THE SHAPE OF THINGS TO COME

By T. J. Welch

As it is quite apparent that the logging industry is undergoing considerable changes in extraction methods, particularly in the sphere of modern mechanisation, it will be a matter of great interest and pride to all in this Department, to know that we are not only joining this tempo, but that we are about to witness several "firsts" in forest operations in this State, and in addition a "first" in Australia, in the full scale commercial application of one method.

Reference to the latter is to advise that an order has been placed for delivery in late January of a Massey-Ferguson "Treever" model 2200, "Forwarder".

The terminology of the logging industry classes a machine as a "Forwarder" where it is designed to pick up the load at the stump using a mounted crane, and carry the load out to the major road or loading platform, thus obviating the necessity for highway trucks to leave the main developed roads. This type of machine is an advanced development over the "Skidder" which is designed primarily for snigging full length logs.

The "Treever" with the "Hiab" type "luffing" crane, hydraulic rotator and log grapple is capable of also transferring the load from its own deck to the road transport, or from ground to transport. It requires only the operator to carry out all functions, which include collecting the stray logs which may roll from the stack, and turning misshapen logs end for end to provide more orderly and compact loading.

The "Treever" is a four wheel drive rubber tyred unit, with mid-l position articulated steering, a "Hiab" type crane mounted immediately behind the driver, and a log deck with "stake" sides, over the rear axle, and which has a capacity of approx. two tons of 8 feet length logs.

The machine is built by Gafner Automotive and Machine Corp., of Escanaba, Michigan, U.S.A., using the MF 203 Industrial Tractor (minus front axle) for the front unit, and the MF 203 rear axle for the rear half thus completing the four wheel drive.

The drive to the rear axle, which must be of unity ratio (1:1) is achieved where the makers have discarded the original tractor differential and transmission housing, replacing same with a steel fabricated housing which accommodates the extra rear drive bevel pinion.

A small hydraulic operated dozer blade is fitted to the front, which is available for self help duties such as clearing slash or debris, levelling soft earth mounds in the path, rolling of logs, and finally to stabilise the machine, during crane operation. The amazing feature is that of the fantastic performance obtained with only the power of the 3 cylinder diesel engine of the M. F. 135 Tractor, which develops 44 Brake Horse Power.

Basic Specifications are as follows :-

Brake Horse Power - 43.5 at 2250 R. P. M.
No. of Forward Gears - 6.
Speed Range at Max. Engine R. P. M. - 1.23 to 16 M. P. H.
Tyre Size - 16.9" x 26" (Equal on four wheels).
Ground Clearance - 17 inches.
Wheelbase - 119 inches.
Overall Width - 88 inches (over tyres).
Overall Length - 13 feet 6 inches.
Tare Weight - 4 tons 10 cwts.
Crane Lifting Capacity - 1500 lbs.
Cost is $15,500.

The "Treever" was observed operating at Oberon N. S. W. in June 1968, on the extraction of P. radiata thinnings, average 6" diameter, 8 feet length.

One example was from standing in the outrow at one pyramid stack (no stakes), the operator loaded this stack which constituted approx. half the load, then moved the machine along approx. $1\frac{1}{2}$ chains, and loaded a similar volume to complete the full load. No assistance was provided on the ground; the operator did, however, leave the control platform to reposition two logs which rolled away, but this would not have been necessary as the function of the rotator and grapple would have easily secured them in one extra lift. In all, the time taken was nine minutes, and this was achieved by an operator who had less than three weeks experience.

Another observation was made of the "Treever" with full load and all-up weight of $6\frac{1}{2}$ tons, assisting by towing a 7 ton table top truck carrying approx. 5 loads of the same logs, from where the truck had slipped into the road boxing and was spinning the drive wheels. The "Treever" provided sufficient additional power to haul the truck up a gradient of 1 in 8, on a sticky clay surfaced access road in the plantation, which had been, and was at that time under light snow fall and the resultant thaw.

On the basis of some early figures obtained it appears that the following output can be expected.

Working on a lead of 4 chains from roadside loading site to stump the unit can travel out, pick up 1.6 loads pre-stacked on the outrow, in a cycle of 12 minutes. This means a rate of 8 loads per hour.

Time taken to load 7 ton table top truck with 5 loads is approx. half an hour.

It is now believed that the machine is capable of hauling and loading 40 loads per day, i.e.

a) Load and carry from plantation to road @ 8 loads per hour = 5 hours.

b) Load onto trucks @ 5 loads per $\frac{1}{2}$ hour = 4 hours.

(Output based on a 9 hour working day.)

Of the other "firsts" mentioned, we are already acquainted with the introduction of the "Timberjack" "Skidder" into plantation logging.

Next to come will be the "Hiab" crane mounted on the rear of a Chamberlain Champion MK 11 Industrial Tractor, to be used for roadside loading onto the transports.

Purchase of one unit is already proceeding and to follow this will be the Massey-Ferguson MF 203 Industrial Tractor, fitted with Half-Tracks, and the rear mounted logging winch and skid pan.

The M.F. 203 with half-tracks and winch is designed as a comparative low capital cost unit (approx. $5,165) for use in sparse operations or low volume thinnings.

The beginning of this new concept of modern logging will no doubt usher in many changes in the areas of planning, felling and extraction methods, haulage contracts, and labour, and so should provide the Forester with many new and interesting challenges.