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Death of Mr. James P. Phin.

Many readers of the FARMER'S ADVOCATE will learn with regret of the death, on January 24th, of Mr. James P. Phin, of Hespeler, Ontario, widely known as a prominent and successful importer and breeder of Shropshire sheep. Mr. Phin was born in 1841, on the farm known as "Kennaquhair." He was educated at the public school and the Rockwood Academy, and was for several years a successful teacher, being for three years principal of one of the schools in Waterloo County. On his marriage at the age of twenty-one, he bought the fine farm formerly owned by Mr. John Warner. On this he erected the elegant residence and modern outbuildings now known as "The Grange," making the place one of the most complete farm homesteads in Ontario. He gave the farm his personal supervision, farming it well on scientific principles until a year ago, when his son, George, assumed the management. Mr. Phin was closely identified with the stock-raising industry of the country, having been for many years a breeder of Shorthorn cattle and a successful exhibitor at local and central exhibitions. For eighteen years he was a celebrated sheep-breeder. Importing and breeding pedigree animals, he made his Shropshire flock widely known. He took a lively interest in horticulture, and his large and well-kept apple orchard was admired by all who saw it. He was vice-president of the North Dumfries and South Waterloo Farmers' Mutual Insurance Company, a director and manager of the Guelph and Ontario Investment Savings Co., a Justice of the Peace for Hespeler for 30 years, and at intervals county councillor. He was twice married, nine children being the fruit of the first union, seven of whom are living, and of the second family of seven children, six, with his widow, survive him. He was an honorable, upright and intelligent man, a good citizen in every relation, highly esteemed and respected wherever known, and his career as a farmer and stock-breeder was eminently successful and profitable.

The Conservation of Soil Moisture by Tillage.

THE RESULTS OF EXPERIMENTS MADE DURING THE PAST SEASON IN MANITOBA AND THE NORTHWEST TERRITORIES BY FRANK T. SHUTT, M.A., CHEMIST DOMINION EXPERIMENTAL FARMS.

Every province, every district, looked at agriculturally, has its own peculiar problem to solve. Thus, the methods of culture, the character and order of rotation best suited in one part of the Dominion, may not, and frequently are not, those desirable or necessary for another portion. The principles underlying intelligent or skillful farming are the same the world over, but their application must vary according to the nature of the climate (rainfall, maximum temperature, frost, etc.) and of the soil of the locality, as well as certain other factors of which we need not speak.

Over large areas in Manitoba and the Northwest Territories, nature has furnished the farmer with a soil exceedingly rich in plant food—so rich, indeed, that it has been termed a mine—a soil from which for many years drafts may be made by crop succeeding crop without appreciably diminishing its fertility. The use of commercial fertilizers for these soils is practically unknown, and probably will remain so for a very long time to come. But we are all aware that, important as soil fertility is, there are other factors necessary if a maximum yield of the best grain is to be obtained. For such, weather conditions must be favorable. Thus, for example, there must be a sufficiency of moisture to draw upon when the needs of the plant for water are great; that is, during the period when leaf and stem are forming and there is a laying up of material which is to find its way into the seed as the grain matures.

What practical farmer does not know the value of a moist seed-bed for the germination of wheat, and an ample rainfall during May and June? This



THE LATE MR. JAMES P. PHIN.

is the better realized when we learn that an acre of wheat requires more than 300 tons of water to bring it to perfection, and that the greater part of this water is necessary during the earlier stages of the plant's growth. The important question for the farmers of the Northwest is, therefore, are there any practical and feasible methods by which he can control soil moisture (for the control of the rainfall is beyond his power)? Can he store up moisture against a season of drought? Can he so affect the tilth of his soil as to make it more retentive of the moisture for the use of the crop? We answer, unhesitatingly, yes. Science and practical experience have alike demonstrated that this can be done by summer-fallowing and by preserving, through cultivation, a dry earth mulch which will prevent excessive surface evaporation.

To furnish the farmers of the Northwest with data that might serve to illustrate this fact, we instituted last year a series of experiments upon soils in fallow and in crop at the Experimental Farms at Brandon, Man., and Indian Head, N.-W. T. The plan of work may be outlined as follows: Two areas on each farm, having, as far as possible, soil of a similar character, were selected. Area or plot "A" was in fallow in 1900 and in crop in 1899; plot "B" was in crop in 1900 and in fallow in 1899. The samples were taken, in specially-made canisters, at two depths: 1 to 8 inches and 8 to 16 inches. The first monthly collection was made in May, the last in November. Immediately on arrival of the canisters at the laboratory, the percentage of moisture in the soils was carefully determined. From the data so obtained and the weight of soil, the amounts of water in tons and pounds per acre were calculated. A summary of the results is presented in the following table. The complete and detailed data of this experiment are appearing in the forthcoming report of the chemical division of the Experimental Farms. In the account there given, full meteorological notes, including rainfall at Brandon and Indian Head, also appear. These were furnished by Mr. Bedford and Mr. MacKay, to whom I am indebted for most valuable assistance in this investigation.

Moisture: Amount per acre, to a depth of 16

inches, in soils at Brandon, Man., and Indian Head, N.-W. T.:

Brandon, Man.				Indian Head, N.-W. T.			
Date 1900.	In fallow '00 In crop 1899.	In crop 1900. "B"		Date 1900.	In fallow '00 In crop 1899.	In crop 1900. "B"	
	Tons.	Lbs.	Tons.		Tons.	Lbs.	Tons.
May 11	427	637	626	1,686	May 8	540 ^a	1,887
June 11	418	333	749	805	June 8	507	889
July 11	607	1,382	673	1,740	July 8	394	354
Aug 11	644	604	440	565	Aug. 8	550	776
Sep. 11	621	984	639	1,068	Sept. 8	578	533
Oct. 11	571	1,017	607	1,951	Oct. 8	608	1,641
Nov 11	655	1,916	606	1,781	Nov. 8	625	306
							618
							789

Brandon.—It will be observed that the soil in fallow in 1899 ("B") contained in May, June and July, 1900, more moisture than the soil that had been cropped in 1899. Thus, from the above figures we obtained the following results:

	Tons.	Lbs.
May 11, 1900—Excess of moisture per acre in land fallowed ("B") in 1899	199	1,029
June 11, 1900—Excess of moisture per acre in land fallowed ("B") in 1899	331	452
July 11, 1900—Excess of moisture per acre in land fallowed ("B") in 1899	66	478

The large excess of moisture in the 1899 fallowed soil (B) it will be seen rapidly fell off between June 11 and July 11. No doubt this was due to two causes: First, the greater absorptive and retentive power for moisture of the soil "A" (in fallow, 1900), rainfall of the month being between 4 and 5 inches; and secondly, the large moisture requirements of the growing crop on soil "B."

In a still more marked manner do these causes affect the moisture content from July 11 to August 11, so that we find at the latter date a reversal of the condition first recorded, and soil "A" now contains 204 tons more moisture than "B." This is easily explained by the fact that the draft upon the soil moisture by the growing crop on this latter plot ("B") would at this time be at its maximum.

During the later months of autumn there is evidently a tendency for the moisture content of the soils to approximate. This, the writer thinks, is largely due to the abnormal character of the season, the autumn being unusually wet and evaporation slight. However, notwithstanding this, the soil in fallow, 1900 ("A"), contained in November about 50 tons of moisture more than the cropped soil ("B"). Under more normal conditions, judging from our early results, we might expect a much larger excess of moisture at the close of the season in the fallowed soil.

Indian Head.—The results from these soils are, in a large measure, similar to those obtained from the Brandon samples. Thus, we find for the first two months of the investigation:

	Tons.	Lbs.
May 8, 1900—Excess of moisture per acre in fallowed land ("B") in 1899	139	804
June 8, 1900—Excess of moisture per acre in fallowed land ("B") in 1899	177	602

The July samples gave data in the same direction as those of August for Brandon, namely, less moisture in the cropped soil "B." The causes, we may suppose, are the same as those already indicated as exerting an effect at Brandon, the lighter rainfall at Indian Head accounting for the earlier appearance of the deficiencies in soil moisture in the cropped land "B." This condition continued to prevail throughout July, August, and part of September. Thus, we have from the foregoing table:

	Tons.	Lbs.
July 8, 1900—Excess of moisture per acre in fallowed land, 1900	92	1,830
Aug. 8, 1900—Excess of moisture per acre in fallowed land, 1900	16	257
Sept. 8, 1900—Excess of moisture per acre in fallowed land, 1900	82	473

During the last two months of collection the amounts of moisture in the cropped and fallowed lands, as in the case of the soils at Brandon, tend to approximate, but, as also observed in the Brandon soils, a slight excess of moisture was present in the November samples of the land fallowed in 1900.

This investigation has been eminently satisfactory and yielded results of great value. They are worthy of careful and thorough study, for they are capable of being most instructive. The past season, and especially the earlier part, was a particularly favorable one for this experiment, the drought that prevailed during the spring and early summer months emphasizing in a most marked manner the beneficial effect of the previous year's fallowing. The data are, in a large measure, confirmatory of one another, and at both points of observation furnish the strongest evidence of the value of fallowing as a means of storing up moisture for the crop of the succeeding year.

Coincidences in Horse Measurements.

In nine cases out of ten it will be found that the height of a horse at its withers is within a small fraction of 2½ times the length of its head. It is very rarely that a horse's height is 2½ times the length of his head. In the same connection it is interesting to note that the length of the head of a horse is almost exactly the same as that from the stifle joint to the hock, and from the point of the hock to the ground.

Brandon Fair Dates.

The dates of the Brandon Fair have been fixed for the week preceding Winnipeg Industrial, viz., July 23-26.