

retards its ripening, so it keeps green very late, while clover not so treated looks dead."

"Does not the process tangle it so that the plowing under the following spring is difficult?"

"No; because I have learned how. This is a job I attend to myself, and never neglect. I harrow it in lands as it is to be plowed the next spring, and the combing aids the plow."

"What harrow do you prefer?"

"I have tried all of them, and for this work nothing equals the Thomas smoothing harrow."

"Is the roller useful here?"

"I have not found it so," replied Mr. Terry.

"What rules do you follow in raising clover seed?"

"I don't raise it any longer and find that I can buy the best quality of my neighbors."

"Why have you abandoned raising your own clover seed?"

"I find I can get more money from the land in potatoes?"

"What shall we start a rotation of clover, wheat and potatoes with?" asked Charles Haines.

"If the land is poor, sow wheat and put on all the manure you can get, in the fall."—(R. N. Y.) H. S.

Quotations.—A London letter to a Montreal paper stated, on the 6th January, 1893, that Manitoba wheat was worth more in the Mark Lane market than any wheat grown in the United States. And, yet, in the report of the English grain-market, in the same paper, the following quotations appear:

No 1 hard Manitoba wheat	30s a quarter—90 cts a bushel.	London.
No 2 hard Manitoba wheat	28s a quarter—84 cts a bushel.	
California wheat	95 " a "	Liverpool

And, of course, wheat is dearer in London than in Liverpool by the amount of freight between the two towns.

Sulphate of ammonia.—Talking the other day to the Manager of the Montreal gas-works, we asked him what was the present price of sulphate of ammonia. To our astonishment, he replied that there was no price, as the company did not make any; and, on being pressed as to what became of the gas-liquor, he replied: Oh, we condense it, and send it to the States! A nice state of things, indeed! There are, every week, four advertisements in the Country Gentleman of "Canada unleached wood ashes, for sale by the carload," and now it seems the ammoniacal liquor goes to the same country. Thus, our land is deprived of the three main, in fact, sole valuable constituents of chemical manures: the phosphoric acid and the potash are sent abroad in the wood-ashes, and the nitrogen in the gas liquor.

No one of course dreams of blaming the exporters of these goods. Finding no market for them at home, they naturally looked elsewhere, and succeeded in their quest. But it is a sad look out for a country where the stuff that should supply the wants of the land is sent abroad. We are exporting a marvellous quantity of cheese, and so much the better; but how do we intend to replace the stores of nitrogen, phosphoric acid, and potash this product extracts from the soil, if we continue to allow the raw material to be exported as well as the manufactured goods? An end to this must come some day, and we shall hardly be prepared for it. We have always felt surprise, and expressed our surprise in pretty plain terms, at the difference between the price of manurial consti-

tuents here and in England, but we are no longer surprised at anything but the apathy of the farming class that refuses to accept the services of those good gifts that nature and science, combined, lay at its feet.

Weeds and Modes of Destroying them

Bulletin LXXXV. Ontario Agricultural College.

Messrs Shaw and Zavitz, of the Guelph College, have kindly sent us their bulletin on the above subject, containing 31 pp., and very concisely expressed, wherein it differs from many pamphlets forwarded to us for review.

The College-farm, it appears, was "choke full" of weeds when the cleaning operations were begun, and in three years was brought into a clean condition without the loss of one paying crop, and without resorting to a bare fallow. The only outlay for which there was no direct return was for labour spent in hand-pulling and forking which, in the three years, only amounted to \$250.00.

seasons. On freer soils, this would not succeed.

Let no seeds ripen; look sharply after purchased seeds; clean out the travelling threshing machine; *boi* (not burn) the screenings before giving these to the cattle (*good*); grow as many acres of hoed-crops as possible (*bravo*); all these are recommendations worthy of attention.

On the other hand, Messrs Shaw and Zavitz are strongly opposed to the bare fallow, and to the destroying of the seeds of weeds by the fermentation of farmyard manure, assigning as a reason for the latter objection, that it is the cause of "the loss of much nitrogen in the manure." Some nitrogen is doubtless lost, by turning dung; but, if the heap or mison is firmly made, a covering of, say, 6 or 8 inches of earth thrown on the top, and not more than ten days allowed between turning and ploughing in the manure, the loss, practically, is far more than repaid by the gain resulting from the destruction of the weed-seeds. And we must not forget that for all root-crops, well made, i. e., fermented dung, is of

during fermentation, with *but little* loss of valuable constituents. Some of the constituents have also become more soluble." p. 26; ed. 1881.

"The effect of farmyard manure is spread over a considerable number of years, its nitrogen being chiefly present not as ammonia, but in the form of carbonaceous compounds." lb. p. 27.

The instructions for getting rid of couch-grass are very good; only we prefer breaking up the infested soil with a good grubber like "The Coloman" to using the plough, which implement cuts the roots of the enemy into short lengths whereas the grubber tears them up without cutting, and thereby renders them more easy of collection by the drag-harrow and the horse-rake.

"The following mode of dealing with couch will be found successful, unless in seasons that are unduly moist:

"Plough lightly after harvest, then harrow with the ordinary harrow, and if necessary use the spring tooth cultivator to shake the roots of the grass free from the soil. Then, draw them into light winrows with the horse-rake, and when dry enough burn them. If the weather should not be dry enough for this, the rootstocks can be carted into the compost heap. Repeat the process a second time, and even a third time the same autumn, if the weather will admit of it, ploughing more deeply every time to bring up fresh rootstocks. But in any case do not continue the work in wet weather, else the labor will be lost. When the late autumn arrives, rib the land by turning two furrows together from opposite directions, or plow so that the largest possible amount of surface will be exposed to the action of the frost in winter. The frost has the effect, first, of killing the roots of the exposed portions, and second, of freeing them from the adherent soil. In the spring, use the harrow and cultivator occasionally in time of dry weather, and in case of need also the horse-rake, until it is time to plant corn, roots or rape. Cultivate this hoed crop properly, giving it what hand work may be necessary along the line of the rows, and by the autumn the couch-grass should be all gone, unless the season has been a wet one."

Ribbing, or *raftering*, as it is sometimes called, is not a practice we care to recommend. We tried it, many years ago, in a heavy soil in Kent, Eng., and the land broke up in spring in a very different condition to the remainder of the field, which, in accordance with our old Kentish rule, had been ploughed ten inches deep with a turn-wrest plough drawn by four horses. But, here, in Canada, the sun in August and September is so powerful, that if the autumn-cleaning of the stubbles is begun early enough, the whole of the couch can be eradicated and burnt or carted off before the autumnal rains set in, and then, the fore-winter furrow can be given at its usual depth and there will be no need of "spring-cleaning," again of time invaluable in our short seasons.

Symmers' Patent.

HAY AND GRAIN CAPS.

Many recommendations of these caps have reached us. One of the most sensible remarks we find in the opinions of the press of the U. S. on the subject is that "More hay is injured by bleaching and sun-burning than by rotting. Wherefore, in England, we keep our hay on the move from the moment the dew is off till it begins to fall again in the evening, and put it



COUCH GRASS (*Triticum repens*).

The conclusion derived from the operations is that a hundred acre farm, when once cleaned, may be kept clean, if the general system of cultivation is good, for no larger expenditure in forking and hand pulling than \$250.00 a year.

Agencies in weed-distribution.—Wind, birds, floods that carry down seeds, and especially the neglect of cleaning the threshing machine that brings them from our neighbours' farms, on which we have often animadverted, in this periodical; dung from the city and purchased fodder; manure made on the farm itself (*and not turned over*), and neglected corners of the fields and banks of ditches where the weeds are not kept mown down; all these are causes of foulness of land.

Some crops sow the weeds which infect them to ripen: *pigeon-weed* and *wild-flax* ripen their seeds early, as in fall-wheat and hay crops. In such cases, the authors recommend the omission of these crops for a time from the rotation.

The Canada thistle can be destroyed in clay-soils with a stiff subsoil, by turning the land into pasture, and mowing them twice a year at certain

great importance, as it pushes the young plant forward when its delicate rootlets would have great difficulty in feeding on raw, unfermented dung. Solubility in this case is a very great factor in successful work, particularly when the fly is troublesome.

That we are not alone in this opinion as to the superior value of fermented dung, the following quotation from "The Chemistry of the Farm" by R. Warrington, Fellow of the Chemical Society, one of the "Hand-books of the Farm," edited by late J. Chalmers Morton, Editor of the English Agricultural Gazette, and one of the best practical farmers we ever met. (1)

"Farmyard manure rapidly undergoes fermentation. If placed in a heap, the mass gets sensibly hot, and a large quantity of carbonic acid is given off (*no loss in that*). When the fermentation occurs in a place protected from rain, carbonaceous matter is destroyed (*no loss again*), but little loss of nitrogen takes place. Rotten manure, when well made, is more concentrated than fresh, having diminished in weight

(1) Mr Morton was brought up, on Lord Ducie's Example-farm, at Whitfield, Gloucestershire, where we saw a good deal of him in 1848, '49. Eo.