

Fire Patrols Must be Highly Trained

A New Profession Demanding Much Scientific Knowledge Has Grown Up

The modern forest officer, whether ranger or fire-warden, is accorded great respect and responsibility because of his highly trained and specialized public service. Few men except naval and aviation officers, who also must combine practical experience with technical knowledge and trained intelligence, are expected to be so proficient with hand and mind alike. Out of a service which, a few years ago, was not even skilled labour, and was assigned to any inhabitant of a forest region, has developed a profession of forest fire prevention which requires all the abilities of a thorough woodsman, knowledge of many engineering sciences, successful command of men, and a talent for law enforcement and enlisting public cooperation.

This new profession has been able to develop largely because improved organization of private and public fire forces has created both rivalry and cooperation among those with joint problems to solve. It has been stimulated by its very fascination to an active and inventive class of men and its ever-widening field, challenging them to divide new methods and equipment and to keep abreast of invention in other fields in order that such may be seized and adapted. Telephony, heliography, meteorology, aviation, topography, range-finding—these are but some of the sciences which have been made part of methods for detecting and controlling forest fires, to say nothing of the mechanical perfection of equipment and the systematizing of feeding, transporting and handling men under the most adverse circumstances. To educate the public into greater care with fire, new trails have been blazed into the fields of psychology and publicity. The technique of forest legislation and the processes of enforcement is an essential knowledge. Finally there is the actual fighting of fire, never the same, defying all rules, profiting by all previous experience but calling always for new and decisive reasoning.—From the *Fire Fighter's Manual*, published by the *Western Forestry and Conservation Association*.

More Than 2,000,000 H.P.

(Continued from page 1)

452,508 h.p. capacity and 358 plants privately owned with a capacity of 1,655,235 h.p. The Niagara system of the Ontario Hydro-electric Power Commission is the largest under public ownership. It has a load of over 201,000 h.p., supplies 120 municipal distributing systems and serves an area of 210 miles long by 85 wide. The largest privately-owned system is the Shawinigan in Quebec, with a load of 205,000 h.p., supplying 76 distribution systems and serving a triangular area with a base of 140 miles and a height of 75 miles.

The largest hydro-electric development is 488,800 h.p., in the three large

power plants at Niagara. The large installations are not all confined to this site, however, as there are, in addition, 5 plants of over 100,000 h.p. and 36 plants of over 10,000 h.p. capacity. The largest single plant is the Ontario Power Co., now operated by the Ontario Hydro-Electric Power Commission at Niagara, with a total capacity of 211,300 h.p. The largest single unit thus far installed in Canada is 20,000 h.p., at Grand'mere, Que., though the Ontario Hydro-Electric Chippawa plant will contain units of 50,000 h.p., while future plans contemplate the use of 100,000 h.p. units.

The average head of water utilized is not exceedingly high, but many large hydro-electric plants operate under fairly high heads, such as 140 to 180 ft. at Niagara, 145 ft. at Shawinigan, 83 ft. at Grand'mere and 400 ft. at the Coquitlam-Buntzen plants near Vancouver. The highest head in eastern Canada is 540 ft., at the 8,000 h.p. plant at Eugenia Falls, Ont., while, in the West, a head of 1,820 ft. is utilized at Britannia Beach, B.C., where the development also provides a total head of 5,530 ft. in two steps of 1,450 ft. and 2,080 ft. for the direct operation of other machinery. On the other hand, one of the largest plants, recently installed at Cedars, Que., operates under a head of 30 ft.

The 26,667-horse-power plant at Hamilton, Ont., is the largest steam-power plant in Canada and is used as an auxiliary. The 14,234-h.p. plant at Edmonton, Alta., is the largest steam plant operated continuously.

Storage Reservoirs Increasing

No less than 59 plants report the successful operation of storage facilities to provide for increased flow at low-water periods. Among government undertakings of this nature may be mentioned the three large reservoirs at lakes Timiskaming, Kipawa and Quinze to regulate the flow of the Ottawa river; La Loutre reservoir on the St. Maurice river; lake St. Francis dam for the St. Francis river, Que., the extensive system of smaller conservation reservoirs on the Trent river, Ont.; lake Minnewanka, on the upper waters of Bow river, Alta., and reservoirs on Jordan river and Gull stream, near Vancouver, B.C. Most satisfactory results have been obtained from storage undertakings, the capacity of plants being frequently doubled or more than doubled.

City Departments Should Co-ordinate

Department Exclusiveness Expensive. Administrative Board Would Harmonize Work

The executive department, made up of permanent administrative heads, is the backbone of every municipal government in Canada. The future of municipal government depends largely on the development, on the part of democracy, of the ability to use men of special training and attainments to perform special work, and the establishment of ways and means by which such officials can be effectively controlled, without so curtailing their initiative and independence of action as to destroy, more or less completely, the value of their services. Democracy does not consist in the practice of the belief that one man is as good as another for any job, but in the practice of the faith that every man owes a duty to society and that he should be placed where he can render the most valuable service.

City department heads have among their following functions:

1. To prepare annual work programmes with estimated costs.
2. To carry out the work programmes decided on by council within the appropriations allowed by council.
3. To purchase supplies and materials.
4. To let contracts.
5. To appoint subordinates.
6. To avoid duplication of work among departments or the undoing of the work of one department by another.

All these functions demand certain definite information and, as in the case of citizens and councillors, the greatest mistake in the work of permanent officials are always due to insufficient, inaccurate or delayed information.

Two departments tear up the same streets at an interval of two weeks or so, or purchase coal at different prices or of unequal grades, because of the absence of the proper information or of the co-operative machinery which would automatically produce the information.

Board to Secure Unity of Action

The functions of department heads are such as to demand joint action. The annual work programme cannot be prepared properly except by co-

operation. Neither can the purchase of supplies, the control of the city service, the installation of standard contract procedure, nor the avoidance of duplication between departments done properly without it. A city often not one city but as many cities as there are civic departments. City departments are too often water-tight compartments. The city's programme is unitary and should be under unitary administrative control. The remedy for the existing maladjustment of departments is so simple that it is a wonder that it has not received general adoption. It lies in the administrative board, made up of the permanent heads of civic departments, and, responsible, as a unit, to the council:

1. The formulation of the annual budget and programme of work.
 2. The carrying out of this programme as a unified project.
 3. The making of monthly, quarterly and annual reports containing the necessary financial and operating facts.
 4. The control of the civil service.
 5. The recommending of policies for the legislative action of council.
- The information required by such an administrative board would be even more detailed than that required by council. From divisional heads it would require daily or weekly progress reports; from the accountant, weekly statements of operating costs; from the city treasurer, weekly statements from the appropriation accounts. It would need a committee or bureau on city service, another on purchasing contracts, and still another on city reports both to council and citizens.

Any system of effective democratic municipal government must be based on an informed electorate. It must proceed from, not reach down to, the people. The people are the master of the city, but they must be educated by participation in actual governmental processes. Actual participation is the only method which has been found effective in any field, but it demands adequate information, an adequate information must proceed from official and unofficial sources.

—Dr. H. L. Brittain.

Only one county in Ontario has not adopted the county road system under the Provincial Act. The county has taken over control of 9,200 miles of road and improved 2,325 miles of date.

ELECTRIC PLANTS IN CANADA SHOWING CAPACITY, OWNERSHIP AND PRIME MOVERS

Province	Plants		Ownership				Kind of prime mover					
	Number	Capacity h. p.	Private		Public		Hydraulic		Steam		Int. Combustion	
			No. of plants	Total capacity h. p.	No. of plants	Total capacity h. p.	No. of plants	Total capacity h. p.	No. of plants	Total capacity h. p.	No. of plants	Total capacity h. p.
Nova Scotia.....	38	27,177	24	23,064	14	4,113	12	3,474	23	23,478	3	225
Prince Edward Island..	9	1,514	9	1,314	—	—	5	907	2	475	2	612
New Brunswick.....	23	18,607	16	16,212	7	2,395	92	7,463	12	10,014	3	1,130
Quebec.....	119	625,061	99	604,902	20	20,159	92	585,911	20	38,791	7	359
Ontario.....	173	898,586	108	609,658	68	290,198	113	831,004	50	66,519	10	2,203
Manitoba.....	23	103,015	8	38,706	15	49,209	4	78,550	13	22,841	6	624
Saskatchewan.....	62	30,593	26	2,682	36	27,911	—	—	15	26,585	47	4,008
Alberta.....	52	85,117	27	43,235	25	41,882	4	31,980	42	51,806	6	1,332
British Columbia.....	63	306,776	41	290,234	22	16,542	31	258,029	22	46,467	10	2,250
Yukon.....	3	10,227	3	10,227	—	—	—	10,000	2	227	—	—
Canada.....	565	2,107,743	358	1,655,235	207	452,508	270	1,806,618	201	288,202	94	12,923