted to artificial brooders must be also, but these are necessary in any case, and I strongly advise every man to use them whether he hatches artificially or not. I wish it to be distinctly understood that I am considering poultry on the farm only, because we shall now consider how these little creatures are to be fed on coming out of the shell. Time honored practice recommends egg as the first meal. I think this a waste of money, as very coarse oatmeal, steamed and some warm skim milk, is preferable. This should not be fed in a pasty or damp condition, but just as dry as the hard boiled egg itself, steamed as we should steam potatoes for table. And warmed food of any kind should never be fed at a higher temperature than blood heat. Mild doses of pepper and salt are desirable, and ample supplies of fresh cool water. If grass is not avail-



VOITELLIERS' INCUBATOR.

lable and hay or clover is, then these chopped fine in the hay cutter, say in lengths of one-eighth of an inch, and steamed to soften the fibre and render soluble the nutritive matter. Steamed bone with all its gelatine might also be fed in very small daily allowance, along with some fine sand. I cannot help thinking that the feeding of refuse meat is rather a mistake, unless it can be had for 1½ cents a pound. Cattle feeders and dairymen know something of the value of linseed meal, made under the new process, and cotton-seed meal, either of which might be used liberally during the early stages of chicken growth, but I don't think linseed meal should be fed within five or six weeks of the killing time, nor cotton-seed meal within one month of it. These rare products can be bought, I judge, at varying rates, but never higher than 1½ to 1½ cents a pound. The new process linseed meal contains a low percentage of oil, 1.50, and a very high one of albuminous compound, 38 per cent., the mucilage, sugar and digestible fibre is 39, or a total of nearly 80 per cent. of feeding value. The moisture is seldom more than seven, hence this material cannot be fed dry. Cotton-seed meal has much more oil than can be assimilated, unless fed cautiously. It is a first-rate food in the moulting period and in winter time. I should give chicks a morning meal of granulated corn meal mixed with from 15 to 20 per cent. of new process meal, or 10 to 15 of cotton-seed meal made stiff with boiling water, and after this food should be given every three hours till a fortnight or three weeks old; for the second meal I would give granulated

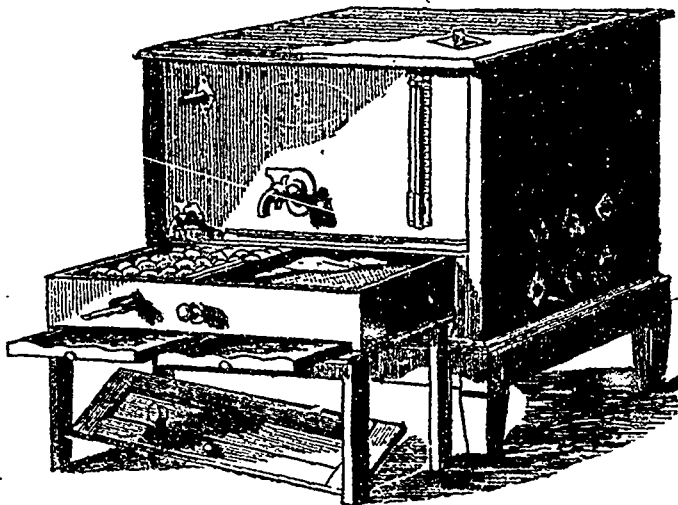
wheat tailings or screenings, and for the third meal granulated rye, for the fourth Kansas millet broken. This might be slightly heated in a steamer. With the second and fifth meals I would add chopped hay steamed, and roots of some kind yielding a fair amount of sugar, say from 4 to 7 per cent. Finely cut ensilage could also be added. The fifth meal might be rye or barley screenings run through the granulator, and the last meal of granulated corn. The finer parts of the meal made in the process of granulation would be used in the warmed mixtures. The fourth meal might be treated with pulped roots, so as to set up a slight ferment to soften the food. Except the addition of sand or finely broken mortar, I would treat chicks in the same way as calves and lambs.

If these chicks are intended for market they will be managed on four meals a day after one month old, and on less as they grow older, till they reach their tenth or twelfth week. During the last three weeks, I think the diet should consist of a morning meal of wheat and corn screenings, ground together and mixed with skim milk and slightly seasoned; at mid-day buckwheat, or Kansas millet, slightly steamed, but fed cold and mixed with pulped roots; and a liberal feeding of hay, clover and ensilage always, cut fine enough

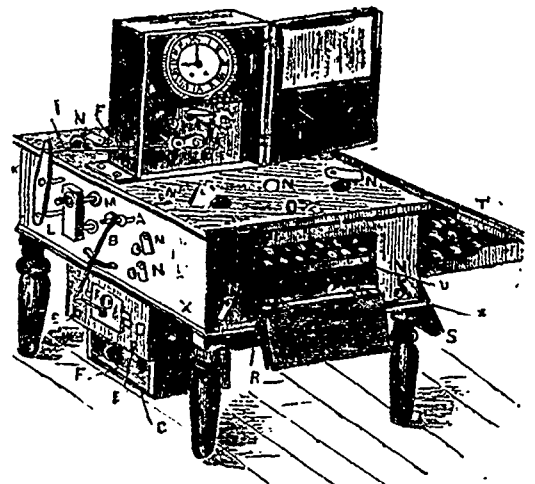
speed and simply flattening the oat, as is done with so-called cracked wheat for the breakfast table. The integument being broken, the birds can take out a much larger amount of nutriment than in swallowing the unbroken husk.

Now, as to what breed will produce the best results: I have no particular breed to recommend but think the choice of one must depend mainly on the circumstances of the poultryman. The best general purpose bird is, no doubt, the Plymouth Rock, of which Americans are so justly proud. Langshans as heavy birds are worth attention, and will command it as the years roll on. If chickens be the main consideration, and plenty of them, and very early maturity, I should recommend a first cross with pure birds, say the Brahma (light) hen and White Dorking cock, or the Houdan. It seems to me that the Langshan hen and the Houdan cock would make a capital cross both for chickens and eggs. Such a cross would give as early maturity, of great weight and fine delicacy of flavor. I do not wish it to be thought that I undervalue other breeds which are useful in many respects, but I suggest these as most likely to fulfill the expectations of those who keep poultry for great profit.

In the matter of buildings and area of land, each man



CHRISTY'S INCUBATOR.



EUREKA INCUBATOR.

to be picked up like grass. The last ten days the birds should be confined in closed quarters, as we confine beves intended for the Christmas market. During the early weeks of chicken growth the trained eyes of the poulterer will enable him to make some selection for the perpetuation of his stock, and for egg production as early as possible. As in every other kind of stock, the principle of natural selection should be rigorously applied, and the best only be allowed to survive. If this practice be rigidly enforced pullets will mature early, and eggs will be possible at five to six months old. Whatever will give early maturity and great weight with a fair quality of chicken meat two to three months old, will be the bird for the egg producer. For eggs I should use both linseed and cotton-seed meals alternately, so as to vary the flavor of the food; then use wheat screenings and corn last thing at night. The corn should be passed through a mill, so as to break each grain into about three to four pieces, rather than feed it whole. In England we call this process "kibbling," a method much used for beans and corn intended for horse feed. In using oats for poultry the best form has always seemed to be the crushed condition. This is accomplished by passing the grain through a pair of rollers running at equal

must be guided largely by the extent of his operations and the kind of trade he is likely to pursue. For those who have limited areas, and this applies to market gardeners, the grass supply should not be less than ten square yards per bird. Unlimited range is not desirable, and my preference is for at least 300 birds per acre of grass; and 400 of the light birds would not be too many. I have heard of an old couple who managed to keep 1,000 on two acres of land, the whole of which was under corn and roots. To keep these properly involved a great amount of labor. Except where land is very valuable, it is not necessary to pack on so many; and I doubt whether it could be done by any one who had not a strong interest in the concern. Where there is at least one acre of grass for 400 head of poultry and ten acres of cereals—two of wheat, two of oats, two of buckwheat, two of barley and two of corn—to this area must be added one for roots; and on this might be grown thirty tons of different kinds of sugar beets, turnips, Swedes, and the golden tankard mangel. This would supply two ounces per head per day for four or five months, and leave a supply for the stables. One acre of mixed clover, under proper management, should yield 5,000 pounds of fodder, which would provide 1½ ounces per head

per day for 20 weeks, if necessary. In providing for so much winter feed the requirements of the North-Western States and Territories have been borne in mind; and I have also tried to keep in view the requirements of the immigrant who begins on a small plot of ground, either hired or bought on credit. Such a poultry farm could be worked with \$2,000 or even less. Taking the land at \$10 per acre, with the stock at \$1 per head, utensils and plant at 20 cents buildings at \$100 per acre and \$600 for a dwelling, reaches a total of \$1,610 to which add horse, wagon, implements, \$300, on a flock of 400 head. The cost of cultivation would be about \$9 to \$10 per acre, at the last figure it would be \$130; depreciation on plant buildings at ten per cent., \$160; interest at 7 per cent. on \$2,000, \$140; attendance at \$1 per day, \$300.

Dr.	Cr.
Expenses, \$730 00.	From sale of eggs at 1c.—
	160 per head on 360
	hens, 57.600; less 2,160
	for incubation.....
	\$554 40.
	Sixty per cent. hatch 1.296
	chicks less 20 per cent.
	loss, 1.036 chicks at ten
	weeks old, 25 cents each,
	\$259, less 200 stock,
	\$50.....
	209 00.
Balance...\$129 40.	Sale of 200 fowls two
	years old at 50c.....
	100 00.
	\$859 40.
	\$859 40.

Most poultry men will think this a moderate estimate. Well, I have taken the lowest figures, and for a small flock a man and his wife could do all the work connected with the place, with perhaps some aid from the domestic help. When considered as a small farm crop, let it be remembered that there is a charge of \$300 for attendance, \$160 for repairs, one half of which will be put into the pocket of the poultry man, about three fourths of the cost of cultivation will be his earnings, and if he has not to pay out the interest charged that also will belong to him. Altogether he earns, without the \$140 interest, \$600, or a clear \$1.50 per head.

A few words as to buildings. In a country where much shelter is necessary in winter, a very liberal use should be made of window glass so as to catch all the heat and light from the sun. Although no rule can be given for everybody, at least 40 or 50 per cent of the south and east side of the houses should be glazed and the walls of the sheds used for dry runs. The plan of building should resemble all the modern dairy-houses, pens being at the sides and a passage down the middle with liberal doors everywhere. For litter nothing better than straw can be used, cut in the chaff machine into two-inch size or shorter.

Those who prefer to conduct a poultry business on the system of *Grande Culture*, either by setting up the chicken factory system or by large farming, may do so, and within fair limits will reap largely. To succeed on the large scale the conductor needs to possess a genius for organization. There are men in this country who keep poultry by the thousands, and do it well. Roughly stating it, any man may reckon on a profit of at least a dollar a head in cases where a thousand or two are kept, and stock feeding of this kind yield far greater returns for the cereals used in feeding. Sixty pounds of grain per head per year will, under fair treatment, give 20 pounds of eggs, taking 24 ounces to the dozen. Eggs have a higher nutritive value than meat, weight for weight, and are more easily digested. Pork requires $5\frac{1}{2}$ pounds of grain to produce 16 ounces of meat; one pound of beef requires 7 to 8 pounds of grain.

The new settler should certainly be encouraged to devote his attention to this crop. Already too much wheat is grown in the United States. Much of our farm labor needs redistribution, so as to bring the wheat crop down to the consumer's requirements, and to check "cornering" by unscrupulous men. The American people want more eggs and chicken flesh. Let the farmers of the West, where corn is cheap, respond with a supply. Iowa, Nebraska and Kansas are fast becoming the corn States of the Union. Like hogs, poultry will follow the corn, and finds its location where grain is cheapest, and be most prosperous where intelligent industry makes the most of natural advantages.—*From the Agricultural Review and Journal, U. S. A.*

Care of Young Chickens.

From the moment the chicks come out of the shell until they are two-thirds grown, they will need constant care. After the hen is ready to come off with her brood, of which she ought not to have more than 10 or 12, the chicks will not want anything for twenty-four hours, when you can give bread crumbs soaked in milk, which is the best thing known for chicks. Feed as often as three or four times a day at first, if you want them to grow fast. After they are a little older, feed cooked meal, with wheat middlings, and as soon as they will eat it, feed cracked corn and rejected wheat; also prepared bone. When they commence to feather out is the critical period; they will want all the strength they can get. It will not do to let them get wet. The best plan is to keep them confined in runs until they are six weeks old. I had from 50 to 100 caught by hawks last year. I mean this year to be prepared for them. I shall have my chicks all in lath runs.

Rats are another nuisance; they will come in droves where there are many chicks. One year I had 65 chicks confined at night in a henhouse, and let them run out in the day-time. These chicks had all been weaned from the hen. After a week or two I counted them, and 30 were missing. I knew that they went in at night, and found that the rats got in through a hole in the underpinning. I stopped this up, and then looked to see where the rats came from. On the back side of my house is an ell, where I kept the feed. The floor was loose, and hens would get under and lay there sometimes. There I found half a dozen big holes, each one of which had not less than a bushel of earth beside it. I fixed some "medicine" and put there, and the rats left. May-hatched chicks do the best with me. I get rid of all my surplus stock before December.

A. F. WILLIAMS.

Profits and Losses of Poultry-Raising.

EDS. COUNTRY GENTLEMAN—Writers on poultry differ about which is the best breed of fowls to keep. One has an "axe to grind"; others are influenced by their likes and dislikes. What wonder, then, that farmers and novices in the poultry business are at a loss to know which breed is best adapted to their wants? Extravagant and often misleading statements about this or that breed, or strain, frequently appear in our poultry and agricultural journals, and by referring to the advertising columns, oftentimes, a reason for these articles may be found. Seldom does a season pass but that I see, hear, or read of the same old story—of eggs failing to hatch, few or not answering description given of them, or not being up to regulation "points" of the breed, and these are all sold at high prices by some not over-scrupulous breeder or dealer. There are honest dealers who take every pains to deal fairly with their customers, and they find their reward in it by the appreciation of their patrons, and a ready sale of surplus stock and eggs at remunerative prices.

Poultry-raising, to be profitable, requires a thorough know-

ledge of, and adaptedness to, the business on the part of the keeper. He should be located within easy distance of some city or good market, near a railroad station if transportation is necessary. He should select such breed or breeds as his taste and other circumstances will warrant. He should provide good, comfortable houses, with runs adapted to the object in keeping, bearing in mind that eggs for producing chickens are very much better where the hens have a free run and plenty of coops (say one to ten) for breeding hens. For market and numbers of eggs, limited confinement without coops is preferable. The two foregoing essentials provided, he should feed his fowls regularly three times a day, varying the food as much as possible at the three feeds. Soft food, hot or cold, as the weather may be, should be given in the morning. This may be meal, bran, vegetables, meal, &c., mixed, wet with water or milk, giving once or twice a week with this food a dose of red pepper. The other two rations may be of whole grains of different kinds, charcoal (and no better charcoal for the purpose can be had than corn on the cob charred by placing in the stove oven till properly cooked) plenty of green grass, clover, rowen hay, cabbages, and turnips; he should also provide plenty of pulverized oyster shells, bones, old slaked lime and gravel, with dusting places for their use.

Lastly, he should keep his fowl house scrupulously clean; whitewash and fumigate as often as is necessary to the purpose. He should never crowd too many fowls into one compartment; not over 30 or 40, better less. He should colonize as much as possible, and avoid in-and-in breeding as far as may be. I believe that the foregoing embrace the essential and fundamental rules for profitable poultry raising, and that he who follows this course will meet with success. Neglect them, and fowl raising will be found "up hill work," and a non-paying business.

W. H. WHITE.

Worcester County, Mass.

HOPS—(Concluded.)

When *picking time* arrives, if you have only one kind of hops in your yard, you will find it difficult to get them all picked in time, unless you begin the very instant they are ready; not before, for the reasons I mentioned last month. In England, each yard is, generally, planted with three sorts, which are so chosen as to ripen successively—here, if you do not arrange beforehand to have plenty of pickers, you will get into trouble, as you will probably restrict yourselves to one kind. The proprietor should have nothing to do with the manual labour of picking; it will take all his time to superintend the pickers, to see that they pick clean, do not put any leaves in the bin, and do not waste their time in chattering to each other; for although we pay so much a bushel for picking in England, here, it will probably have to be done by the day. A penny a bushel used to be the price for a good crop! In this country, as the hands are not accustomed to the work, you may think yourselves fortunate if you get it done for 6 cents. And that reminds me that the poles, here, are much too heavy and clumsy; not so great a trouble, one would think, to choose them with a little care at first. It is not in poling the hills that the annoyance is felt, but in the hurried work of harvesting. *Bins* should be large enough to take a cloth for a woman and two or three children to pick into; the poles, with the bines on, are laid on the bin, and as soon as the hops are off, the bines should be stripped from the poles, as they hold wet and rot the poles. You will soon see how important these apparently trivial matters are in connection with such expensive articles as poles are, even in this well-wooded country. The poles are drawn out of the ground by means of a stout bifurcated tool called, if I remember rightly, a *hop-dog*,

the bines being first out near the ground. A two pronged fork with *very* short, thick spines is about the thing, with a boss behind to assist the leverage.

Drying.—How the hops dried on such kilns as I have seen in the Eastern Townships escape injury I cannot tell. Only six, or at most seven feet, from the fire to the canvas, is often seen, and hardly any draught: the hops are roasted, not dried, in such kilns. Take a good malt-kiln for your model: 11 feet between the fire and the *kiln-head*, i. e. the cloth on which the hops lie; and the height of the *cowl*, 18 to 20 feet above the cloth! Four pipes, say, 3 inches in diameter below, and stand about 3 feet above the hops when the kiln is loaded. This will create additional draught towards the cowl—not a thing to be sneezed at in a foggy morning in September. As to the shape of the kiln, that is utterly immaterial; the distance from fire to kilnhead, the great distance from kilnhead to cowl, the uprightness of the cowl, the draught-pipes (introduced by me into Canada 22 years ago), causing a free circulation of the air from below passing through the hops, constitute the greatest improvement imaginable. In a word, the main object in hop-drying, as in drying malt, is to cause the greatest quantity of heated air to pass through the hops, and drive the moisture out at the cowl, without any excess of heat.

If I remember, Dr Ure, in his volume on Arts, Manufactures, &c., gives a plan of a *Hop-Oast* or kiln—I cannot find a copy of this valuable book of a later date than 1843, or I would have given an engraving as an illustration. However, the Township kilns may be copied as far as they go, only altering the dimensions as to height from fire to kiln and from kiln to cowl. I really earnestly beg your attention to this point as many a good sample of hops is spoiled by its neglect.

Heat of Kiln.—Kilns of the kind I have described will take a bushel of hops to the square foot. The heat should never exceed 120° F., and to regulate it, take a common thermometer and pass it through the hops until the bottom reaches the cloth, with a small bar attached by a piece of string to the semi-circular piece of iron wire which is found on all metal-cased thermometers, to mark its position.

A large stove, burning either wood or coal, will answer every purpose, but I strongly recommend a sheet-iron pent-house over the stove to spread to heat, and to prevent the fire being too fierce at that part of the kiln-head immediately above it. A kiln on the plan I have mentioned should dry off two loadings of hops in the 24 hours; which, supposing the kiln to be 20 feet by 15 feet would give, at 1 bushel per square foot each kiln-load, 600 bushels a day. Don't *over dry*; if a few hops remain *clung*, or sticky, the heat of the others will dry them in the room where they are put when they come off the kiln. If you are doubtful on this matter, throw the whole lot into a round conical heap: the undried hops will roll down the outside of the heap and can easily be removed. Never pack your hops until they are cool: *hops packed hot never drain well from the boiler*, i. e. they retain a much larger amount of the worts; a serious matter to the brewer, as both time and value are lost.

Hops are sufficiently dried when the strig, or stalk, will snap. To dry hops well—a moderate heat at just, say, 90° F., gradually rising in temperature, till at the end, when the kiln is finished, the thermometer on the cloth indicates 120° F.

Hop-packing.—Here, hops are always *trodden* into the bag; a hole is generally made at one end of the cooling-room, with a frame and curb raised about a foot above the level of the floor; a round hoop being first fastened in at the top of the bag, it is let down into the hole, the hoop resting on

the curb, which being less in circumference than the hoop prevents it from slipping down. The bag being thus slung; a man gets in, and being supplied with hops by a boy or girl, treads them down as compactly as possible. When full, the hops are sewn in with stout twine.

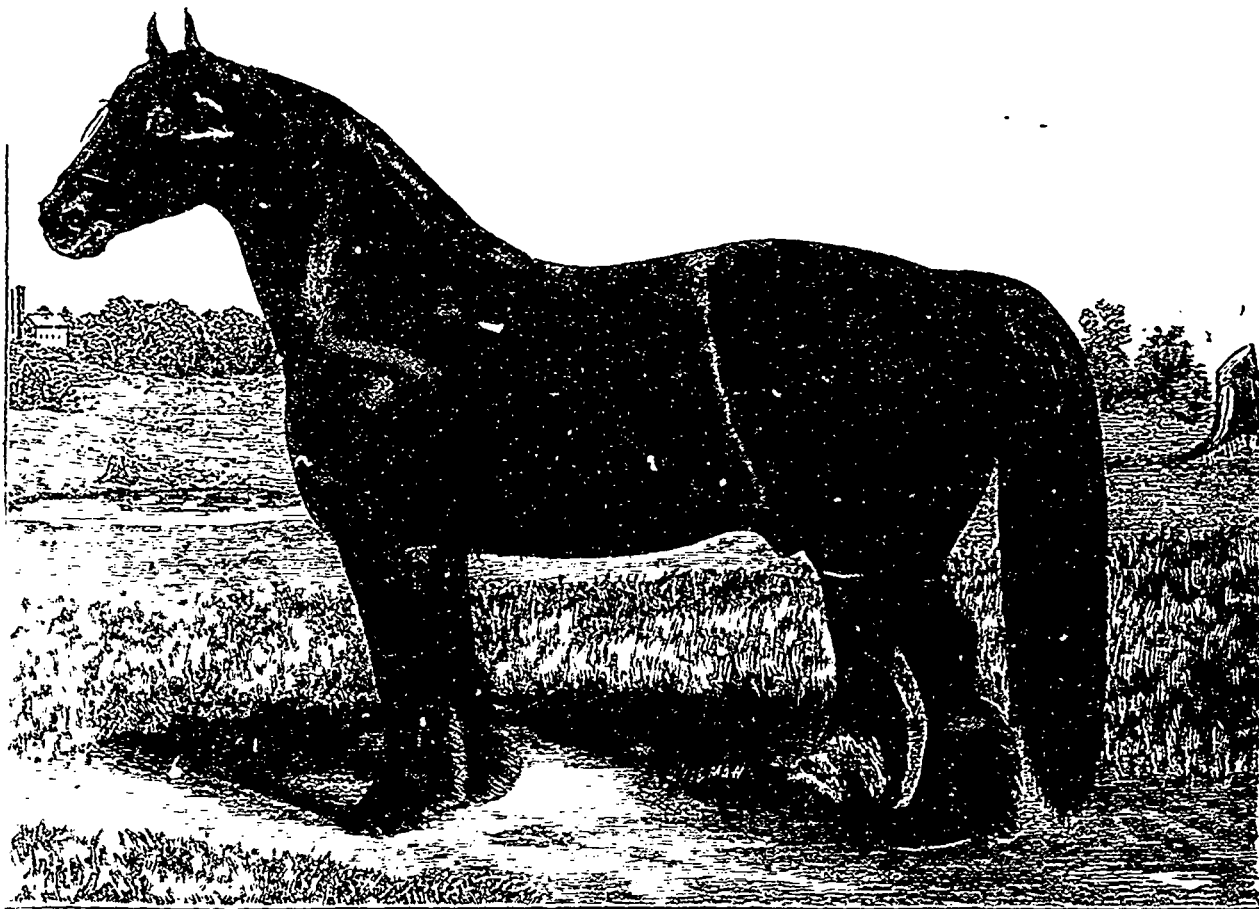
In England the chestnut is considered the best wood for poles. In Kent, in which county four-fifths of all our hops are grown, the seed of the Spanish chestnut is sown on well cultivated light soil, and the crop is very profitable—18 feet poles of this wood are worth \$12.00 per hundred. Larch comes next in value, and white birch and alder last of all. Here, prices will vary as to locality, but Mr Pacaud, an extensive dealer near St. Hyacinthe, told me to-day that large quantities of poles are being sent off to Ontario.

grower. I end with what I started with: Leave hop growing alone; there are plenty of acres in cultivation already.

ARTHUR R. JENNER FUST.

P. S.—My Worcestershire friends would have a right to be very angry with me were I to omit to state that in that county is produced a very mild delicate-flavoured hop—the quantity produced, however, is small. The North-Clays of Nottingham, on the other hand, yield a strong, coarse hop, only fit for such bloodred abomination as the ale they drink in the Potteries. I tasted something like it 24 years ago, before the arrival of Mr Harris in Montreal, when the beer was—eugh!

“The farina, which in the course of drying falls through



ENGLISH SHIRE STALLION.

I hear also that the number of acres devoted to this crop in the States will be doubled this spring. Judging from these facts, and from the analogy of former seasons of scarcity, my impression is, and allow me to say that I have been conversant with the growth and marketing of this crop for many years, that hops the produce of this spring's planting will, in 1886, sell for from 6 cents to 9 cents per pound. In other words I fully expect every planter will repent his rash investment. As several people wished to hear from me on the subject, of course I have told them all I know, and all I can gather from others. *Lance's Hop-farmer* is the only authority; this I cannot find in Canada, and even if it were to be had, no book-work can give any idea of the practice to one who has never seen the plant cultivated by a first rate

the cloth, is a valuable article, and is termed *hop-dust*; it is scarcely less valuable to the brewer than the hops themselves, if care is taken that no particle of fire fall into the kiln-pit to injure it, and that it be frequently removed therefrom. One pound of hop-dust is equal to four pounds of hops. In porter or common beer a small portion might always be used without injury. It is about one-fourth the price of hops." *Levesque on Brewing.*

De omnibus rebus.

I don't see why the Jerseys should have it all their own way. The weight of a prize-ox of the Guernsey breed will astonish some of my readers; see p. 2.

Mr Crozier, of Northport, takes the same view of cooking food for milch-cows that I do. (see p. 178 v. 4). If I wanted milk for sale, I would steam the food and "slop" the cows well, with a plentiful supply of mangels and brewers grains, or distillery wash. If I wanted butter or cheese, I would stick to crushed linseed, pease-meal, corn-meal, and swedes or Belgian carrots, with hay and straw chaffed; taking care that the water for the cows should be of a moderate temperature; in winter about 56° F.

If any one requires artificial manures this season, I can with confidence recommend them to visit the store of Mr Nowell, 90 Common Street, Montreal. The dried blood, kainit (mineral potash), ground bones, and bone-superphosphate, seem to be of good quality, and the prices are fair. I take it for granted, that the analyses are correct.

is a lovely spot on the Whitfield farm, almost equal in fitness to the one at the Montreal College described so graphically by Mr Chapais in our last. It is only in such sheltered, sunny places as these, that vineyards are likely to prove permanently successful in this province. I hear nothing of the Longueuil plantation! I was promised, 2½ years ago, wine at 5 cents per *demi-ard* (half pint), but I hav'nt had it yet.

Pray observe that nothing is said about "escutcheons," in the notice of Mr Abbott's Guernsey importations. It is evident from this, and other signs, that the inhabitants of the island do not believe in the *Guenon* theory, and I am sure the English farmers don't.

In the States, they are playing at giving \$10,000 for a Jersey bull, and \$200 for the service of a cow! Mr Drum-



SHORTHORN BULL, DUKE OF HILLDALE.

The wheat-crop in England will be short-acred this year; but as the weather has been favourable, latterly, for spring-sowing there will most likely be a fair yield of coarse grains. The lambing season has been got through with greater success than was anticipated at first. Cows have calved down very well, and the price of suckling calves is most satisfactory. My brother writes me word that his tenants, in Gloucestershire, are getting £4 (\$20) for their calves at a week or ten days old. They are all grade Shorthorns.

Every body ought to give the new antiseptic, Boro-glyceride, a trial. The cost is insignificant.

I don't hear of many vineyards being planted this year. I hope, however to see one at Rougemont before long. There

mond's Ayrshire cow gave 18½ lbs of butter a week, on grass alone, and he made no fuss about it; in fact, if I had not found it out, nobody would have heard of it; for Mrs Drummond talked of it as a matter of course, when I "interviewed" her, in July 1880.

The farmers of St. Jerome bought a Jersey bull of Mr Stephens, of St. Lambert, last month. Price \$80; not too dear for one of a good family. Mr Reburn, of St. Anne's, has still one or two young bulls for sale.

At Chicago, Polled-Angus bulls sold for as much as \$1,000 each! The Kyloes, from Rougemont, as I anticipated, hung on hand. Awkward neighbours they would be in a railroad car, with their yard-long horns!

Sheep, Sheep, Sheep, are wanted for the English markets! And short-wools, too, they must be, if the exporter hopes for satisfaction. What is the good of keeping on sending rams and old ewes? Their mutton is as dry as a stick, however fat they may be. Eighteen months wethers and maiden ewes, weighing about 72 lbs to 80 lbs the carcass, are what is wanted. Of course, *four year old Down* wethers would fetch any price one liked to ask for them, but they would not pay.

Early lamb has been selling well in Montreal this spring. Two dollars and a half the quarter must leave some profit to some one. What share the farmer gets I don't know, but I suspect the butcher has the best of the bargain. Fair veal at 15 cents, too, is not bad. Pork retails in English country places at a cheaper rate than in this town of Montreal!

I hope those who are fortunate enough to possess any *real Canadian* cows will take care of them. There will be a demand for such next autumn to cross with Jersey Bulls.

Mr Chas. Garth, who has a large farm at St. Thérèse, is starting a creamery there to supply Montreal with butter in pats, winter and summer; but I fear *the Windsor* will take most of it.

ARTHUR R. JENNER FUST.

Guernsey Cattle.

On Monday morning the 22nd inst., Mr E. J. Arnold, of Summerland, Jersey, shipped from our island two of the finest specimens of our Guernsey breed for the Hon. J. C. Abbott, of Montreal, Canada, via Southampton and Liverpool. They comprise the champion prize bull "Presto," n° 14, Pedigree Stock, Royal Guernsey Agricultural Society's Herd Book, purchased of Mr James Martel, Préal, Castel. "Presto" has obtained 1st prize R. G. A. S., 1881, 1st prize, R. G. A. S., 1882, he is a splendid type of our Guernsey breed, his richness of skin denoting butter qualities to a remarkable degree; "Juno," n° 76, R. G. A. S., Herd Book, with heifer calf at side purchased of Messrs C. Smith and Son, Caledonia Nursery; "Juno" is an excellent cow, deep in body with a grand developed udder, now giving twenty quarts of milk daily, and winner of 1st prize, R. G. A. S., in 1877, prize Ozanne, 1878. Mr Arnold offered £130 for "Lady Rose" of the Adams, winner over all the island, the property of Mr Thomas Corbin, but being doubtful of her being in calf, Mr Arnold would not take her. In parting with "Presto" we lose one of our best stock getters.

Pedigree "Presto" (14) by Premier (31) 1st prize, R. G. A. S., June, 1878, 1st prize Douglas, prize R. G. A. S., 1879; Dam Mignonne, (382) 5th prize, R. G. A. S., 1878, 5th prize, 1879; Grand Sire, "Rouvets," (87) 4th prize, R. G. A. S., 1876, by "Blucher" (54) 2nd prize, R. G. A. S., 1872, 3rd prize, 1873, by "Billy," 1st (4) 1st. B. and W. E., Southampton, 1869, 1st prize Douglas, R. G. A. S., in 1870.

"Mignonne," dam of Presto, was by that splendid bull Champion, the property of Mr Charles Le Page, (37) 1st prize, R. G. A. S., 1871, 1st prize, silver medal, Channel Island's Exhibition, Jersey, 1871, 2nd prize. B and W. Wolverhampton, 1871, 1st prize, Douglas, R. G. A. S., 1872, 1st prize, B. and W., Cardiff, 1872.

Pedigree of "Juno" lemon fawn, dropped February 1st, 1873, by Prince of Orange, (41) 2nd prize, R. G. A. S., 1873, 3rd prize, 1874, by Fair Lad* (7) 2nd prize, R. G. A. S., 1870, 1st prize, Douglas, prize, R. G. A. S., 1871, 1st prize, Channel Islands' Exhibition, Jersey, 1871, by Vauquiedor (40) 4th prize, R. G. A. S., 1866, 1st prize,

Douglas, prize, R. G. A. S., 1867, champion prize, R. G. A. S., 1868.

* "Fair Lad," a solid lemon fawn bull, and the sire of the well known strain "Cloth of Gold", the property of the Rev. J. R. Watson.

From the *Guernsey Star*.

Notes from the Island of Guernsey.

TO THE GAZETTE:

I mailed you last week the photograph of the 1st prize ox at our fat cattle show held last December, the size and beauty of this animal being such that I thought it would interest you.

This animal was nine years and eight months old, and had worked on the farm up to six months prior to his death. His length from head to hind-quarters, 9 feet; height, 5 feet 6 inches; width across loins, 2 feet 7 inches; shoulders to loins, 5 feet 6 inches; girth around the loins, 8 feet 6 inches.

Weight alive	lbs 2297
Weight of meat	1455
Weight of suet	222
Weight of hide	126

64 % of meat and hide!

This is a type of our Guernsey breed, which, for butter, milk and hardness of nature, are neither equaled nor surpassed.

Mr P. Fowler, from Southampton, shipped this morning seventeen head and tomorrow will ship twenty-three for Messrs Herkness & Co., of Philadelphia.

T. DE MOULPIED.

Manor Place, Island of Guernsey.

TO THE EDITOR OF THE JOURNAL OF AGRICULTURE.

Sir,—The letter of your Melbourne correspondent in the February number of your interesting Journal, is replete with dissertation, observation, and suggestion, and probably, were the advice therein rendered, taken and applied, the various institutions referred to would have their usefulness still more extended in disseminating sound agricultural knowledge and improvements.

It is evident that the major number of members of agricultural societies are averse to material amendments to the act under which these societies are managed. For instance, the excellent rule binding societies to offer prizes for the best managed farms &c., was not at the outset a popular measure; however time is satisfactorily testing the matter, and it is generally recognised that the common good is subserved by it. In my humble opinion, Mr Editor, another considerable step in the right direction would be taken, should the Council of Agriculture deem it expedient to make it obligatory on societies to offer prizes for thoroughbred cows, heifers, &c. Last year the directors of a certain society would not offer prizes for stock of this description, and urged as the reason, that animals of pure breeds, which could not be entered successfully in competition with stock not-pure-bred, were not deserving of special premiums.

In the course of a debate in the last session of the Quebec Legislature, the honourable Mr Robertson urged the expediency of amending the act relating to agricultural societies so as to introduce the system of district shows. If the spirit of the scheme is, to have one exhibition in each district in lieu of one or more in each county, it is certainly hard to perceive how or in what way the change would be beneficial, or more potent in generalizing agricultural prosperity especially in the more rural districts. Not a few farmers conceive that a system like the following would give agricultural societies increased efficiency in advancing the agricultural

interests of the province: 1st To abandon the cattle show system. The fact is patent to every observant person that very happy results do not follow the giving of premiums for cattle &c., at least the intrinsic good noticeable is not proportionate to the outlay. Nearly \$2,000,000 have been awarded in prizes in the province during the last thirty years. Have the mass of farmers benefited, in any sense of the word, by this expenditure? Unhappily it cannot be denied that the majority have made but little progress. 2nd To imperatively order that societies do annually offer prizes for the best managed farms, as skilful cultivation of the soil is the foundation of success, in every branch of farming. 3rd To expend the balance of the funds in the judicious purchase, from time to time, of well bred bulls, rams, boars, and horses, to be placed in central locations, for the use of members in the improvement of stock. It is beyond all question that the material benefits accomplished by agricultural societies have been mainly induced by their introduction of improved stock into their respective limits. Were the powers that be to amend the law so as to preclude the holding of cattle shows, and to make the importation or introduction of well bred stock, together with the offering of prizes for the best managed farms, of paramount importance, there would certainly then be more palpable cause for the advocacy of district shows, particularly if ways and means could be satisfactorily obtained for them.

PETERKIN.

Leeds Village, April 1883.

Breeds for the Butter Dairy.

In his interesting article on this subject, page 818 of your last volume, FERNWOOD says that Guernsey, Jersey, and Alderney cattle were undoubtedly from the same breed, or the same commingling of breeds. From what I have seen of them, I should judge that those on the Island of Alderney may be so, and possibly the Jerseys to some extent, but perhaps not the Guernseys.

As to the origin of the various breeds of cattle throughout the world, we know nothing positively, and each person speaking on the subject can only make a partial guess as to this. Now, if with a Yankee's privilege I may give a guess, I should say that the ancient Jerseys, so far back as we can trace them, were generally of small size, and a dark or buffalo color, with a drab ring round the mouth and eyes; they may have been derived from some Swiss breed I have seen, which are generally of the same color and marks, although of larger size than these ancient Jerseys. As to their fawn and reddish or yellow color, spotted with more or less white, they probably got this from a stolen cross a long time ago of the Guernsey; and then all the rest of the shades and colors are derived from a commingling of these two. I have seen cattle in France of a pale yellow to a bright red color, patched also with more or less white, resembling the Guernseys in size and general make-up. As the island of Guernsey is close to the coast of France, could not its cattle have been derived from this source? But then what shall we say to the dark spotted and bronze colors occasionally found among the Guernseys? Did they get this from a cross of Swiss, or the ancient Jersey, or where?

I am glad to be informed that breeders now are more generally disposed to cast off all dark color from their Guernsey cattle, and adhere only to the solid yellow, or red, or the patching of pure white with these colors, together with the clear orange nose and rim around each eye. These are beautiful colors and markings, and such as are found on Short-Horns. By care in selection and rearing, the Guernsey breeders in America may greatly improve their animals, and in time give them the fine points, handsome form, and nearly the size of Short-Horns, without injuring the rich quality of their milk

or lessening its capacity to make, as now, the choicest of butter, and the largest possible quantity per annum. To this may be added the merit of being quickly and economically fattened for beef when dried off for the purpose, and this also will prove of a superior quality.

I must confess that Guernsey cattle, even now, are great favorites with me, and if properly improved may in the course of time take precedence over all others wearing horns.—From the Country Gentleman.

Rotation.

By Sir J. B. Lawes, Bart., LL. D., F. R. S.

EDS. COUNTRY GENTLEMAN—In your paper of June 1st I gave the results of a rotation of crops, carried on without any application of manure to the soil for thirty-four years. Since the publication of these results the clover crop, to which I there alluded, has been cut, and we find the produce only amounts to seven cwt. per acre. This, it will be seen, is a very significant fact, when I mention that this year the crops of clover have been unusually large, indeed in another experiment in the same field, more than three tons per acre have been cut.

The following are the conclusions which I should be disposed to draw from the experiment upon a permanently unmanured field of fairly good land: 1. That the cereal crops can obtain food from the soil, and give a fairly good produce for a much longer period than such crops as the roots, beans, and clover which have been grown in rotation with them. 2. That under similar circumstances, the cereal crops have derived no benefit from the growth of the roots, and leguminous crops. 3. That if the two cereal crops of the rotation, wheat and barley, had been grown alternately every year—instead of being grown twice in every four years—a larger produce of grain would have been obtained. This last conclusion is arrived at by comparison of the produce grown in the rotation, with the produce of wheat and barley grown every year without manure, in other experimental fields on the farm.

I now propose to consider an experiment which has been carried on side by side with that to which I have just been alluding, and has received exactly the same treatment, with this one distinction, that once in every four years—when the turnips were sown—the land has received an application of mineral superphosphate of lime.

In the unmanured rotation, I mentioned that—after the first crop—the turnips grown in the seven rotations that succeeded, became mere weeds; there was in fact no crop of any size to remove, or to consume.

In the experiment to which I am now about to allude, and in other rotations where manures are used, it will be necessary to consider separately the case where the roots are fed by stock upon the land, and that where the roots are wholly carried off.

The average produce of Swedish turnips over the eight rotations—including both those fed and those carried off—was a little more than seven tons per acre; the last crop, grown in 1880, being ten tons. The removal of these crops of roots, with their leaves, has reduced the crop of barley six bushels per acre below that grown on the permanently unmanured land; the average produce of one being thirty-four bushels, and of the twenty-eight bushels per acre.

On that part of the experiment where the roots were grown by superphosphate, and fed upon the land by sheep, the barley averaged forty bushels per acre: the removal of the roots was thus equivalent to a loss of twelve bushels in the succeeding crop.

The undoubted influence which superphosphate of lime produces on the growth of the turnip crop, has been so frequently brought forward in the support of the view that these plants

derive their nitrogen from the atmosphere, and not from the soil, that it will be as well to consider how far the above experiments do or do not support this conclusion.

The turnips carried off about forty pounds of nitrogen; while the amount of phosphoric acid which they removed was but a small part of that supplied in the superphosphate; the succeeding barley, therefore, had all the advantage of this phosphate, but still could not make use of it, or even produce a crop as good as that grown on the unmanured land.

The turnips are sown in June, and collect their food all through the summer and autumn, at which period nitrification is most active. As it is the custom to use both the horse and hand hoe several times during the season, fresh surfaces of soil are constantly exposed to the atmosphere, and as long as the plant continues growing it takes up the liberated nitrogen. The result of this accumulation of nitrogen is, that where the turnips are fed upon the land—as they are upon the adjoining experiment—the succeeding barley crop is considerably larger than it is upon the unmanured land.

Assuming that an equal amount of organic matter was nitrified in the unmanured land, and in that supplied with superphosphate, we might expect that the succeeding barley crop would be less on the land supplied with superphosphate where the turnips were carried off—than upon the unmanured land, as the plant would be able to gather up so much more of the nitric acid liberated. We might also expect on the other hand, that the barley following the turnips which were fed, would be a larger crop than that grown upon the unmanured land, and for this reason—that much of the nitric acid would be washed out of the latter, before the barley was sown in March; while the manure from the turnips—which would not be consumed very long before the barley was sown—would suffer very much less from washing.

In the very tropical summer of 1868 the turnip crop completely failed in both experiments; and in the following year, as might have been expected, the barley crop upon the land which received the superphosphate was superior to the unmanured barley.

Here I may mention incidentally what I have more than once pointed out—that the period during which active growth takes place in our root crops corresponds very closely with that of the corn crop in the United States: this fact appears to indicate that phosphates, rather than nitrogen, should play the important part in the artificial manures to be applied to the latter crop.

The consumption of the crop of roots, grown by superphosphates, has produced a crop of barley averaging forty bushels per acre; the use of the phosphate having, in an indirect manner, contributed to the fertility of the soil, not by increasing the stock of nitrogen, but by preventing the loss which would have taken place by the washing out of the nitric acid.

In 1850, three years after the experiment commenced, the crops of clover upon the unmanured land and upon that which received superphosphate were almost equal, but an attempt to grow clover, four years later, having failed, a crop of beans was taken in 1854, and every succeeding rotation up to the year 1870 inclusive: here, also, there was but little difference to be observed in the crops upon the two experiments.

In 1874 clover was again grown in the place of the beans, and three crops of hay were cut during the summer; the unmanured land yielded, 3,584 pounds of hay, and the superphosphate land 6,324 pounds: this shows a difference of more than one and one-third tons obtained by the application of superphosphates.

In 1878—the fourth year following this clover crop—beans

were again taken, when the unmanured crop was slightly better of the two—and in the present year—that is to say eight years after the last clover crop—re-clover was again grown. The two unmanured crops differ very little, one giving 760 pounds, and the other 980 pounds of hay. As regards the clover hay grown upon the land which received the superphosphate, the crop where the turnips were carried away amounts to 3,920 pounds per acre; and on the land where the turnips were fed, to 5,590 pounds per acre: as this, however, is only the first cutting, and it is evident from the present appearance of the two crops that, at the next cutting, the produce on the superphosphate land will be much the larger of the two, it will be advisable to defer giving a general table of the crops obtained in these experiments, until I have brought forward the results of the rotation, where the turnips were manured with a liberal dressing of nitrogen, alkalis, and phosphate.

I may, however, here point out that by the application of a mineral manure—furnishing soluble phosphoric acid, and plaster—every fourth year for a period of thirty-five years, the root crop in a rotation has been largely increased: that the succeeding barley crop has been reduced where the roots were carried away, and increased, where they were fed on the land; that the bean crops have been very slightly increased, and the clover crops have been very largely increased.

The increase of the wheat has been very slight; but it is quite certain that if the large crops of clover, grown by the superphosphate, had been fed on the land, or ploughed down, a similar increase would have taken place in the wheat, to that which occurred where the turnips were fed on the land.

It will be observed that in these four experiments—in two of which the whole produce grown upon the land has been carried away; and in the other two, three crops out of every four have been carried away—no substance containing nitrogen has been applied to the soil. It will, also, be observed that the amount of nitrogen removed in the produce of the unmanured land has been very considerable, and that this amount has been largely increased by the application of the superphosphate.

Hay.

The *National Live Stock Journal* of a late date says there is no other class of feed used upon the farm for stock so little understood in general as to its real value as hay. By this is meant the absence of any understanding and agreement among farmers as to the exact, or anything approaching the exact, difference in value between early and late cut hay. In the minds of those who have made thorough tests there remains no question as to comparative value. But most farmers have been raised to believe that the time to cut grass is when it is ripe—not when its seed is fully ripened and the stalks dry, but when it is fully matured. Taking timothy seed as an example, we admit that the seed in itself is very insignificant in bulk and weight, but nevertheless it contains, when fully matured, a large proportion of all the nutriment which comes through the root. This is the case with oats, wheat, and all plants that bear seed, no matter how small the seed is.

If we were to try the experiment of cutting and making fodder of our oats and wheat while yet in bloom, it would be found that they would make very good winter feed, probably approaching timothy hay in value and perhaps better than late-cut timothy. But as is well known, after maturing their grain, the straw of these plants affords very little nourishment. So it is with the grasses so called, when their seed is fully matured; and those who consider them valuable in proportion to the bulk and weight shown will find they have been deceived. The comparative value of these from the flowering to the

fully ripened state is decreased as the latter is approached. When we are able to demonstrate at just what time in the flowering stage the plant contains the largest amount of nutritive sap, then we know the period for cutting which will insure the most nourishment. Upon the same principle, the shell of the walnut, while in its formative stage, contains nutritious matter, but none at all after the meat is formed. The shell is like the thoroughly ripened timothy stalk, a mere husk, as nutritious as woody fibre.

Among important questions which should be settled, this one of early late-cut grasses stands among the foremost. When the vast value of our hay crop, as compared to other materials for feed, is taken into account, it gives this question very great importance. In the absence of such careful trials as should be made upon every farm, those in charge of experiment stations, established by legal enactment, and sustained

by liberal money appropriations, are altogether inexcusable for not making more thorough tests on the many important practical questions relating to agricultural management, and making the results of those tests public.

SHEEPSKINS, with wool on, can be cured by this process : Take a teaspoonful of alum and two of saltpetre ; pulverize and mix well ; sprinkle the powder well on the flesh side of the skin, and fold the skin with wool out, and hang it in a dry place. In two or three days, or when dry, take it down and scrape with a blunt knife till clean and rub until supple. If to be colored, the wool should be well washed with soap and water, and dyed with any dyestuff used for coloring woollen goods. You can get the aniline dyes of any desired color at the drug store, with directions for using.

From the *Dixie Farmer*.

Shorthorn Bulls for Sale.

- Sir Leonard Scott**, roan, calved 12 March 1882 by Sir Leonard (45613) dam bred by S. Campbell, Scotland, price \$200.
- Baron Campbell**, red with a little white, calved 16 May 1882, by Baron Barringtonia 28502, dam bred by S. Campbell, price \$200.
- Emperor of the French**, red, calved 14 January 1882, got in England, dam an imported first prize cow, price \$100.
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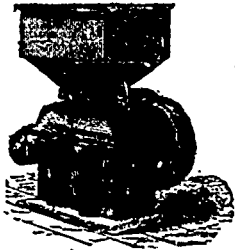
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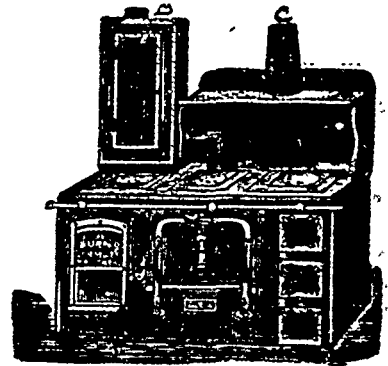
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