

FOREST FIRES AND HYDRAULICS.

ROBSON BLACK, secretary of the Canadian Forestry Association, Ottawa, has distributed 25,000 copies of a booklet called "A Matter of Opinion," which is intended to educate the public to the importance of forest fire prevention.

Mr. Black discusses the matter from the viewpoints of the settler, the camper, the banker, the railway man, the power engineer, the fire ranger and the taxpayer. The discussion from the viewpoint of the power engineer contains the following interesting summary of the relations between forest fires and hydraulic engineering:—A chain is no stronger than its weakest link, and a power development system is no stronger than the water supply that turns its turbines. But we cannot stop there. The best hydro proposition in America is just as reliable as the forces that control the water flow, and if those forces are out of hand, the entire undertaking, from the pressure in the head office down to the three horse-power condenser in the basement workshop, is likewise out of hand.

When I talk about controlling stream flow, I mostly mean forests. Some power propositions have to equalize the extremes of flood and drought by storage dams, but the extremes of flood and drought by storage dams, but storage dams are to a certain extent "engineering crutches" to make up for a natural shortcoming. The million-dollar levees on the Mississippi are man's method of off-setting the effects of stripping the forests from the watersheds of countless streams back on the Ohio and other tributaries. The levees work—when they do work—and at an enormous annual expense, but had a reasonable amount of the original forest growth been left on the northern watersheds, the extent of levee building would have been considerably reduced and the menace of annual floods less to be feared.

I do not need to name the Canadian rivers from coast to coast—that run to flood during the spring break-up and to drought in midsummer. Every province has them. Whether in British Columbia or Nova Scotia, municipalities and factories and hydro-electric companies face the common difficulty of regulating stream flow so as to avoid dangerous extremes. Floods in Ontario, for instance, along such rivers as the Thames, Moira, Credit, and Grand, cause hundreds of thousands of dollars annual loss. Where shall we look for the cause?

Nature designed the forests on our watersheds to be the bit-and-rein of our streams. You have seen the thick spongy "floor" to a well-canopied woodland. That is nature's reservoir, designed for surplus waters of the spring break-up. Destroy this reservoir with fire or careless cutting, and the logic of nature loses no time in coming into play. Gravity has a clear field. And that spells flood, erosion of hillsides, damaged farmlands, streams out of hand, and hampered power facilities in the industrial towns.

Should there be, then, no cutting whatever on watershed forests? That would hardly seem reasonable. The rich agricultural lands will be stripped for field crops and their forest cover, whether valuable for watershed purposes or not, cannot be retained. The needs of agricultural expansion are supreme. Even on non-agricultural forested lands, it is only good economy to permit cutting under proper regulations regarding diameter limit. Taking out mature timber or pulpwood need not depreciate the value of a forest for watershed uses, although indiscriminate "skinning" will spell a speedy ruin. What I mean is that a spruce forest can be cut to a 12-inch diameter limit and yet 76.8 per cent. of the volume remain in growing condition. In other words, the reservoir properties

would be unaffected. Protection against fire is, of course, most important of all considerations.

Natural forests perform a service for streams which cannot be measured in dollars. For power purposes we must often supplement with storage dams, for even in the primitive days before tree growth was touched by an axe, the inequalities of flow between spring and August were often too great to serve the needs of the modern power plant. At the same time, the living forest is a most necessary ally of the storage reservoir. Its functions are much the same and the absence of storage capacity in nature places that much more burden and expense on artificial devices.

I have not mentioned the danger to all storage and irrigation works, of the erosion of hillsides due to denuding of tree growth and the consequent silting up of the reservoirs. From that angle as from others forest destruction on watersheds plays the enemy to the power engineer.

ONTARIO HEALTH OFFICERS ASSOCIATION.

The Fifth Annual Meeting of the Ontario Health Officers Association will be held in Convocation Hall, University of Toronto, on Tuesday and Wednesday, May 30th and 31st, 1916. Programme for this conference is as follows:—

Tuesday, May 30th.

10.00-11.00 a.m.—Registration.

11.00 a.m.-12.45 p.m.—"The Quarantine Period for Measles," M. B. Whyte, Isolation Hospital, Toronto. "Measles," A. D. Smith, M.O.H., Mitchell. "Should the Breadwinner be Quarantined?" V. A. Hart, M.O.H., Vespra. "Some Observations on Typhoid Fever in Toronto," Fred. Adams, Epidemiologist, Department of Health, Toronto. "Epidemic Cerebro-Spinal Meningitis," J. G. Fitzgerald, Director Antitoxin Laboratories, University of Toronto. Appointment of committees: (1) Nominations; (2) Papers and Arrangements.

2.30-5.00 p.m.—President's Address, A. J. Macauley, M.O.H., Brockville. "Modern Methods of Diagnosis and Treatment of Diphtheria," W. H. Park, Director of Laboratory, Public Health Department, New York City. "Tonsils and Adenoids," G. R. Cruickshank, M.O.H., Windsor. "Suggestions for Improvement of Association Meetings," F. A. Dales, M.O.H., Stouffville. "Deductions of a New Ontario Medical Officer of Health," Edgar Brandon, M.O.H., North Bay.

8.15 p.m.—Public meeting. "Sanitation in Serbia," W. D. Sharpe, Major, R.A.M.C., Brampton (with views). War Scenes (views), Ruggles George, Capt., A.M.C., Toronto.

Wednesday, May 31st.

10.00 a.m.-12.45 p.m.—"Auxiliary Aids in Public Health Work," H. W. Hill, M.O.H., London. "Rural Sanitation," P. J. Moloney, District Officer of Health. "Methods of Collection and Disposal of Domestic Wastes in Small Municipalities," F. A. Dallyn, Provincial Sanitary Engineer. "Treatment of Sewage by Activated Sludge," T. Chalkley Hatton, Chief Engineer, Sewerage Commission, Milwaukee, U.S.A. Reports of Committees.

2.30-4.00 p.m.—"Prevention of Tuberculosis in Children," H. Logan, M.O.H., Niagara Falls. "Water Supply and Sewage Disposal for Suburban Residences," J. S. Nelson, M.O.H., Westboro. "Forms for Keeping Records of Communicable Diseases," E. C. Henderson, Assistant Statistician, Local Board of Health, London.