EMPLOYMENT

For your convenience the Forestry Chronicle offers a free employment service. Prospective employers or applicants should write to Mr. George A. Sinclair, Forest Ranger School, Dorset, Ontario, who will prepare applications for publication. Applicants are requested to include their own advertisement giving the following information: University granting degree, year of graduation, years and type of experience and type of employment preferred.

EMPLOYMENT WANTED: Forestry Graduate, U.B.C. 1951, British Columbia Registered Forester, single, 33 years old, presently in charge of all forestry work on lumber company's Tree Farm Licence, 5 years experience in management, working plans, inventories, growth studies, road location. Desires position offering greater opportunities for advancement. Free to travel. Please refer to Code No. F.M.4.

EMPLOYMENT WANTED: Forest Protection Specialist. Age 34, married, one child. Fifteen years experience in forest protection organization and planning, engineering and research. Lecturer and instructor in forest fire prevention and control. Two years industrial fire protection, alarms and automatic protection systems. Seeks position in forest protection field that will require initiative and responsibility. Please refer to Code No. F.Prot.1.

EMPLOYMENT WANTED: Forestry Graduate, Toronto, 1956, married, 24 years of age; field experience 2½ years of mechanical operations using rubber-tired skidders and cable yarders, also inventory, construction, surveying and general forestry work, intermediate Ontario Land Surveyor certificate. Interested in position with logging company requiring initiative and having opportunity for advancement. Please refer to code number F.M.2.

TECHNICAL NOTE

By Roy Jewesson¹

SOME APPLICATIONS OF AERIAL PHOTOGRAPHS²

The use of aerial photography for photogrammetric purposes has become a standard technique in many phases of the forestry business. In the search for more elaborate uses, however, some of the simpler yet equally useful purposes have been overlooked or passed by. Up-to-date, low elevation photography taken from light aircraft with relatively inexpensive aerial camera equipment can be invaluable in providing management with current information on many phases of their operations.

The Englewood Logging Division of Canadian Forest Products Ltd. has equipped its DeHaviland Beaver aircraft with a K-24 aerial camera which is used to obtain information for a variety of purposes ranging from standard vertical line-overlaps for forest inventory work to hand-held obliques for fire fighting. Two simple, yet unusual, uses are described below.

¹ Forester, Canadian Forest Products Limited, Vancouver, B.C.

² A contribution to Photogrammetry News, one of a series of reports by a committee under the chairmanship of Mr. J. R. Collins, Forestal, Forestry and Engineering International Limited, Vancouver, B.C.

1. The Use of Aerial Photographs for Log Scaling

Modern accounting techniques make it desirable to have accurate inventories of the volume and number of logs produced within an accounting period. In most operations where logs are dumped into salt water to be boomed and towed to the mills this information is obtained from the scaler's tallies of made-up booms. In the booming operation, however, there are always some logs being processed in the dumping area or bull-pen and the sorting pockets of the booming grounds. These logs, of course, are not scaled until they are stowed into complete booms yet those that are in the booming ground at the end of the month must be considered when making up the monthly production inventory. In a large railway operation, such as the one at Englewood, this volume of unsorted logs and unstowed logs may be as high as 3 million board feet at any one time. The booming is a continuous process, which cannot be halted for long without disturbing the whole log production process—certainly not long enough to scale all the logs in the booming ground.

A simple, yet very accurate method is being used at Englewood for estimating the volume of logs in the booming ground at the end of the month. It entails the use of vertical air photographs taken immediately after the last loads of logs produced from the woods during the month are dumped, but prior to the dumping of any loads produced in the next or new month. There is usually a short time interval between the trains bearing loads of the old and new month. During this interval the photographs are taken and a scaler cruises a sample of the logs in the bull-pen. He estimates the species and grade distribution of these unsorted logs and makes a sample scale of each type. The intensity of this sample varies according to the time available; normally it is between 5% and 10% of the logs. He then makes a sample scale of the logs in each of the sort pockets surrounding the bull-pen. This is done by scaling each log along a line chosen at random through the pocket. Since each pocket contains only logs of one species and grade and represents a more stratified population than the logs in the bull-pen, a smaller sample (average 5%) is needed to produce a satisfactory result. The scaler thus develops an estimate of the breakdown by species and grade of the logs in the bull-pen and an average volume per piece for each sort for logs in the pockets and in the bull-pen.

The aerial photos, taken from an elevation of 1300 feet, are enlarged to an average scale of 66 feet per inch. Kodak Tri-X or Ilford 400 aerial film is used, making adequate photography possible under the most difficult weather conditions. Prints are made on standard enlarging papers with a matte finish. From these pictures a very accurate count may be made of the number of logs or pieces in each part of the sorting ground. These counts, combined with the scaler's species and grade breakdown and average volume per piece provide an estimate of the volume of unsorted and unstowed logs produced during the month. Occasionally, when circumstances permit, a complete scale is made of all these logs in addition to the estimate. Such checks show that the estimate is normally in error by less than one half of one percent and never more than 2% by volume.

2. Aerial Photographs as an Aid in Slash Burning

The slash and debris left on the ground after logging operations in the

FIGURE 1

The booming ground from 6000'. Arrows indicate the flight line—the crosses show the approximate photo centres of low elevation photography.

FIGURE 2

Sorting Pockets photographed from 1300' elevation. The logs are counted from photos such as this.

FIGURE 3

Oblique photograph of a slash area before burning. This area was salvage logged for bark-beetle-killed timber, hence the odd shape of the setting.

FIGURE 4

The same area after a successful slash burn.

coastal forests of British Columbia presents a considerable fire hazard. The reduction of this hazard by burning is required in many instances by Forest Service Regulations and is practiced wherever possible as a measure of good fire protection by most of the large logging companies.

Even under the most favorable of conditions, slash burning is a risky and difficult operation. Optimum weather and fuel moisture conditions are rarely encountered at the right time, so it is usually necessary to attempt the burn under less than optimum conditions. In order to obtain a successful burn, one that cleans up the slash and eliminates the high fire hazard without damaging the surrounding timber, it is necessary to plan the operation in advance, taking into consideration all the variations of weather and fuel moisture conditions which may prevail when the burn has to be attempted.

Aerial photographs have been found to be a useful tool in planning and carrying out the slash burning operations in the Englewood Division of Canadian Forest Products Ltd. For several years it has been the practice to photograph slash areas prior to and immediately after burning. The pre-burning pictures, taken a week or two beforehand, are used to help plan the burn. They show the concentrations of slash fuels, topography, locations of skidding roads and other features which must be considered in deciding how the area may be burned. The planned location of fuel oil dumps, disposition of the burning crew and location of fire lighting lines may be shown on the photograph with colored inks. The photograph is more useful than a map when making field examinations of the area.

When the time comes to burn the area, copies of the photograph or enlargements are used to instruct the crew in the burning procedure they are to follow. Many of the men are not familiar with topographic maps but they all understand a picture. When the burn is completed, the area is rephotographed to help assess the success of the operation and provide a record for future silvicultural planning, i.e. regeneration surveys and planting programs.

The photographs are taken with a K 20 or K 24 aerial camera from elevations between 4000 and 5000 feet above the ground. Most single logging settings can be satisfactorily photographed in one exposure from this elevation. For large areas which cannot be covered with one frame without undesirable distortion, a simple mosaic may be made up from two or three line-overlaps. Photographs are taken from the same direction from which the crew will view the area, that is, from a point which shows the landings and access roads in the foreground. Slopes are photographed obliquely with the camera held at a vertical angle approximately the same as the average slope of the hillside. Flat areas are taken from a vertical or near-vertical camera position.