

The particular office performed by the stamens and pistils was unknown until explained by Linnæus; they have, however, been considered, from remote antiquity, as of great importance in perfecting the seed and fruit. A species of palm cultivated by the ancients, has the stamens and pistils on separate trees; the Greeks discovered that, in order to have good fruit, it was necessary to plant the two kinds of trees near each other, and that without this assistance, the dates had no kernel. In the East, at the present day, those who cultivate palms select the trees which have pistils, as these alone bear fruit. When the plant is in blossom, the peasants gather branches of the wild palm trees which bear stamens on the flowers, and strew the pollen over the cultivated trees. A curious fact, illustrative of this subject, is related by an Italian writer, "that in places about forty miles distant, grew two palm trees, the one without stamens, the other without pistils; neither of them bore seed for many years; but in process of time, they grew so tall as to tower above all the objects near them. The wind, thus meeting with no obstruction, wafted the pollen to the pistillate flowers, which, to the astonishment of all, began to produce fruit."

In the summer of 1846 or 7, finding a few heads of wheat in my garden some distance from any field of wheat, I cut off all the heads but one; from this one I carefully clipped off all the anthers from the stamens, leaving the pistils, as far as possible, untouched. On examining the kernels of wheat at the proper time, I found them shrunk, especially after they had lain for some time in a dry place. Although the straw continued bright, the grains were only about two-thirds the natural size. I don't give this as an *experimentum crucis*, or decisive proof of the correctness of my theory, for more facts would be required to test it; but I give it as one fact bearing upon the point, and as a specimen of what might be done by those having good opportunities for such experiments.

All these facts, viz., the peculiar office, as explained by Linnæus, of the stamens and pistils,—the practice of the Greeks in planting near each other the palms bearing these organs when they grow on separate trees,—the practice of the peasants of the East in strewing pollen over the pistillate flowers,—the case mentioned by the Italian—and the experiment just explained in clipping off the anthers of the head of wheat, and the wellknown fact that moisture will cause the anther to explode before the pollen is ripe enough to be

disseminated, all bear upon this one point, that the deficiency or imperfection of the pollen, may be the cause of the rust of wheat. That the pollen may fail to perform its functions from some other cause than the one just assigned, I am ready to admit; but it appears to me that facts and analogy bear us out in the inference that the immediate cause of the rust, is to be looked for in some defect in these two organs—the stamens and pistils.

Whatever may be the real cause of rust, that cause must be discovered, before science can suggest a remedy. Some fortunate individual, it is true, may stumble upon a remedy, but accident is entitled to very few of the many discoveries which have blessed the world. If the true cause of the rust in wheat has been pointed out in these remarks, a preventive might be suggested; but that preventive nature herself must provide.—This, it must be acknowledged, is the only practically important question. This question I must confess myself not competent to answer; yet if this article had not already grown beyond the limits which you have allowed me, I would offer a few suggestions, which might, at least, direct the attention of those better qualified than I can pretend to be, to a subject connected in so vital a manner with the prosperity of Canada.

Yours, &c.,

J. HURLEBURT.

Toronto, 3rd July, 1851.

GEOLOGICAL SURVEY OF CANADA.—MR. HUNT'S REPORT.

(Concluded from page 126.)

*Peat*.—I have already alluded to the peat of the Savanne of St. Dominique, which from its abundance appears well worthy of attention in an economic point of view. In a country like Lower Canada where coal is wanting, and where wood is already becoming in some parts scarce, the public attention must ere long be turned to some other source of fuel. Among these we have at home a very important one in the shape of our immense deposits of peat. Besides the large area above alluded to, there is an extensive deposit of a similar character which appears on the road between Longueuil and Chambly, and extends westward over a large tract; another described as of large size is found in the Seignory of Ste. Marie de Monnoir, and still another south of Laprairie; while the peat bogs on the south side of the Ottawa, and along the line of the Rideau Canal, which you have alluded to in your Report upon the Ottawa, are of great and but imperfectly known extent.

The value of peat as a fuel is almost unknown in this country, but the amount of it consumed in the British Isles and in Continental Europe, shows that it is a product of great and increasing importance. The amount of peat raised in France in 1845 was 420,000 tons, and its value 977,560 dollars; the number of workmen employed was