

formly as an average crop, and the same may be said of peas. With nearly equal uniformity, the yield of oats is reported as having been very large. The chief exceptions to this are in the Eastern Districts, where in some cases the crop appears to have been light. In the same sections of country, also, hay has been a poor crop, while in the Western and Gloucester Districts, the returns, where this crop is mentioned at all, are mostly very favourable. The Eastern country is also the only one that gives an unfavourable view of the root crops, which in other parts of the Province appear to be unusually abundant. But while the general yield of potatoes is large, the appearance of rot in some places may seriously diminish the available amount of this crop. The prevailing wet weather, in the Western country more particularly, has interfered with the curing and harvesting of hay, and much of it has been housed in a damaged condition. While rust has been somewhat complained of, the injury inflicted by insects has been much less than in former years. Indian corn, where it has been grown, has yielded an almost unprecedented return, and the experience of the past season will, no doubt, encourage the growth of this valuable crop, to a greater extent than heretofore.

Altogether, though in some kinds of field produce there has been partial failure, yet there has been a compensatory productiveness in others, and farmers have great cause for thankfulness in view of the general result of the year's operations.

### Canadian Phosphate of Lime.

We learn from the *Chemical News* that at a recent meeting of the Glasgow Philosophical Society, Mr. W. R. Hutton read a very interesting paper on "Canadian Phosphate of Lime, and some other Mineral Phosphates now used in making Superphosphate of Lime." The following is a concise summary of the more salient points of the paper:

The author mentioned that many mineral compounds, having different characteristics and results when operated upon, are now used in the manufacture of artificial manures; and referred to the fact that agriculturists are annually making greater demands upon the manufacturers of phosphate of lime. He stated that, in general terms, the value of a mineral phosphate depends upon the percentage of phosphoric acid contained in it; but if there is any marked quantity of carbonate of lime present, the value of the phosphoric acid is much reduced, owing chiefly to the large quantity of sulphuric acid required to decompose the carbonate of lime before the phosphates can be reduced. The same remark holds true with reference to phosphatic minerals containing iron compounds in combination; the iron takes up its own equivalent of sulphuric acid, and as it is per-oxidised a compound is formed which

is positively injurious to plant life. Fluoride of calcium is also invariably found in phosphatic minerals, and it, too, requires sulphuric acid, thus increasing the cost of superphosphate formed, while the gaseous fluorine compounds set free are a source of annoyance. No mineral phosphate has been so extensively employed as coprolites, and none is so little understood and valued by agriculturists.

After referring to the origin and nature of coprolites, and the extent of the deposits in Lancashire, Bedfordshire, and Suffolk, from which upwards of 200,000 tons are annually raised, the author proceeds to speak of the necessity for additional sources of mineral phosphates being resorted to, and new deposits being brought within the reach of manufacturers of manures, even if brought from other countries. He spoke of the German and Spanish phosphates as being very extensively had recourse to, although not so valuable as the English coprolites. Reference was made to a large and valuable deposit which occurs in South Carolina, and which has recently been brought into notice. Mr. Hutton mentioned that he was supplied some months since with specimens of phosphate of lime from Canada, obtained from the face of the material nearly fifteen feet in width, and presenting, so far as yet examined, an excellent supply of raw material. The samples differ very much from those phosphatic minerals which are now in use, and seem to indicate that if a sufficiency can be obtained, the Canadian mineral will be welcomed by manure manufacturers. Some of the specimens sent were distinct six-sided prismatic crystals, while the other pieces were in masses; but both crystals and masses had a vitreous lustre, the colour on some parts being green and bluish-green, and in other places red.

It is not stated from what part of Canada the specimens of phosphate of lime came that were subjected to analysis, but it is well known that the mineral is to be found in different localities, and in great purity and abundance in the counties of Leeds and Lanark, in the province of Ontario. In a physical point of view it is said that this Canadian phosphate differs from all others in being crystalline and not granular; while it differs chemically in containing more phosphate of lime and less carbonate of lime and sand. It is much to be desired that these resources of Canada should receive the attention which their importance demands, and be turned, as soon as possible, to a practical account.

**SHORT-HORN SALE.**—As will be seen by the announcement in our advertising columns, Col. Taylor will sell by auction some of his choice short-horn cattle, on the 22nd of the present month. The lot offered comprises the beautiful yearling bull "Proud Duke," bred by J. O. Sheldon, of Geneva, six cows, in calf to "Proud Duke," and three heifers.

### Notes on the Weather.

The fall season, especially during the past month of October, has been unusually pleasant and favourable for such garden and farm operations as remain to be performed. Grapes, apples, and other later fruits have fully ripened, and ample opportunity has been afforded for securing them without a touch of frost; while field roots have been equally favoured in the season. He must be an incorrigibly procrastinating farmer who suffers himself to be caught this year, as many were last fall, by the occurrence of frost, before his potatoes and turnips are all safely gathered, and pitted or housed under cover. It is not often that a fall season so genial and prolonged as the present is experienced in Canada. The farmer has cause to add this to the many grounds for thankfulness which have "crowned the year."

The speciality of the weather, the character of which has been pretty uniform throughout the Province, has been its unusual warmth. We learn from the records of the Toronto Observatory that the average temperature of the month of October has been 50°, which is 4° 36' higher than the average for the month during the last thirty years, and 7° 71' warmer than October of 1862. The highest temperature, 68° 5, occurred on the 1st, which was also the warmest day, with a mean temperature of 60° 4. The lowest temperature was 30° 2, on the 19th, the only occasion on which the thermometer fell to the freezing point. The lowest mean temperature for any day was 38° 8 on the 26th.

The amount of rain-fall has been slightly above the average; rain having fallen on fifteen days to the extent of 2.690 in. The amount of cloudiness has closely approximated to the average. There were fifteen days clouded, eleven partially so, and five clear.

Westerly winds have prevailed, though there has been considerable variation in this respect, and the month has been marked by the occurrence of more than one violent storm, which caused serious disasters on the lakes, and some damage on land. The most severe of these was on the night of the 30th.

The most exceptional and extraordinary occurrence of the month was the earthquake, which affected a large portion of Canada, as well as the United States, on the 20th. The aurora borealis has been frequent and brilliant. Altogether the month of October has been in many respects a remarkable one.

**PROVINCIAL EXHIBITION PRIZE LIST.**—We publish in another part of this issue a list of the award of prizes at the late Provincial Exhibition. The list has been carefully revised and corrected under official authority, and will be found a reliable record for future reference.