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FIRE LOOKOUT ON AN ERECTED POLE.

By L. D. PRYOR and H. C. WICKETT.

SUMMARY: A crow's nest fire lookout set on a 40ft. erected pole is described. The possibility of erecting poles of from 100ft. to 150ft. for lookouts is discussed, and a design for a concrete plinth allowing periodical creosoting of the pole butt is included.

TO improve fire detection facilities in the Australian Capital Territory it was necessary to erect a 40ft. high lookout on Mt. Stromlo, but funds were not sufficient for the building of a braced wooden tower, so it was decided to combine the idea of a topped-tree crow's nest with the procedure sometimes necessary in high-lead logging, of erecting a spar when no suitable tree is available. A visit to the topped-tree lookout in Bago forest designed by M. J. Youhotsky of the New South Wales Forestry Commission, and described in the May-June issue of the "Australian Timber Journal" gave further impetus to the idea, and the lookout was erected last November giving every satisfaction during the remainder of the fire season.

The pole has a top diameter of 10ins. and a bottom diameter of 15ins. Nine inches is considered to be the practical minimum and 12ins. the useful maximum top diameter for such a pole. The length of this pole is 40ft. Although it is set rather too far in the ground for economy—4ft.—the height to the alidade is 40ft. because the top was chamfered off and four 3in. x 1½in. legs were bolted on to the chamfered sides and carried up to a 4in. x 4in. block supporting the protractor-alidade. The floor boards are about 9ins. below the top of the pole.

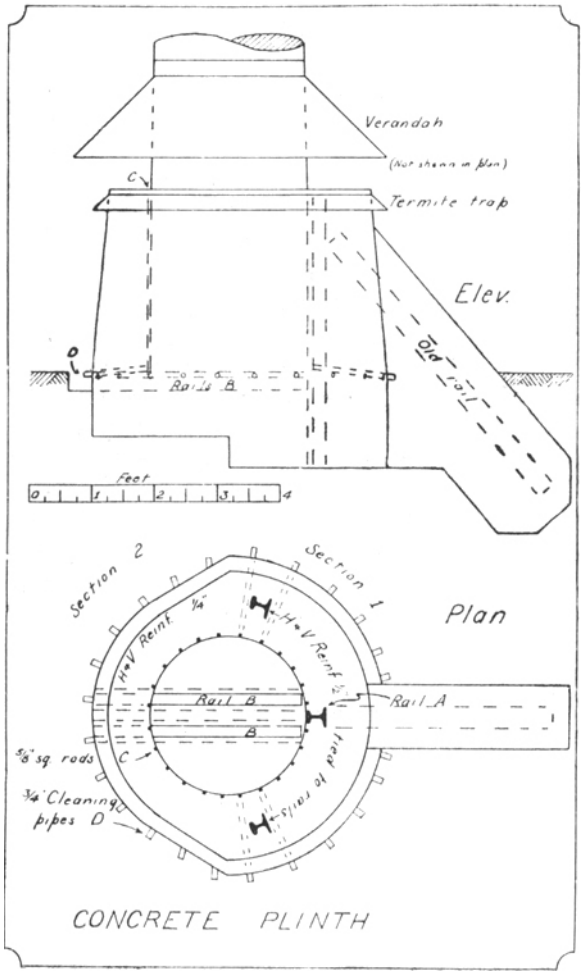
The pole was pushed up by hand by employees of the Electrical Engineers' Section of the Department of the Interior, and it is guyed by three cables each of three strands of 8-guage iron wire. The illustration shows the general construction of the crows' nest which will be improved next season by the addition of plate-glass screens. U-bolts were used to hold the guard railings to the vertical corner stauchions which, of necessity, are set at 45 degrees to the railings. The ladder is of the ordinary sewer type, but of lighter construction and has no guards.

The items making up the total cost are set out below:—Labour, £26/5/- (21 man-days); ironwork, £12/10/-; pole cost, £4/10/-; timber, £3/12/- (250 sup. ft).—Total, £46/17/-.

This total is thought to be rather higher than that of the Bago lookout, but the pole had to be bought and erected and the labour cost was higher than necessary because a tradesman was not available for the construction work. In spite of that a useful lookout has been provided at a cost much below that of a braced wooden structure.

One of the authors has assisted with the erection of one 100ft. and one 120ft. high-lead logging spar and sees no reason, given adequate gear, why similar poles should not be erected for fire lookouts. A pole of 120ft. by 3ft. diameter at the base comes up quite readily with persuasion from a steam hauler, and given suitable power and a tree or an erected auxiliary spar to

carry the lifting block, it would be possible to set up spars of from 100ft. to possibly 150ft. The timber could be any of the pole-form species such as karri, mountain ash, blackbutt, Sydney blue gum, flooded gum, Tasmanian blue gum or perhaps hoop pine. If a suitable pole is available, it can be a solid stick, but if not, or if the gear is not sufficiently powerful to lift a solid pole one can be spliced from two or three sections. Since joints, in which decay may start, cannot be readily treated with preservative a solid pole is preferable if it can be handled. The transportation of such a long solid pole presents difficulties, but these are not insuperable. The most suitable form of lifting power would be a heavy tractor of at least 70 h.p., and preferably of 95 h.p., equipped with a logging winch. An ordinary steam logging winch should serve, but its uses would not be so diverse and transport and water supply might present problems.



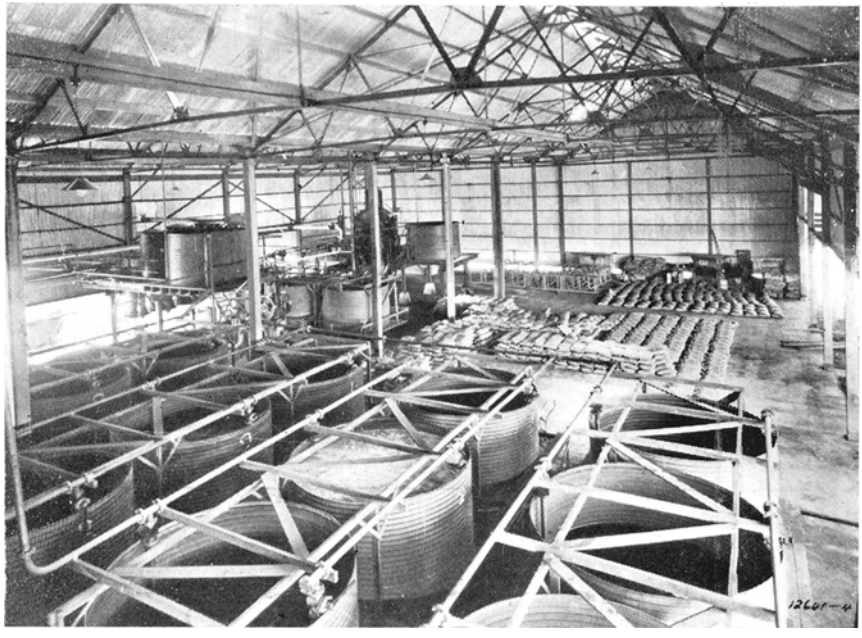
Since many of the species that would make a suitable spar are not sufficiently durable to warrant the capital expenditure involved in erecting them, it becomes necessary to provide some means of preserving the foot of the pole —creosote spraying or brushing at intervals should preserve the barrel and superstructure—and a design for a concrete plinth that is termite-proof and allows periodical creosoting is shown. The scale is only approximate and dimensions would have to be calculated for individual cases. The cask is built in two sections; the second and lighter being poured after the pole has been erected and guyed. During lifting the end of the pole, which is lightly sniped, skid-pivots on the vertical and horizontal rails A and B, the horizontal ones being left ¼in. higher than the floor. Before the pole is lifted its butt and the walls of the cask are well brushed with a solution of sodium flouride and arsenic. Half an inch of mortar containing a generous proportion of these preservatives is then placed on the cask floor to allow for a possible skew in the squaring of the butt and the surplus squeezes out as the pole comes to the vertical. The ⅝in. square bars C, which are greased before placement, help to stop the butt from abrading the cask wall as it turns during the lifting. After the guying they are removed by tackle attached to their hooked ends. The cleaning pipes D, are in contact with the bottoms of the bars. After cleaning out, a passage from C to D will be available. The pipes can then be plugged and creosote introduced at C at any time. The contact between the pole and the concrete will not be perfect and creosote will envelop the whole butt. A termite shield should be cemented to the top of the wall and a galvanised verandah to keep rain and dirt out of the creosote passages should be fixed to the pole.

A ladder of the type designed by Youhotsky for Bago is essential, as it is safe, reassuring and economical. Obviously, as much as possible of the drilling of the pole and the preparation of the top for the bearers should be done on the ground. At least one bearer should be bolted on before the pole is hoisted in order to give a positive hold to the strap supporting the block carrying the rigger's lifting rope. Used mine or logging ropes would afford ample strength for guys.

It is impossible to give a useful estimate of the cost of such a lookout as that could vary tremendously with local conditions, but a courageous guess might set £200 as the maximum and in any case the cost must be much less than that of a braced tower of the same height.

Pole Look-Out, Mt. Stromlo. Australian Capital Territory.

Wandoo Forest near Mill.



Liquor Settling Tanks, Evaporator and Finisher.