

cation of machine rock drills and high explosives with reference to the most important tunnels of modern times, etc., - the Hoosac, Sutro, Mont Cenis, and St. Gothard tunnels.

"*Electricity and its Uses.*" By J. Munro, (London: the Religious Tract Society, 56 Paternoster Row.)

In this work Mr. Munro has endeavoured to give a popular account of electrical science in all its branches, and to render the subject intelligible to readers who have previously had no knowledge of electricity. That the author has to a large extent succeeded will be readily admitted. The matter is well chosen, the illustrations are numerous and on the whole accurate, and the book will prove a great help as a preliminary introduction to this important branch of science. It is to be regretted, however, that the work should be marred by many inaccuracies and misspellings, which might have been easily avoided with a little more care in the preparation and in the revision of the proof sheets.

BOOKS RECEIVED.

Weisbach's Mechanics of Engineering and Machinery.—REVISED AND ENLARGED BY G. HERMANN, (NEW YORK: John Wiley & Sons. MONTREAL: Dawson Bros, 1883.)

Kinematics or Mechanical Movements.—BY C. W. MACCORD, (NEW YORK: John Wiley & Sons. MONTREAL: Dawson Bros, 1883.)

These works will be noticed in the November number of the Magazine.

Also received, the *Philadelphia Medical Times*, J. B. Lippincott & Co.; the *Mechanical Milling News*, the Beaver Co., Toronto; *The Treasury of Facts*, H. R. Warner & Co., Rochester.

NOTES ON THE CONDITION AND DISTRIBUTION OF THE CANADIAN FORESTS.

BY ANDREW T. DRUMMOND.

The growing requirements of the world arising from increased population, a more progressive spirit, and greater wealth, have led us in this later age to see that there are great natural laws on which the prosperity of communities and even of nations largely depends. National prosperity arises from the aggregated enterprise and success of the individuals who go to make up the nation, and whilst this prosperity continues, individuals and nations are sometimes slow to foresee the ultimate results to which the stimulus of success may lead to in the breaking of these natural laws. The individual does not immediately recognize this, but in national aggregates it is clearly seen. This has been well exemplified in the timber trade of the United States and Canada.

From the earliest days of the settlement of these countries to the present time there has been a constant drain on the resources of their forests. At first, it was necessary to clear the forests in order to make room for agricultural operations. Farmers, however, as time went on, everywhere, became more wasteful and reckless of the future, and lumbermen even more so. With wood so plentiful, it did not appear necessary to consider the wants of another generation, and now, not only that other but still other generations have appeared, and what results do we find? The forests of the United States are so nearly depleted of their larger

white pine timber that but a few years' further supply is left uncut, and there remains the prospect of having largely to fall back on Canada only to find that the Canadian supply is already on the wane. Similar results are elsewhere apparent. In fact, notwithstanding the increasing substitution of iron for timber, and the increasing use of coals and other fuels, the forests of the world are being rapidly diminished, much of this—especially in new countries, arising from simple wastefulness.

We are accustomed to esteem those states and provinces wealthy, which have underlying fields of coal, and yet those which have forests are in reality the richer; the forests can be renewed, and the supply by proper management made to keep pace with the demand through future centuries. This is a position which in the past we have been slow to realize. Individuals are selfish and are not inclined to undertake labour and expense, of which they themselves will not reap the advantage. Shall states and provinces view the question in the same selfish spirit? Or shall they not rather legislate for posterity when the future of the country depends on the advantages which that posterity will find ready at hand? In Canada, more perhaps than in the United States, do we realize the importance of immediate legislative interference, to prevent our lumber resources from being entirely cut off. At present the lumber dues and the proceeds of the sale of timber limits [chiefly pine] in Ontario, Quebec and New Brunswick form an important item of annual revenue to the governments of these respective provinces. The loss of these sources of revenue would be severely felt, and yet their gradual diminution is in early prospect. Those who have made this subject a careful study cannot be blind to the fact that each year the lumbermen are extending their operations farther north and west, and although the area in which is to be found white pine of merchantable size and in fair abundance, may be extensive, yet, if the timber limits continue to be worked at the same rate as in the past, there must soon be a marked diminution in the exports of this class of timber. Already the size of the square timber exported from the city of Quebec is much less than it was years ago. It is not with timber as with other agricultural products. Reproduction cannot take place in a year or in a decade. Not until pine is from *seventy-five to one hundred* years old is it of sufficient size for the market, so that at least three-quarters of a century must elapse ere these timber limits can be re-stocked. Here, clearly, is a case in which the government should intervene if only in its own interests, but apart from this it seems we have yet to learn that so far from having a right to injure the inheritance which will in time pass to our children a positive duty is imposed on us of leaving it the better.

In the present paper, it is proposed to indicate briefly, *first*, the forest areas of Canada, *second*, the ranges northward and westward, as we now know them, of a few of the leading economic trees in these areas, and *third* the extent to which these species individually occur. As there is no forest tree distinctively Canadian, the details which will be given have a further interest, in serving to show the range northward of some representative United States species.

Speaking generally, there are in Canada four great forest areas, or zones, which can be distinctly traced, beside-