tion in clouds that may come in contact with it. That forests exercise a beneficial influence on the climate of the neighborhood there can be no doubt. The temperature of the air in the forest is cooler during the day and warmer during the night than in the open field. Consequently air currents are set in motion by this difference in temperature, cooler currents coming from the forest during the day in the lower strata and warmer air during the night from the upper strata, thus equalizing the temperature and increasing the humidity of the air. This is aside altogether from the mere windbreak action of the forest, which is of considerable importance.

The aspect of forest growth most likely to appeal to the members of this association is its effect as a regulator of our water supplies, and a factor in flood prevention. Even here there seems to be a difference of opinion, and a Western States writer a short time ago claimed that the presence of forests in the mountains prevented the snow from drifting into immense banks and then gradually thawing all summer, keeping up a constant supply of water for the streams. Without disputing this statement—for it cannot possibly apply to our own province, which is not mountainous—I may state as an accepted fact that the main factor in our great wealth in water powers and navigable waters are the great forests. At the risk of repeating what you may already know better than I, I desire to point out some ways in which the forests serve to regulate the flow of streams and prevent alternate flood and drought. Speaking generally the steam flow can only reach a percentage of the rainfall in the catchment basin. If the water does not fall either as rain or snow there can be no streams; but granted a certain precipitation during the year it may be gradually given off to the streams, making them reasonably constant in volume, or it may run off quickly, causing a flood and subsequent drought. Our streams are fed in two ways, by underground springs, and by the run off from the surface of rain or melted snow. Springs occur generally where a layer of porous sand or gravel lies between an impenetrable subsoil and the surface soil. The rain water runs under this top soil through the sand or gravel, and as it cannot penetrate the subsoil it is forced out through an opening in the top soil and goes to add to the volume of the nearest stream. It will readily be seen that a larger quantity of water will reach the gravel layer if the surface is covered with forest than would be the case in the open field, as most of it would run off the surface after rain, in the latter case instead of soaking into the soil. Most of us have known of springs that have become dried up in the summer, that years ago before the woods had been removed were perennial.

In the same way the forest serves to regulate the water running from the surface into the streams. Concerning the extent of this action of the forest a great deal has been written pro and con, and volumes of figures have been compiled to show that the removal of the forest had little or nothing to do with stream flow. At the same time I think we are all pretty well convinced that Captain Eads, the famous engineer, was right when he remarked concerning the building of the jetties at the mouth of the Mississippi River, that he was working at the wrong end of the stream. The very nature of a forest floor covered with small twigs, leaves and sponge-like soil, indicate the mechanical action that dams the water and allows it to run off slowly. Branches die and fall to the ground. Trees do likewise and in falling across something would form dams and create small reservoirs of water against the time when it would be needed. The sorts of trees also form conductors that allow the water to penetrate the subsoil deeply, and add to the subterranean supply. Remove these forests and the rainfall rushes off to the streams, which are soon in flood and soon dry up. The snow exposed to the full force of the wind and sun follows the same course, and large sums are being spent all over the continent to prevent the disastrous floods that now cause so much damage and loss of life, but which were not known in the earlier days when this was really a "wooden country."

At Brantford, I believe, they are spending a large sum of money to prevent the annual flood of the Grand River doing so much damage. It is worth noting that the county of Brant has only about 7 per cent. of its total area classed as woodland, and of this much is not tree forest land, but is pastured and the soil beaten hard. Most of you know something of the vagaries of the river at Belleville, which nearly every spring causes anxiety as to the amount of damage it is likely to do in flood, and in summer is so dry as to cause the remark by a traveler who saw it last fall from a Grand Trunk car that "it looked like a first rate place to put a river in."

A concrete case of the effect of forest denudation on stream flow has been furnished by W. C. Caldwell, M.L.A. Mr. Caldwell is a lumberman and a mill owner, and as his business interests were affected, he made careful notes of the occurrence in his diary at the time. The watershed of the Clyde River was swept by successive fires in 1875-6-7, a large territory being affected. The water supply was gradually affected from 1880 to 1885. From 1885 to 1892 the flow of water was so reduced that in 1886-7-8 9 and 90 the mills on the Clyde were short of water in August and September, something unknown until that time. In the meantime the new crop of poplar, birch, etc., had reached quite a size, and in 1890 began to affect the water supply and restore the evenness of flow. Since 1893 there has been an abundant supply of water, and Mr. Caldwell has no doubt it is due to the effect of the new forest that has followed the fires. Failing this new forest a constant supply of water could only have been secured by a costly system of impounding reservoirs.

LITERARY NOTES.

The annual report of the Department of Mines, Nova Scotia, for the year ending Sept. 30th, 1898, contains 100 pages of facts and figures about the progress of mining in Canada's farthest East. Extracts from the report will be found on another page.

Canadian Hand-Book of Steam and Electricity is a volume of 150 pages in brown cloth, published by the C. H. Mortimer Co., Ltd., Toronto, contains a mass of valuable information, much of which is in tabular form and convenient for reference. A large portion of the work is of such an elementary character as to give it special value for beginners.

Accounts of the City of Charlottetown, P.E.I., and Annual Reports of the several departments of the City Government for the year ending the 31st Dec., 1898, embodies the report of the city engineer, Freeman C. Coffin, upon the system of sewage disposal for the city now being installed. We hope to refer to the special features of this system at a later date.

The Annual Report of the City Engineer of Hamilton, Ont., for 1898, contains among other interesting matter a large colored map, showing the proposed changes in the water distribution system. The expenditure on public works in the past year was $204,861.36. Full page illustrations are given of the new pumping station, the filtering basin, boiler room of the main pumping station, etc.

The Canadian Magazine for April contains an interesting chapter of Miss Wood's story "A Daughter of Witches" and a pleasant variety of short stories, together with the usual poetry. Judge Ermatinger continues his historical sketch of the Michnlimackinac. It is unfortunate that this number, however, retains the dime magazine standard by publishing a variety of uninteresting pictures of more or less uninteresting theatrical persons.