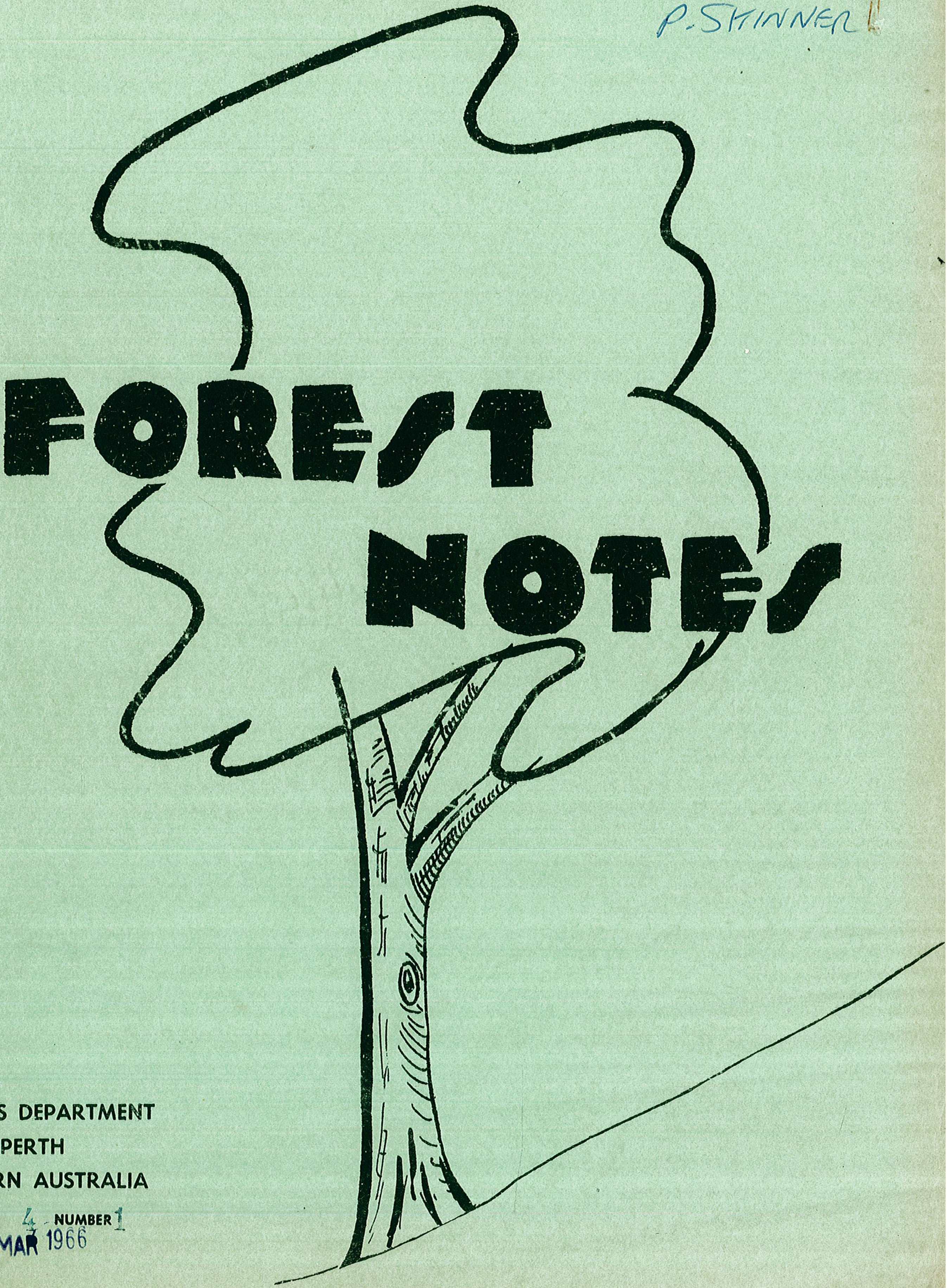
~~P. HADLEY~~
P. SKINNER

# FOREST NOTES




FORESTS DEPARTMENT
PERTH
WESTERN AUSTRALIA



VOLUME 4 NUMBER 1
MAR 1966

CONTENTS

Vol. 4, No. 1 March, 1966

## EDITORS' NOTE

This MARCH 1966 issue of Forest Notes suffers from ailments.

1. Publication is late.
2. Publication is small.

Despite urgent messages to most editorial whips, we are extremely short of material, and serious consideration has been given to ceasing publication altogether.

The cure for these problems lies in YOUR hands, so please try to do something to help; if more are not forthcoming by May 30th, this issue will be the last.

P.M. Hewett, J.A.W. Robley
CO-EDITORS.

Nannup.

The Editor,
Forest Notes.

McKinnell's article dealing with "Form of Pinus radiata on a High Quality Site" requires some comment.

From the figures presented it appears that Pinus radiata grown on a good site is of poor form. In the first thinning, 100 stems are not millable, 30 are suppressed, 45 are forked and so only 25 of the millable crooked stems can be removed etc. etc.

This at first sight appears a grim proposition, which is the picture the article generally conveys.

However, looking to the end of the rotation there are :

10 straight stems.
155 slightly crooked stems worth retaining or a total of 165 stems, from which the final crop be it 80, 100 or 120 stems can be chosen.

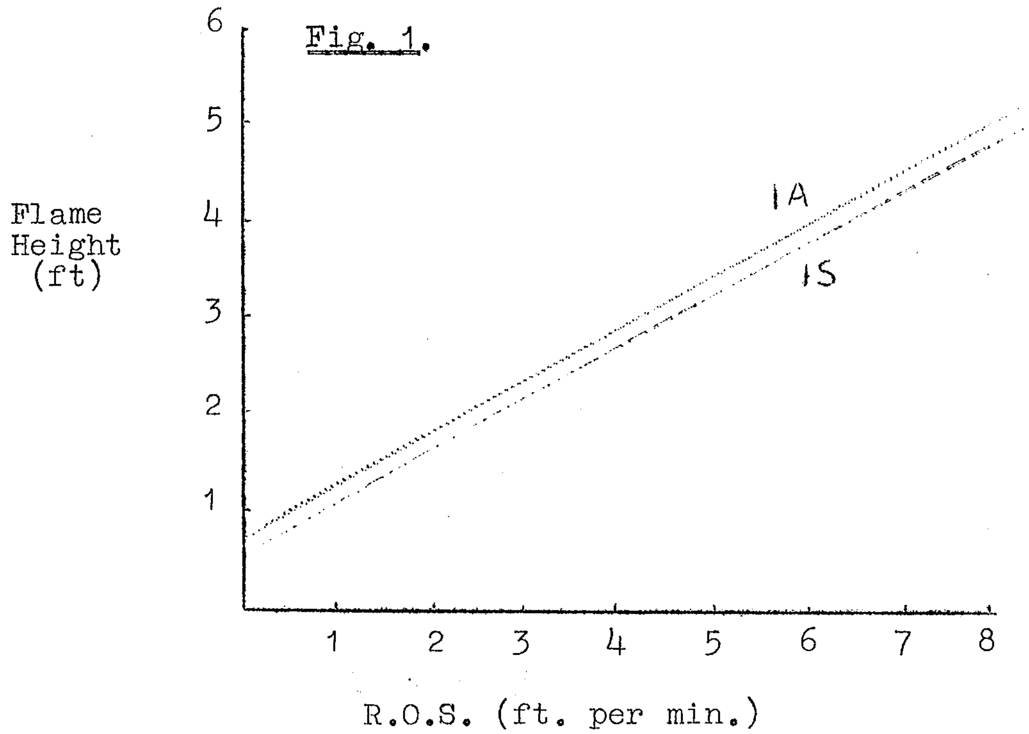
Craib, following his work in South Africa considered that on a top quality site 64% of the volume and 82% of the monetary value of a P. radiata stand are realised from the final felling.

In view of this too much reliance should not be placed on the profits to be obtained from thinnings generally, let alone the first one. On the contrary, as the majority of the volume and the profit are harvested from the final felling, the final crop must be favoured throughout the life of the stand.

A.R. Hill.

# A FLAME HEIGHT - RATE OF SPREAD RELATIONSHIP IN THE NORTHERN JARRAH FOREST.

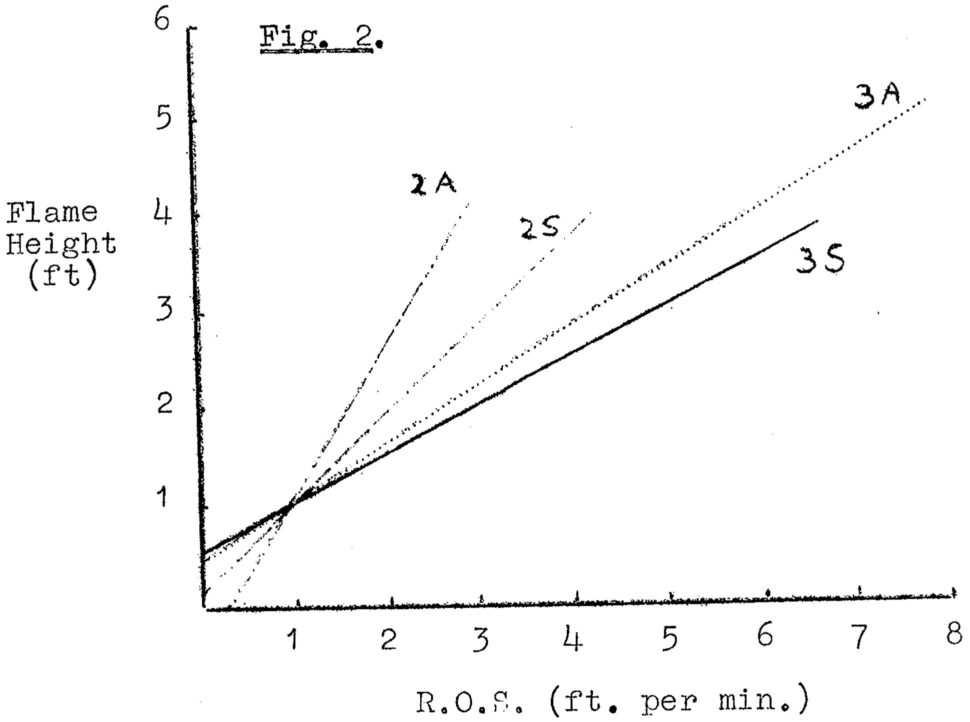
by J. McCormick.




In the past three years 367 experimental fires have been run in the Northern Jarrah Forest, in and around Dwellingup division. Of these fires, 217 were Spring fires and the remaining 150 were Autumn fires. Headfire rates of spread were recorded at two minute intervals and flame heights taken at four minute intervals. From the resultant data, flame heights were plotted against rates of spread for both Autumn and Spring fires thus producing two linear curves 1A and 1S (fig. 1).

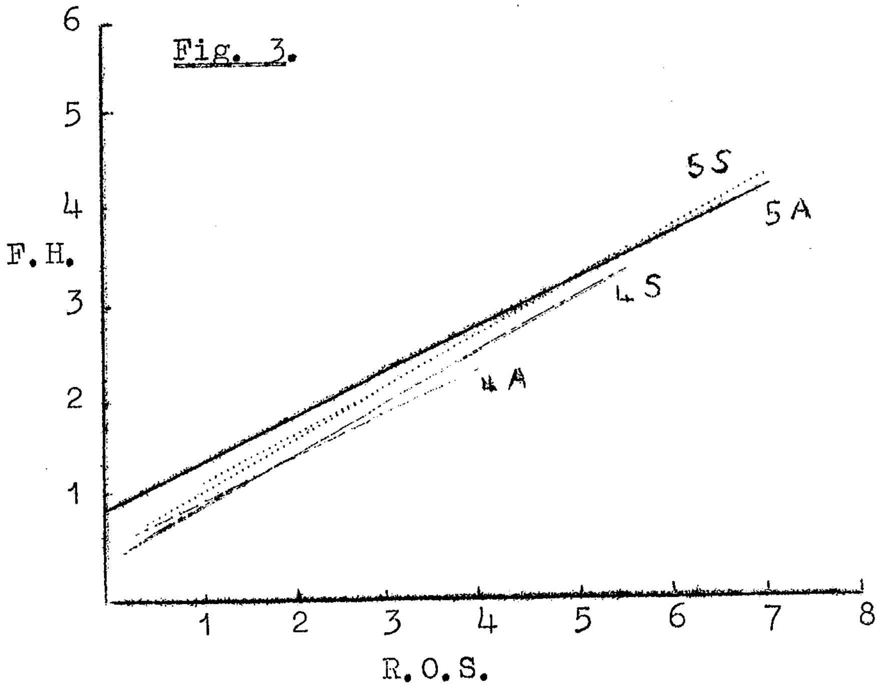
It will be observed that these curves run almost parallel to each other with the Autumn curve being the more dominant; thus indicating higher flame heights in Autumn throughout the entire R.O.S. range.

Fig. 2.




To find the effect of Wind speed on flame height the data was broken down into two wind speed classes, i.e. those fires whose wind speed was under 2 m.p.h. and those run in wind speeds of over 2 m.p.h. This gave the curves 2A:2S (under 2 m.p.h.) and 3A:3S (over 2 m.p.h.) respectively. (fig. 2.)

Fig. 3.



Here the wind speed effect is easily noticeable in comparing curves 2A:2S with 3A and 3S. In the lower wind speed class flame heights are higher throughout the entire R.O.S. range. Again we find the Autumn flame heights dominant in their respective wind speed classes; furthermore the Autumn dominance in flame height over Spring flame height increases with R.O.S. increase. In effect the angular difference between the lower and higher wind speed curves is an indication of the 'laying' of the flame by the wind.

In an attempt to find the effect of fuel quantity on flame height, the original data is taken out in Fuel quantity classes, i.e., all fires with less than 2 tons per acre and all fires with over 2 tons per acre. The resultant curves were 4A:4S (< 2 TPA) and 5A:5S (> 2 TPA) fig. 3.

Here we find the autumn flame heights dominant only in the higher fuel class and it would appear from these regressions that although Autumn flame heights are generally higher than Spring flame heights, seasonal change has little or less effect where the ground fuel available is less than 2 tons per acre. In comparing fig. 3 with fig. 1 there is also a noticeable drop in flame height with reduction in fuel quantity.

The combined effect of wind speed and fuel quantity is shown in the regressions (6A:6S ...... 9A:9S). Fig. 4 and Fig. 5.

In comparing curves 7A with 9A and 7 S with 9S (all over 2 TPA) the wind effect is pronounced as in Fig. 2. (i.e. lower wind speed, higher flame height) but when fuel quantity is introduced, the picture becomes more distorted 6A:6S and 8A:8S (all under 2 TPA); for example in Fig. 4 the Spring flame heights are higher than the Autumn flame heights where the wind speed is under 2 m.p.h. and where the wind speeds encountered are over 2 m.p.h. the Spring flame heights are again dominant but only when the R.O.S. is over approximately 2.5 ft. per min. Fig. 5; again indicating how little seasonal change influences flame height where low fuel quantities are encountered.

Fig. 4.

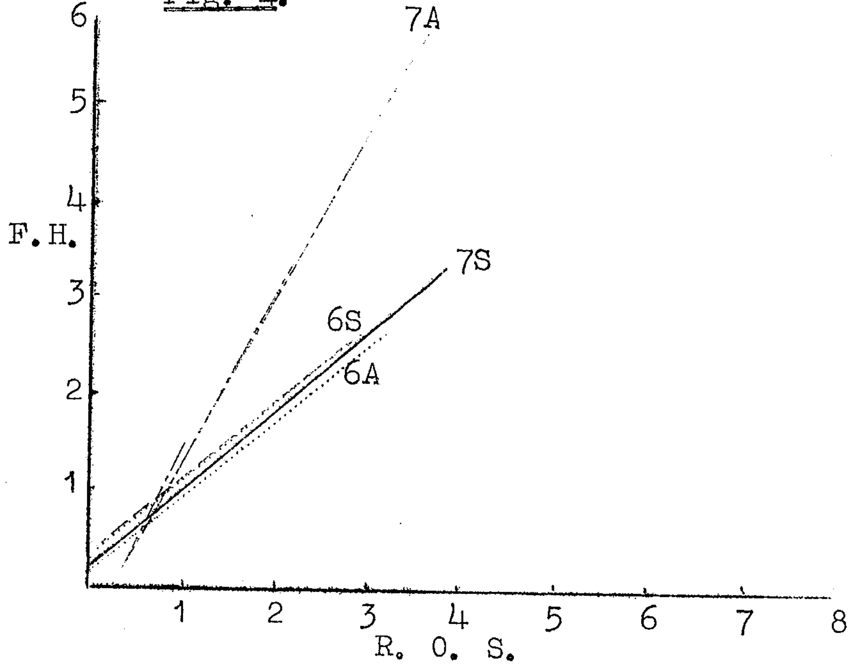
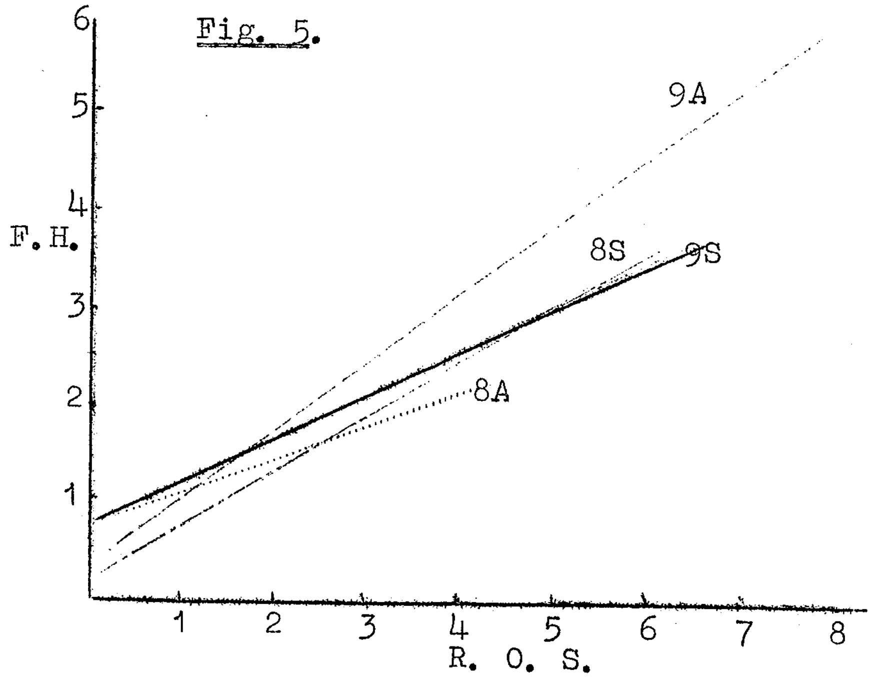



Fig. 5.



The regressions illustrated were :-

Spring Fires.

| Reg. No. | | r | t | sig. | N |
|---|---|---|---|---|---|
| 1S | y = .558 + .5461x | .71 | 14.40 | .01 | 217 |
| 2S | y = .1488 + .9284x | .75 | 10.00 | .01 | 102 |
| 3S | y = .542 + .5165x | .74 | 11.40 | .01 | 115 |
| 4S | y = .4639 + .5269x | .74 | 9.40 | .01 | 75 |
| 5S | y = .598 + .544x | .55 | 7.79 | .01 | 142 |
| 6S | y = .3539 + .8107x | .64 | 4.56 | .01 | 32 |
| 7S | y = .241 + .8508x | .74 | 9.07 | .01 | 70 |
| 8S | y= .2218 + .5728x | .82 | 9.17 | .01 | 43 |
| 9S | y= .7294 + .473x | .68 | 7.75 | .01 | 72 |

Autumn Fires.

| Reg. No. | | r | t | sig. | N |
|---|---|---|---|---|---|
| 1A | y = .7 + .549x | .55 | 8.01 | .01 | 150 |
| 2A | y = -.322 + 1.527x | .58 | 5.03 | .01 | 52 |
| 3A | y = .486 + .609x | .50 | 5.62 | .01 | 97 |
| 4A | y = .537 + .474x | .67 | 5.02 | .01 | 45 |
| 5A | y = .931 + 477x | .52 | 7.20 | .01 | 104 |
| 6A | y = .194 + .809x | .82 | 6.72 | .01 | 24 |
| 7A | y = -.514 + 1.871x | .56 | 11.10 | .01 | 29 |
| 8A | y = .704 + .371x | .50 | 2.34 | .05 | 21 |
| 9A | y = .335 + .717x | .56 | 7.03 | .01 | 77 |

## SAFETY PROGRAMME

With the current emphasis on safety in bush operations, it seems appropriate that we should print the story below, which came from an aged, yellow newspaper clipping in the Carinyah Office.

### Stone Cert. For Compo.

The following is taken from the Miscellany column of the Manchester Guardian. It's a letter received from a bricklayer in Barbados by the firm for which he worked.

"Respected Sir,-

"When I got to the building, I found that the hurricane had knocked some bricks off the top. So I rigged up a beam with a pulley at the top of the building and hoisted up a couple of barrels full of bricks. When I had fixed the building, there was a lot of bricks left over. I hoisted the barrel back up again and secured the line at the bottom, and then went up and filled the barrel with extra bricks. Then I went to the bottom and cast off the line.

"Unfortunately, the barrel of bricks was heavier than I was, and before I knew what was happening the barrel started down, jerking me off the ground. I decided to hang on and halfway up I met the barrel coming down and received a severe blow on the shoulder. I then continued to the top, banging my head against the beam and getting my fingers jammed in the pulley. When the barrel hit the ground it bursted its bottom, allowing all the bricks to spill out.

"I was now heavier than the barrel and so started down again at high speed. Halfway down, I met the barrel coming up and received severe injuries to my shins. When I hit the ground I landed on the bricks, getting several painful cuts from the sharp edges.

"At this point I must have lost my presence of mind, because I let go the line. The barrel then came down, giving me another heavy blow on the head and putting me in the hospital. I respectfully request sick leave."

---oOo---

## S A F E T Y   M E S S A G E.

I am more powerful than the combined armies of the world,

I am more deadly than bullets and I have wrecked more homes than the mightiest siege guns,

I massacre thousands and thousands of wage earners in a year,

I lurk in unseen places and do most of my work silently,

You are warned against me, but you heed not.

I am relentless; I am everywhere; in the home, on the street, in the factory, at railroad crossings, even at sea.

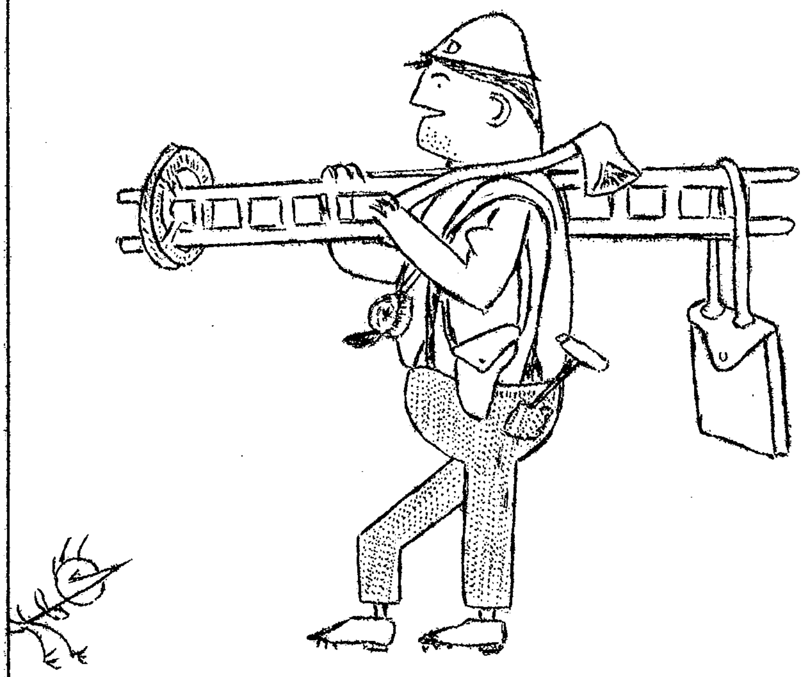
I bring sickness, degradation and death, and yet few seek to avoid me,

I destroy, crush and maim; I give nothing but take all; I am your worst enemy .......

I am ........ CARELESSNESS.

(Taken from B.P. Accelerator Publication - sent forward by N. Belton). Eds.

SAFETY POSTER



I won't need an offsider for this plot,
I can carry the gear in.

# COMPARISON OF SIZE WITH STRENGTH UNDER PRESSURE BETWEEN SEASONED ROUND MINING TIMBER AND GREEN SPLIT MINING TIMBER.

By R.I. Button.

At present green split Jarrah is being used in the Collie Deep Coal Mines, at the rate of approximately six hundred pieces every day.

This high consumption will soon exhaust the small quantity of readily available and economical split Mining timber left in the Collie District. Young dense pole areas being plentiful, it was decided that some research should be undertaken to determine the size of the average pieces of split mining timber acceptable by the Mines Department, compared with the size of seasoned round timber of equivalent breaking strength.

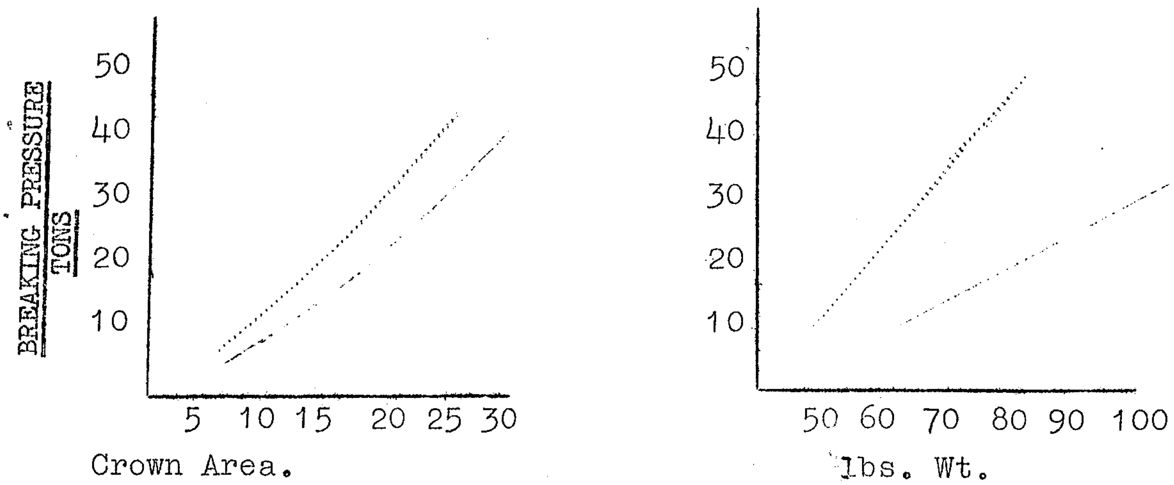
## MATERIAL COLLECTED.

Thirty pieces of barked freshly cut green split Jarrah props, chosen at random from a Mine dump. Ninety pieces of barked, round, timber with less than 23% moisture content chosen at random from the three most common species, Jarrah, Marri and Yarri. Each piece being eight feet long, the crown area varying from eight square inches to thirty square inches, with no faults unacceptable to the Mine specifications.

## THE EXPERIMENT.

Each piece was marked for identification, weighed, crown area measured, and then broken under pressure.

The recordings were graphed as below.




................ Round Timber
---------------- Split "

EQUIPMENT USED.

A H draulic Caterpillar Ram with dial showing tons breaking pressure connected to a press. A modern weighing table (at the railway goods yard).

CONCLUSIONS.

From the graphs, we find that the round timber is stronger than the split mining timber, separating the species the strongest in sequence was round Marri, round Jarrah, round Yarri, and lastly green split Jarrah. This indicates that a smaller piece of round timber, in w ght and crown size, can fulfil the same purpose as a piece of split green Jarrah.

Due to the rapid sap decay in Marri and Yarri, round Jarrah is the only species that can be used without preservative pressure treatment.