

6.—Forest Fires by Cause 1953 and 1954 compared with Ten Year Average 1944-53

| Cause | Provinces ¹ | | | | | | Yukon and Northwest Territories 1954 | |
|----------------------------|----------------------------------------|------------|-------------------|------------|--------------|------------|-----------------------------------------|------------|
| | Annual Average 1944-53 ² | | 1953 ³ | | 1954 | | | |
| | No. | p. c. | No. | p. c. | No. | p. c. | No. | p. c. |
| Camp fires..... | 854 | 16 | 833 | 13 | 580 | 19 | 35 | 31 |
| Smokers..... | 1,221 | 22 | 1,576 | 25 | 515 | 17 | 12 | 11 |
| Settlers..... | 592 | 11 | 735 | 11 | 251 | 8 | — | — |
| Railways..... | 604 | 11 | 554 | 9 | 329 | 11 | — | — |
| Lightning..... | 964 | 18 | 1,467 | 23 | 447 | 15 | 16 | 14 |
| Industrial operations..... | 252 | 5 | 279 | 4 | 148 | 5 | 5 | 4 |
| Incendiary..... | 146 | 3 | 124 | 2 | 99 | 3 | — | — |
| Public works..... | 78 | 1 | 87 | 1 | 53 | 2 | — | — |
| Miscellaneous known..... | 463 | 8 | 519 | 8 | 451 | 15 | 3 | 3 |
| Unknown..... | 260 | 5 | 266 | 4 | 149 | 5 | 41 | 37 |
| Totals..... | 5,434 | 100 | 6,440 | 100 | 3,023 | 100 | 112 | 100 |

¹ Includes federal lands within provincial boundaries.
of 109 forest fires in the Yukon and Northwest Territories.

² Excludes Newfoundland.

³ Exclusive

Subsection 3.—Research in Forestry

In the field of forestry the chief responsibility of the Federal Government is to carry out research in problems affecting the forests of Canada and their development, conservation and more effective utilization. To this end forest research and forest products research facilities have been expanded greatly throughout Canada during the past five years. The Federal Government, several provincial governments, the Pulp and Paper Research Institute of Canada, the four universities with faculties of forestry, and a number of the larger industrial companies conduct research in these fields. The Forestry Branch of the Federal Department of Northern Affairs and National Resources conducts research in forest economics, silviculture, management, forest inventory methods, forest fire protection and in forest products. An extensive program of research is under way on the government experiment stations and on other lands, where an increasing proportion of the total effort is being expended in co-operation with provincial authorities and industry.

Forest Research.—Research in silviculture and management has been concentrated upon problems of regeneration, growth and stand development, and harvest cutting methods. A regeneration survey extending from the Rocky Mountains to the Atlantic Coast has provided information on the status of regeneration on cut-over and burned lands. This has been followed by intensive work of a more fundamental nature to assess the factors responsible for the success or failure of regeneration and, by empirical tests of practical cutting methods, seed-bed treatments, and seeding and planting methods, to obtain reproduction. Studies are made of the growth, yield and successional changes in the most important forest types. Systems of classifying forest sites are being devised so as to assess their effective growth, development and long term productivity. Research in tree breeding is being carried on for artificial propagation by selection and development of superior strains. In forest management, research is concerned with the application of silviculture, regulation of cut, and protection so as to maintain forests at the highest production levels. Many of the studies in silviculture and forest management are conducted co-operatively with provincial forest services and wood-using industries.

Forest fire protection in Canada is a vital problem and is therefore a major concern of federal authorities. In forest fire research the Federal Forestry Branch is working towards full co-operation with the provincial forest services in achieving the best methods of forest fire protection. The leading contributions of the Branch have been in the field of fire hazard research and in the development of equipment and techniques for fire fighting. Some of the more important studies being undertaken at present include the development