BOOK REVIEW.

SOIL CHEMISTRY IN ROMANCE.

The Story of the Soil, by Cyril G. Hopkins, of the University of Illinois, is a very creditable attempt on the part of the author to illustrate the practical application of science in agriculture, and at the same time to introduce his well-known arguments in favor of the use of raw ground rock phosphate, and of the adoption of a new nomenclature in stating chemical analyses of soils and fertilizers. (Prof. Hopkins has endeavored to bring about the universal adoption of the use of the names of the elements: nitrogen, phosphorus, potassium, calcium, etc., instead of ammonia, phosphoric acid, potash and lime, as generally employed at present.)

Evidently with the intention of making the reading matter more palatable, a love story is interwoven with, or rather interpollated between the more matter-of-fact pages. From the beginning of the love episode, the reader is never in doubt as to its final outcome, probably owing to the fact (according to the author) that the whole contents of the book are founded on actual experience in real life, or to the author's desire to hold the reader's attention to the primary object of the book.

Percy Johnstone, the hero of the tale, has been reared on a forty-acre farm in the Illinois corn belt, where, owing to gradually-decreasing yields on the worn-out soil, he and his widowed mother have had to struggle hard for a bare living. Greatly to his mother's surprise and disappointment, Percy announces his intention of taking a course at an agricultural college, and finally wins his mother's approval and carries out his purpose. Being an apt student, he acquires a fund of useful knowledge under efficient teachers, and on leaving college immediately sets himself to the practical application of what he has learned. With the object of purchasing a worn-out farm, which, aided by his newly-acquired knowledge, he might restore to its original fertility, Percy Johnstone visits the South-eastern States, and, armed with an auger for taking soil samples, and a supply of litmus paper to test for acidity, he makes a survey of several farms. His discussions with the farmers regarding their agricultural conditions and his suggestions as to the probable causes of their soil's unproductiveness, and likely remedies, furnish the educative feature of the book. The importance of growing clover as a nitrogen-gatherer and humus supply is emphasized, as well as the necessity of fertilizing and liming, where necessary, to ensure a successful growth of clover. Prof. Hopkins does not forget to make a strong plea for the more-extensive use of raw ground rock phosphate, and deplores the indiscriminate exportation of this material, which he claims is all needed at home.

While a few of Prof. Hopkins' theories are subjects of dispute, much very useful information of a practical nature is given in The Story of the Soil. B. L. E.

TRADE TOPIC.

A POULTRY SHOW AT MONTREAL.—As a culmination to their past season's efforts to produce more and better poultry, Gunn, Langlois & Co. have, during the week preceding Christmas, held a "Fat-stock Poultry Show" in their warerooms in Montreal. Practically all the fatted stock shown at the Ontario Winter Fair, Guelph, and the Maritime Winter Fair, of Amherst, were exhibited, while an equally large exhibit was made in competition for the $100-in-gold award made by this firm, as per their advertisement in "The Farmer's Advocate" and other journals. Keen interest was manifested in the display, which was left on exhibition four days longer than originally intended. The following is a list of the prize-winners: Turkeys—1, Mrs. David Stewart, Renfrew, Ont.; 2, A. E. Armstrong, Bristol, Que.; 3, Miss Annie McCaskill, Barb, Ont.; 4, Miss Mary Kate McCaskill, Barb, Ont. Chickens—1, A. A. Armstrong, Fergus, Ont.; 2, Geo. Dumont, Rodgersville, N. B.; 3, D. McDonald, Glenfinnan, Que.; 4, Taylor Bros., Dewittville, Que. Geese—1, A. A. Armstrong, Fergus, Ont.; 2, Felix Pelletier, Ste. Ann de la Pocatiere, Que.; 3, Jos. Brownlee, Murrells, Que. Ducks—1, Taylor Bros., Dewittville, Que.; 2, D. McDonald, Glenfinnan, P. E. I.

QUESTIONS AND ANSWERS.

1st.—Questions asked by bona-fide subscribers to "The Farmer's Advocate" are answered in this department free.

2nd.—Questions should be clearly stated and plainly written, on one side of the paper only, and must be accompanied by the full name and address of the writer.

3rd.—In Veterinary questions the symptoms especially must be fully and clearly stated, otherwise satisfactory replies cannot be given.

4th.—When a reply by mail is required to urgent veterinary or legal enquiries, $1.00 must be enclosed.

Veterinary.

SCRATCHES.

Mare that is driven 2½ miles twice daily has had scratches in fore pasterns for two months. They heal, and then break out again. She is fed a pint of oats and a quart of bran three times daily, and hay night and morning.

E. D. O'C.

Ans.—Give her a purgative of 8 drams aloes and 2 drams ginger. Give four days rest. Apply hot linseed-meal poultices to the pasterns for two days and two nights, changing the poultices about every eight hours. Then dress the parts three times daily with oxide-of-zinc ointment, to which has been added 20 drops carbolic acid to each ounce. Do not wash. If she gets the parts wet or muddy, rub well until dry, or allow the mud to dry, and then brush off if you have not time to rub. V.

COW FAILS TO CONCEIVE.

A six-year-old cow shows œstrum regularly, and has been bred frequently for two years, but has not conceived. Upon examination, I found the opening through the neck of the womb closed. Considerable force was necessary to introduce part of one finger. Would an operation be advisable? J. R.

Ans.—If the finger was forced completely through the neck into the womb, it would be sufficient opening, but it is probable you got only part-way through. It is necessary to dilate the opening with either the finger, a perfectly smooth, round stick, or other instrument about 1½ inches in diameter, or with a dilator made especially for the purpose. The latter instrument is, of course, the proper one. Breed in about an hour after operating, and if sterility be due to closure of the os, she should conceive. V.

UNTHRIFTY MARE—SCAR.

1. Four-year-old mare has very poor appetite and is very thin. Her teeth do not seem to be at fault. Her coat is sleek, and she has plenty of life, but is very gaunt.

2. When a sucker she got her pastern cut, and as a result there is a thick band of horn-like substance around the limb at the seat of injury.

W. S. McI.

Ans.—1. It is probable she is congenitally a poor feeder. Make sure that her teeth do not need professional attention. Take equal parts sulphate of iron, gentian, ginger and nux vomica; mix, and give her a tablespoonful three times daily. You will probably have to mix with a little water and give as a drench, but she may eat it in damp food.

2. This horny substance can be carefully dissected out by a veterinarian, and the wound may heal without its re-growth. Applications will not remove it. V.

PARTIAL DISLOCATION OF PATELLA.

Colt rising two years has had a soft, puffy swelling below her stifle since last winter. She is not lame, but hitches a little when trotting. R. N.

Ans.—This is due to the stifle bone or patella slipping partially out of joint, and back to place again. She will never be all right, but will probably make a useful animal. Keep her as quiet as possible in a box stall, and blister the front and inside of the joint. Get a blister made of two drams each of biniodide of mercury and cantharides, mixed with two ounces vaseline. Clip the hair off the parts. Tie so that she cannot bite them. Rub well with the blister once daily for two days; on the third day apply sweet oil. Turn loose in stall now, and oil every day until the hair grows again. Blister as above once every month all winter. V.

PREMATURE LACTATION—THRUSH.

1. Pregnant mare eats and looks well. She is fed on clover hay, ground oats, and carrots. She was bred in May last. Yesterday I noticed her mammæ and floor of abdomen swollen, as though she were near foaling. There was wax on her teats, and milk followed. Milk is still escaping from her teats.

2. She has thrush in one foot.

S. S.

Ans.—1. In cases where the fetus dies in the womb, the mammæ generally becomes active, but it is not uncommon for milk to escape without such an accident. We cannot tell why this should be, and we do not like it, as in such cases the foal is usually weak when born. All that you can do is give her a little gentle exercise daily, take good care of her, and feed on dry food, as clover hay, ground oats and dry bran.

2. Clean out the cleft of the frog, and put a few drops of formalin into it every second day until cured. V.

Miscellaneous.

RATION FOR COLT.

Kindly give me a suitable ration to feed a medium heavy spring colt. Have lots of oats, barley and carrots, and good hay. Does it affect a colt's legs in any way if fed too many oats?

A READER.

Ans.—From three to five pounds per day of a mixture made up of four parts oats and one part bran will be found a satisfactory grain ration. Feed a couple of carrots daily, and a liberal portion of clean mixed hay twice a day. Overfeeding with lack of exercise is likely to show its effect in thickened limbs. Give the colt plenty of exercise every day.

VALUE OF ENSILAGE IN SILO.

1. We want to get at the value of 31 feet of silage, in silo 14 feet diameter.

2. Value? J. L. E.

Ans.—1. The weight of silage per cubic yard varies according to depth and other factors. In silos of moderate size, 50 cubic feet of settled silage will weigh a ton. At this rate, you would have 95 tons. But as 31 feet of settled silage would probably be heavier than this, you likely have 110 to 115 or 120 tons of silage.

2. The value varies according to the quality of the corn when put in, care of filling, and other factors. Some value silage at $2 a ton, others at $4, or even higher; it is scarcely possible for us to set a price in this case.

FIRE CLAY.

Kindly insert the ingredients necessary to make first-class fire clay, and in what class the following analysis would be placed:

Silica	57.20
Alumina	20.19
Ferric oxide	8.17
Lime	3.04
Magnesia	.10
Loss and Ignition	7.90

G. G. C.

Ans.—In general composition fire clay is Kaolin or China clay (derived from the weathering of felspar or felsphatic rock), containing a fair proportion of free silica, as quartz, and practically free from alkalies. It is "almost infusible." The analysis of a good fire clay (Ohio) may be quoted as follows:

	Per ct.
Silica	74.93
Alumina	17.19
Oxide of iron	.79
Lime	.29
Magnesia	.46
Alkalies	1.61
Water	5.44
	100.71
Corresponding to clay substance	48.24
Quartz	49.72
Felspar	2.75
	100.71

In the analysis quoted by your correspondent, we think the percentage of silica is too low for first-class fire clay. However, clays differ so widely in their fusibility, without this fact being indicated by their composition, that a practical test by an expert of the sample in question would be necessary to determine its value. Practicing analysts who would undertake this work are to be found in a number of our larger cities.

FRANK T. SHUTT, Chemist.

MATERIAL FOR CONCRETE WALL.

Would you kindly tell me how much it would take of stone, gravel and cement, to build a good wall 110 feet long, 8 feet high and 16 inches wide? I don't know how much cement to use to a bushel of gravel. S. J. T.

Ans.—For wall work, one part, by measure, cement to eight parts good gravel, is about right. If the wall you intend building were made of gravel concrete alone, it would require about 10 or 11 cords of gravel and 40 to 45 barrels of cement. By imbedding in the walls 3 or 4 cords of stone, the quantity of gravel needed would be reduced to about 7 or 8 cords, and the cement in like proportion, to about 30 barrels.

CEMENT STABLE FLOORS.

I intend to put a cement floor in my horse and cow stable. Kindly tell me, through your paper, how many loads (1 cubic yard) of gravel, and how many barrels of cement it would take, and how thick the cement should be laid. The horse stable is 18x20 feet, and the cow stable is 18x45 feet. SUBSCRIBER.

Ans.—It would be well to have the horse-stable floor four inches thick, and the floor of cow stable nearly that thick, except in alleyways, where it might be thinner. Allowing 1 part cement to 8 of gravel for floors, with a half-inch surface of 1 part cement to 3 parts sifted sand, the horse-stable floor would require in the neighborhood of 5 loads of gravel and 6 barrels of cement. For the cow stable, making some reduction for a thinner floor in parts, about twice those amounts would be required.

FERTILIZERS.

1. Would you advise the use of any commercial fertilizers on oats and potatoes and turnips, on clay loam? If so, about what quantities, and what kinds? The land has not been very well worked for a while, and manure is scarce. Gave a good coat of manure last winter. Intend to seed down to clover and timothy next spring. Any suggestions would be thankfully received. R. A. P.

Ans.—We cannot advise positively. You might, under these conditions, use fertilizers with profit one year and observe little or no result the next. The use of fertilizers in Canada has not been attended with uniformly satisfactory results, and we can only suggest that you investigate for yourself the economy of fertilizers on your land. For grain, the following amounts of fertilizers per acre are suggested tentatively for your direction: 75 to 120 lbs. nitrate of soda, 200 to 300 lbs. acid phosphate, 75 to 120 lbs. muriate of potash. For potatoes, we suggest 150 to 200 lbs. nitrate of soda, 300 to 400 lbs. acid phosphate, and 150 to 250 lbs. sulphate of potash.

RAISING EARLY LAMBS.

How should I proceed to raise early lambs to catch the big prices at Easter? Would it be profitable to have them come at this time of year; or if they came later, would they require a very warm place at birth? SUBSCRIBER.

Ans.—It is doubtful whether there would be any advantage in having the lambs come earlier than December or January, when the ewes are in winter quarters. Ewes other than those of the Dorset breed would not be likely to come in season soon enough to produce as early as December unless flushed by extra feeding. The lambs do not require very warm housing. They will stand a good deal of cold without injury after the first few hours. The ewes require to be liberally fed in order to induce a good flow of milk, and the lambs will learn to eat clover hay, oats and bran and pulped or sliced roots when three or four weeks old, and should be fed in a separate compartment with a "creep," through which they can go, but not large enough to admit the ewes. Fresh feed should be supplied the lambs daily, the food left over being given to the ewes.