August 4, 1910.

A would be 1.5 feet, but as there is an error of .2 feet in this distance the rod will read 1.7 feet. Thus:

On the 1st set up we had an apparent fall of 7.2-4.5=2.7 feet.

On the 2nd set up we had an apparent rise of 4.0-1.7= 2.3 feet.

The mean of these two differences  $\frac{1}{2}(2.7+2.3)=2.5$  feet must be the correct difference in elevation between A and B, and the wires should be adjusted to read 4.0-2.5=1.5 feet. This 1.5 fet is half the difference between the apparent rise and fall of the two set-ups,  $\frac{1}{2}(2.7-2.3)=.2$  feet.

In short if the fall from A to B is the same as the rise from B to A the level is true, if not, then correct the collination for half the difference, i.e.,  $\frac{1}{2}(2.7-2.3)=.2$  feet.

## THE AMERICAN PEAT SOCLETY.

The American Peat Society held their fourth annual meeting at Ottawa, Canada, July 26th, 27th and 28th, 1910.

Hon. Clifford Sifton, in addressing the gathering, paid a tribute to Dr. Eugene Haanel, the president of the society, for his work in connection with the arrangement for this convention and went on that the society had done Ottawa an honor in deciding to hold its annual meeting here this year.

Canadians and Americans, he said, were so accustomed to having abundance of all things which constituted the necessities of life, that they had little idea of ways of conserving natural resources and preventing waste. In fact the speaker was in much the same position, and it was not until he had travelled in European countries and saw there the way waste land was utilized, and the twigs and leaves of trees gathered, that he could appreciate what complete utilization meant.

In Ottawa it was hard to impress on the people the saving of fuel. For years the great difficulty was to get rid of the refuse of lumber manufacture, a refuse which in many other cities would have been very valuable as tuel. For those who had been reared on a farm there was very little appreciation for sparing the tree until quite recently. But the time was very near when what is now known as firewood will be no longer available.

It is important to consider that at no time in the future will the price of coal be any less for any length of time than it is to-day. According to statistics, in 100 years the present visible supply of coal in America will be exhausted, according to the present rate of mining, and long before that it will have become very expensive.

Canada has no very large cities, yet in its present larger ones, people are herded together in the winter in a way that prevents proper sanitation or living in a civilized manner because of the cost of coal to heat a larger house. The coal strike some years ago brought suffering; how much more if there was no coal at all?

These facts were sufficient to impress upon all the great need of developing the peat bogs which stretch all over this country. Manitoba had no coal of its own and very little wood to furnish fuel for the rigors of the winter there. But it had miles of peat bog. He had seen miles of it on fire where it had been turned up in the construction of railways.

He said that Canada and the United States had been too prone to begin works before the experiments and experiences in similar works in other countries had been thoroughly studied. He knew of many instances where much capital had been wasted by constructing wrong plants which had later to be dismantled. There had been much waste of capital in the peat industry by people who had not inquired the exact facts of the situation before plunging into expense. The method of this society in diffusing knowledge was most admirable, and he suggested that at every annual meeting a statement be compiled giving the exact situation of the industry as briefly as possible in order that people all over the country could read it and be prevented from mistakes.

As far as he had studied the question the cost of harnessing and developing water power were such that electricity could not become the poor man's source of heat.

## THE EXPLOITATION OF OUR PEAT BOGS.

For the Production of Fuel for Domestic and Industrial Purposes.\*

## Dr. Eugene Haanel, Ph.D.

In a country, such as ours, where independently of the continually increasing amount of first required for industrial purposes, we are during the long winters dependent upon artificial heat in our homes, the item of cheap fuel becomes one of the most important factors in the prosperity of the nation.—Our coal deposits are situated in the far east and west, and the long hauls to bring this fuel to the central provinces render the price of our own coal prohibitive, and leave us dependent on outside sources for the necessary supply of fuel in these provinces.

The rapid industrial development of Canada and increase of our population render therefore the intelligent exploitation of our abundant and excellent peat deposits for fuel purposes of supreme importance.

We can at present form no estimate of the enormous extent of our peat bogs. The 37,000 square miles already known form probably but a small fraction of the amount of this valuable fuel asset in existence in Canada.

The necessity of utilizing the peat deposits scattered throughout the provinces in the more settled portions of them, has within recent times been appreciated, and efforts have been made by some of our enterprising citizens to establish a peat industry. Much money, thought and energy have been spent on this problem. Many plants have been erected, but unfortunately so far without reaching commercial results.

Only in rare instances is progress made in improvement of processes of manufacture by those who are unfamiliar with what has already been achieved, and the causes which have led to failure. This may have been one of the reasons why the efforts so far made in utilizing our peat deposits have not been attended with success.

To prevent further failure from this cause in the manufacture of peat fuel, an investigation was made by our Department three years ago, and a report issued on the manufacture of peat for fuel and other purposes in the peat-using countries of Europe.

This investigation has demonstrated that :--

rst. For the economic production of fuel from peat, machinery driven by power must be substituted as far as possible for manual labor.

2nd. That processes so far invented for removing the water content of the peat by pressure and artificial heat have not led to commercial results, and after trial have been abandoned.

At any rate the existence of plants in any country furnishing regularly and at reasonable prices artifically dried and briquetted peat, are not known at our office. The recent re-

(Continued on page 133).

\* Presidential address before the American Peat Association.