

spot was originally; and also why plants of a different species are frequently found to flourish remarkably well in the situation where this apparent deterioration has taken place. The truth of this sagacious conjecture has been established in a very satisfactory manner by the recent experiments of M. Macaire. The roots of the *Chondrilla muralis* were carefully cleaned, and immersed in filtered rain water: the water was changed every two days, and the plant continued to flourish, and put forth its blossoms: at the end of eight days the water had acquired a yellow tinge, and indicated, both by the smell and taste, the presence of a bitter narcotic substance, analogous to that of opium; a result which was further confirmed by the application of chemical tests, and by the reddish brown residuum obtained from the water by evaporation. M. Macaire ascertained that neither the roots nor the stems of the same plants, when completely detached, and immersed in water, could produce this effect, which he therefore naturally concludes is the result of an exudation from the roots, continually going on while the plant is in a state of healthy vegetation. By comparative experiments on the quantity of matter thus excreted by the roots of the French bean (*Phaseolus vulgaris*) during the night and the day, he found it to be much more considerable at night; an effect which it is natural to ascribe to the interruption in the action of leaves when they are deprived of light, and when the corresponding absorption by the roots is also suspended. This was confirmed by the result of some experiments he made on the same plants by placing them, during day time, in the dark; under which circumstances, the excretion from the roots was found to be immediately much augmented: but, even when much exposed to the light, there is always some exudation, though in small quantity, going on from the roots.

That plants are able to free themselves, by means of this excretory process, from noxious materials, which they may happen to have imbibed through the roots, was also proved by another set of experiments on the *Mercurialis annua*, the *Senecio vulgaris*, and *Brassica campestris*, or common cabbage. The roots of each specimen, after being thoroughly washed and cleaned, were separated into two bunches, one of which was put into a diluted solution of acetate of lead, and the other into pure water contained in a separate vessel. After some days, during which the plants continued to vegetate tolerably well, the water in the latter vessel being examined, was found to contain a very perceptible quantity of the acetate of lead. The experiment was varied by first allowing the plant to remain with its roots immersed in a similar solution, and then removing it, (after careful washing, in order to free the roots from any portion of the salt that might have adhered to their surface,) into a vessel with rain water; after two days, distinct traces of the acetate of lead were afforded by the water. Similar experiments were made with lime-water and with a solution of common salt, instead of the acetate of lead, and were attended with equal success. De Candolle has ascertained, that certain maritime plants which yield soda, and which flourish in situations very distant from the sea coast, provided they occasionally receive breezes from the sea, communicate a saline impregnation to the soil in their immediate vicinity, derived from the salt which they doubtless had imbibed by the leaves.

Although the materials which are thus excreted by the roots, are noxious to the plant which rejects them, and would consequently be injurious to other individuals of the same species, it does not therefore follow that they are incapable of supplying nourishment to other kinds of plants: thus it has been observed that the *Salicaria* flourishes particularly in the vi-

cinity of the willow; and the same may be said of broom-rake, in that of hemlock. It has also been established experimentally by M. Macaire, who found that the water in which certain plants had been kept was noxious to other specimens of the same species, while on the other hand it produced a more luxuriant vegetation in plants of a different kind.

This fact is of great importance in the theory of agriculture, since it perfectly explains the advantage derived from a continuous rotation of different crops in the same field in increasing the productiveness of the soil. It also gives a satisfactory explanation of the curious phenomenon of *fairy rings*, as they are called; that is, of circles of dark green grass, occurring in old pastures: these Dr. Wollaston has traced to the growth of successive generations of certain fungi, or mushrooms, spreading from a certain point. The soil which has once contributed to the support of these fungi, becomes exhausted or deteriorated with respect to the future crops of the same species, and the plants, therefore, cease to be produced on those spots; the second year's crop consequently appears in the space of a small ring, surrounding the original centre of vegetation; and in every succeeding year, the deficiency of nutriment on one side necessarily causes the new roots to extend themselves solely in the opposite direction, and occasions the circle of fungi continually to proceed by annual enlargement from the centre outwards. An appearance of luxuriance of the grass follows as a natural consequence; for the soil of an interior circle will always be enriched and fertilized with respect to the culture of grass, by the decayed roots of fungi of the preceding years' growth. It often happens, indeed, during the growth of those fungi, that they so completely absorb all nutriment from the soil beneath, that the herbage is for a time totally destroyed, giving rise to the appearance of a ring bare of grass, surrounding the dark ring; but after the fungi have ceased to appear, the soil where they had grown becomes darker, and the grass soon vegetates again with peculiar vigor. When two adjacent circles meet, and interfere with each other's progress, they not only do not cross each other, but both circles are invariably obliterated between the points of contact; for the exhaustion occasioned by each obstructs the progress of the other, and both are starved. It would appear that different species of fungi require the same kind of nutriment; for, in cases of the interference of a circle of mushrooms with another of puff-balls, still the circles do not intersect one another; the exhaustion produced by the one being equally detrimental to the growth of the other, as if it had been occasioned by the previous vegetation of its own species.

ALBION MINES RAIL ROAD.

TENDERS will be received by Joseph Smith, Esq until Tuesday 31st October next, for furnishing 5000 Sleepers for the Rail Road. The above are to be of good sound Hemlock, and of the following dimensions, to wit:

8 feet long, 14 inches on the Bed, and 8 inches deep, sawn on the under side, and either sawn or hewn on the upper side. The first thousand to be delivered on the 1st day of May 1838, at the Rail Road, and one thousand on the first of every succeeding month until the whole is completed.

Further particulars may be known by applying to Mr Smith at the Mines, or to Mr Peter Crierar at the Rail Road.

Sept. 12th, 1837.

PRIME new OATMEAL for sale by the Subscriber, J. DAWSON.

20 SIDES NEATS' LEATHER for sale by the Subscriber, low for cash.

JAS. DAWSON.

Sept. 13, 1837.

LIST OF LETTERS

Remaning in the Pictou Post Office, October 26th, 1837.

Anderson Dr. Sen'r.	McKay Charles R H
Anderson Peter L H	" James F G
Asbet Thomas	" Neil N I
Brown Thomas	" John
" Elizabeth	" James M D H
" Deidmiah	" Jane S C
" Mary	McKenzie Mary Ann
" Alexander W R	" A. M T
Bryden William R H	" Hector Cariboo
" Edward C H	" Murdoch "
Bunce William	" " F M B
Brown John	" Kenneth M R
Bell Robert L H	McLennan Alex'r F M B
Berry Joseph W R	Legan Hugh
Burden James	" William R H
Railie Francis	Lewis Mary Cariboo
Campbell John L H	McLean Simon C I
" Alex'r. H W H	" Mary 2
" William S H	McLeod Donald R H
" John R H	" Ann L I
" Donald W R	" Wm. Cambook
" Angus S H	" Roderick W R
" Donald	" John M T
Cameron Donald W R	" Alexander M R
" Peter H W H	Mahoney John
" Even W R	Miller James R H
" S H	Marshall James
Carmichael David F G 3	" Robert W R
" Francis F G	Munro Murdoch 6 M B
Crocket Joseph M R 2	" Donald S M B
Crothers Joseph	Murray Angus R H
Cahil John	" David W R 2
Clarke William W R	" " F G
Cabe Alexander, G H	" Angus M T
Cool Duncan	" Robert W R
Chisholm Swincey	Morrison Hugh
Chisholm Mrs.	Malcolm Elizabeth W R
McDonald John W B	Olson Isabella
" Alexander M D	Oliver Robert M R 2
" Angus W R	Rose John W R J
" John Cariboo	Rea Henry
" Robert R H	Robison John W R
" Allen H W H	Reid James
David Jarvis T R	" Alexander L H
Dunbar Roderick L H	Richard Joseph W R
Demon George S H	Ross Alexander F R
McEwen James G H	" Murdoch M R 2
Grey Evander N L 2	" George M R 2
Graham Will'm Cariboo	" Robert M R
" John W R	" Catherine M T
Golloher Lawrence	Sutherland Robert M H
Grant Roderick M R	" Will'm 6 M B
McGregor Malcolm C H	" Andrew
Gunn Alexander	" David
" Marcus M T	" Hugh W R
" Isabella	" James
" Donald Barradale	" Alex'r. L B 2
" Robert	" Hugh R H
" Margaret "	" David S H
Hawston Jane	" William
Henderson Doctor W R	" " W R
McIntosh Donald	Smith John
" Alex'r. M H	" Mary M R
" William W R	" Alexander C J
" Mary	Short Robert W R 2
McIntyre Peter	Stewart Murdoch M R
Innes James	Simpson William 4 M B
Jolly William	Wallace Andrew
Johnstone Duncan C J	Watson Catherine
McKeel Nathaniel	Warrick John W R

ALEX. McPHEAIL,

BEGS respectfully to intimate to the inhabitants of Pictou, that he has

OPENED SHOP,

next door to Mr. James Dawson's Book-store,

Where he offers for sale, an assortment of

GOODS,

Suitable for the season.

Pictou, June 21, 1837.