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# LOG FAULTS

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A  
*glossary of defects*  
*& other*  
*characteristics of*  
*trees & logs in the*  
*south-west of*  
*Western Australia.*

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BY **JOHN CLARKE**  
PHOTOGRAPHY  
BY **GAVIN ELLIS**

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Department of Conservation & Land Management

# **"LOG FAULTS"**

A glossary of defects and other  
characteristics of trees and logs  
in the south-west of  
WESTERN AUSTRALIA.

By JOHN CLARKE  
Photos by GAVIN ELLIS

## FOREWORD

The purpose of this booklet is to provide a basic working knowledge of the terminology used by personnel involved in timber harvesting in Western Australia in describing log quality.

This booklet was initiated in 1979 by J.E. (Jack) McAlpine, a long serving forester who spent many years working for the former Forests Department of Western Australia. Jack started compiling photographs and definitions of tree and log defects and characteristics, but was unable to complete the project due to his untimely death in 1980.

Jack's aim was to produce a booklet "covering all facets of tree and log faults, by way of coloured photographs and a brief summary of same", a booklet which "should be an excellent guide for all professional and field staff engaged in timber production".

Ten years later the project commenced by Jack is complete. It is hoped that the finished product reflects Jack's initiative and foresight.

John Clarke

June 1989

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## INTRODUCTION

A "defect" or "fault" may be defined as any characteristic or irregularity that lowers the strength, durability or utility of a tree or log.

There are many defects which can affect the utilization potential of a tree and the quality of logs cut from that tree. In turn, log quality has a significant effect on the recovery of sawn timber in a sawmill or on the suitability of the log for products such as woodchips.

People involved in timber harvesting must be able to make accurate judgements of the utilization potential of standing trees or logs. This judgement can only be made by interpreting the external appearance of a tree or log.

This booklet is designed to provide timber production personnel with the basic knowledge required to identify the common tree and log defects or characteristics likely to be encountered in native forests and softwood plantations in the south-west of Western Australia.

The booklet is divided into three sections, the first covering defects or characteristics of trees and logs resulting from insect attack, the second covering defects or characteristics resulting from fungal attack, and the third covering mechanical or physical defects and other characteristics of living trees and freshly felled logs.

Each defect or characteristic, or the causal agency involved, is defined, any synonyms are noted, and brief comments on the nature and occurrence of the defect or characteristic are given. In most cases the defect or characteristic is illustrated with a coloured photograph.

The booklet also includes an alphabetical listing of common terms used in the logging industry in Western Australia.

The knowledge gained from this booklet must be refined and expanded through practical experience. An important part of such experience is the observation of how logs are "cutting" at a mill. This allows internal defects or characteristics to be related to the external appearance of the log. In addition, mill studies have shown that logs with similar external features may exhibit vastly different internal defects or characteristics if the logs are harvested from different areas. For example, a limb stub may result in extensive rot in a tree grown on a poor quality site and yet may have a minimal effect on a tree grown on a high quality site. By keeping "in tune" with how logs from different areas are "cutting", appropriate adjustments to judgement of trees or logs in the field can be made. Practical experience of this type plus a good working knowledge of tree and log defects and characteristics, their appearance, cause, effect on utilization and acceptable standards, will ensure that all trees harvested are used to their maximum potential.

## **SECTION 1**

### ***INSECT PESTS OF LIVING TREES AND FRESHLY FELLED LOGS***

#### **Auger Beetle**

A beetle up to 20mm in length, the larvae of which bores into the sapwood of hardwoods, particularly marri. The specific name is *Bostrychopsis jesuita*. It is sometimes referred to as the Bostrychid Beetle or Jesuit Beetle, or the Shot-hole Borer. The presence of this insect is evidenced by networks of tunnels in the sapwood of recently felled trees, and the presence of coarse frass. The Auger Beetle has a significant effect on marri poles. If such poles are not processed and treated with preservative promptly, damage to the sapwood layer by the Auger Beetle will render the poles unsuitable for use as transmission poles. Storage of marri poles under water spray will prevent Auger Beetle attack.

#### **Bardi**

The creamy white larva of a number of different insect pests of W.A. hardwoods, the most common being the Longhorn Borer (*Phorocantha semipunctata*), a significant pest of jarrah. Attack by Bardi usually occurs in recently felled logs or dead or dying trees. The insect is particularly active during the months December to April. The grub feeds on sapwood and eventually tunnels into the heartwood to pupate. It is the tunnelling into the heartwood that causes the damage. Bardi infestation in logs may be controlled by storing logs under water spray or by removing the bark from the logs (Figure 1).

#### **Borer**

Any wood boring insect in either the larvae or adult stage which tunnels into wood or between bark and wood. The larvae of a number of insects damage trees or logs. See Auger Beetle, Bardi, Bullseye Borer, Ips Bark Beetle, Pinhole Borer, Witchetty Grub.

#### **Bullseye Borer**

The larva of *Tryphocaria acanthocera*, an insect similar to *Phorocantha semipunctata* (Bardi or Longhorn Borer). This insect prefers young living trees and feeds mainly on sapwood. The Bullseye Borer eats into the bark in a spiral fashion and gradually works into the sapwood. It then bores upwards on an erratic course for a distance of 3 to 4 metres. Bullseye Borer channels are usually about 5 to 10mm in diameter and are a major cause of gum rings or pockets in marri and karri regrowth (Figure 2).

#### **Ips Bark Beetle**

An introduced pest of softwoods, *Ips grandicollis* is a small beetle which attacks the cambium layer of recently felled, dead or dying softwood tree species. Pines affected by fire, disease or drought are susceptible to Ips attack, as may trees suffering stress following pruning. The major significance of Ips is their role in accelerating the introduction of blue stain fungi to pine trees or logs (Figure 3).

### **Pinhole Borer**

Name given to a number of different insect species which bore small diameter (approx. 1mm) holes into live trees. The Pinhole Borer often cultivates a fungus upon which the larvae feed and which imparts a dark stain to the perimeter of the tunnels. In these cases the pinholes are sometimes referred to as "dirty" pinholes. The most common Pinhole Borer species is *Atractocerus kreuslerae*, sometimes known as the Eucalypt Pinworm. Attack by Pinhole Borers is more common in badly fire damaged forest (Figure 4).

### **Termites**

Insects, incorrectly called White Ants, belonging to the order Isoptera, which are very active destroyers of most types of woody material in the warmer zones of the world. Western Australia's native hardwood timbers have varying natural resistance to termites, jarrah and wandoo being relatively resistant, karri being relatively non-resistant. Most termite species attack dead wood, attack in living trees being confined to the dry central core or heart zone of slow-growing species. Species that attack green wood are of little significance in W.A.

### **Witchetty Grub**

The large, white, fleshy larvae of the cossid moth (*Xyleutes sp.*) This grub bores tunnels 10 to 20mm in diameter in hardwood trees, particularly karri. Frass produced by the Witchetty Grub tends to be coarse and loosely packed (Figure 5).



## **SECTION 2**

### ***FUNGI AND THEIR EFFECTS ON LIVING TREES AND FRESHLY FELLED LOGS***

#### **Decay**

Decomposition of wood by fungi (see Rot).

#### **Rot**

A term more or less synonymous with decay but generally applied to the more advanced stages of decomposition or to particular types of decay. Rot may be detected by the presence of swellings, fruiting bodies, external damage and by axe "sounding". Sounding can be used to identify the presence of rot, but it must be remembered that sounding with an axe can inflict damage to standing trees. Visual inspection of swellings and other external features will best indicate the extent to which a tree is affected by rot. The movement or spread of rot within a tree is generally most rapid along the grain (i.e. up and down the tree), more slowly around the tree, and most slowly along the radius.

Rot may be classified or described using many different terms, for example:

- i) Rot that attacks living trees - i.e. primary or parasitic rot.
- ii) Rot that attacks dead trees - i.e. secondary or saprophytic rot.
- iii) The position or extent of the rot - e.g. heart rot, pocket rot.
- iv) The texture of the rot - e.g. straw rot, cubical rot.
- v) The colour of the rot - e.g. brown rot, white rot.

From a utilization point of view, the type of rot in a log is usually immaterial because most types of rot render wood of little value, whether the log be destined for a sawmill, a paper pulp mill or for firewood. There are some types of fungi however which do not cause a loss of strength or durability, but instead impart desirable features to timber. One example is *Fistulina hepatica*, a fungus that causes small dark streaks in jarrah often referred to as "pencilling".

#### **Brown Rot**

A type of decay caused by fungi which utilize mainly the cellulose fraction of the wood, leaving a brown friable residue containing a high percentage of lignin.

#### **Cubical Rot**

A brown rot, characterized in its advanced stages by longitudinal and cross-shrinkage checks forming a more or less regular pattern (Figure 6).

#### **Heart Rot**

This is decay of the wood near the heart or centre of the living tree. Heart rot may also be described according to its location in the trunk of the tree, for example, "butt", "ground" or "top". Heart rot is also sometimes referred to as column rot. Heart rot is the most common type of rot in jarrah.

### **Pocket Rot**

This is a rot in which the decay processes have been limited to small areas or pockets, usually lens-shaped and surrounded by apparently sound wood. There are no external symptoms to indicate the presence of pocket rot. Pocket rot, when it occurs, is usually distributed randomly throughout the bole of a tree and, on a site where it occurs, nearly all trees will be affected. Infertile, shallow soils and grey sands will often carry many trees with pocket rot, especially in jarrah.

### **Primary Rot**

Primary rot is rot that occurs in the living tree. Fungi involved are referred to as "parasitic" fungi.

### **Secondary Rot**

This is rot which occurs in a dead tree or in a log on the ground. Fungi involved are referred to as "saprophytic" fungi.

### **Straw Rot**

This is a straw-coloured heart rot occurring in the living tree before felling. It can be diagnosed by rough swellings on the bole of a tree (Figure 7).

### **Wet Rot**

A decay characterized in its active state by a high water content, yielding water readily under moderate pressure.

### **White Rot**

A type of decay caused by fungi that utilize a lot of the lignin, leaving a white or light-coloured residue.

### **Blue Stain**

Blue stain, also referred to as sap stain, is the bluish discolouration of certain species, particularly softwood species, caused by certain fungi which infect the sapwood and outer heartwood of felled trees. Blue stain fungi may infect felled trees within a few days in warm wet weather. Radiata and pinaster pine, with their large amount of sapwood, are particularly vulnerable to blue stain. Blue stain does not affect the strength of timber, but may be unacceptable in softwood logs destined for particle board due to detrimental effects on the colour of the finished product. Blue stain may also render timber unsuitable for preservative treatment.

Blue stain may be controlled by ;

- i) rapid conversion of logs and quick-drying of the sawn timber
- ii) water spray storage of logs or
- iii) use of fungicidal dip or spray.

### **Brown Wood**

"Brown wood" is a term used recently to describe karri heart wood which is darker than normal, but shows no obvious fungal mycelium and no obvious loss of strength. Brown wood tends to be quickly followed by wood damaging fungi (Figure 8).

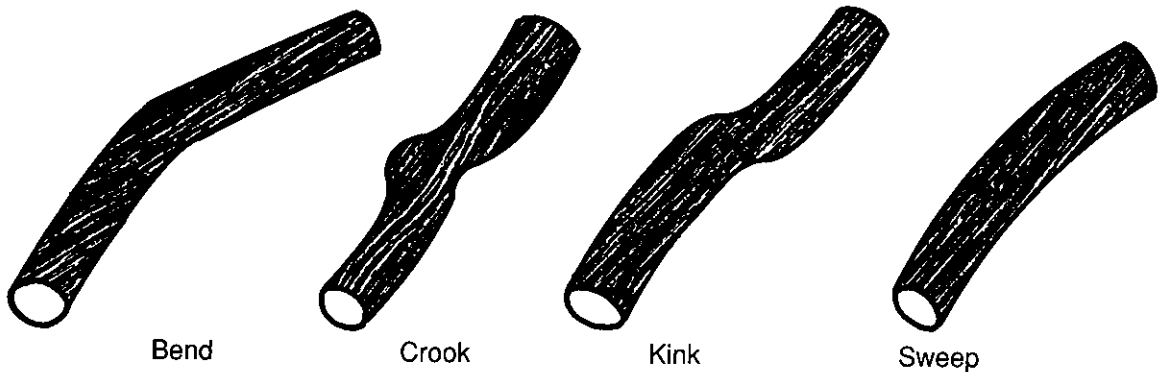
### **SECTION 3**

#### ***MECHANICAL DEFECTS AND OTHER CHARACTERISTICS OF LIVING TREES AND FRESHLY FELLED LOGS***

##### **Bend**

A sharp change in direction at a point on an otherwise straight log.

Bend should not be confused with "crook", "kink" or "sweep".



*Diagram 1*

##### **Bump**

A term used to describe a small localized swelling on the bole of a tree, usually due to the effects of insects or fungi in the underlying wood. In young trees, bumps often indicate the presence of pockets of decayed wood resulting from infection following branch shed.

##### **Burl**

A pronounced swelling with a rough, crinkly surface and pimply and fissured bark. Burls, which are thought to be caused by a tree's reaction to insect or viral attack, are sometimes known as "bloodnuts". Burls are valued products because of their contorted grain. Wood beneath a burl is generally solid therefore queen cutting should be avoided. Burls should be trimmed from a log prior to transport (Figure 9).

##### **Buttress**

The swollen or enlarged base of a tree, providing structural strength. A buttress, also known as "buttswell", reduces the value of a tree as a sawlog because ;

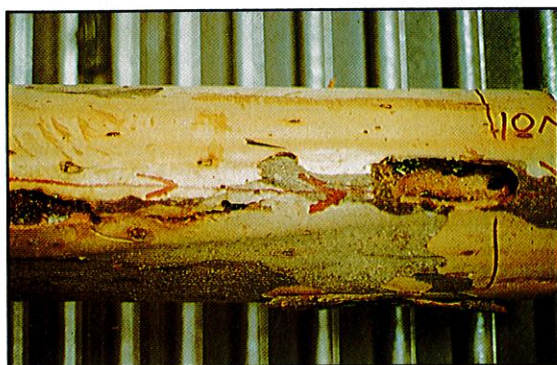
- i) the wood underneath the swelling is cross-grained in relation to the central axis of the tree and
- ii) the excessive taper leads to poor sawn recovery. A "spurred butt" is a buttress with a fluted or grooved structure. Spurred butts pose problems for automatic debarking machines (Figure 10).

##### **Callus**

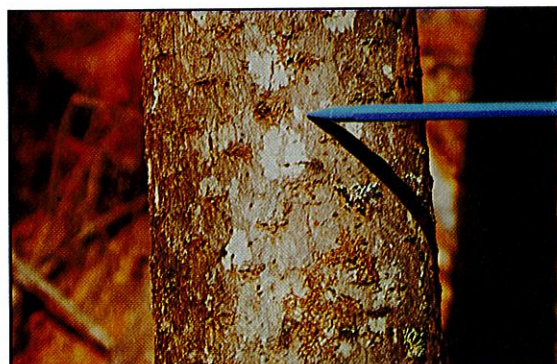
Callus is tissue that develops after the wounding of a tree in an attempt by the tree to cover the wound. The effect is commonly known in the industry as "overgrowth" (Figures 11 & 12).



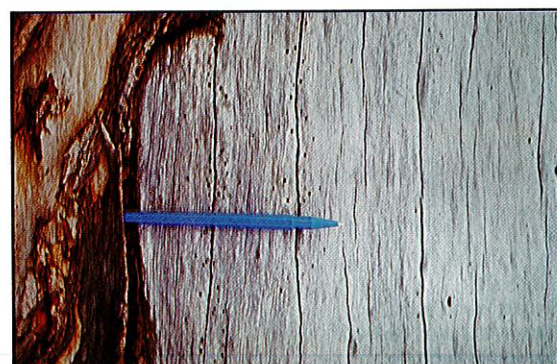
*Figure 1*  
Bardi attack on sapwood of recently felled jarrah. This attack may be prevented by storage under water spray or by removal of bark.



*Figure 2*  
Bullseye Borer attack in young karri. The ear-shaped (or "bullseye" shaped) chambers eaten into the sapwood often become plugged with gum.



*Figure 3*  
Radiata pine showing the 2mm exit holes of the Ips Bark Beetle.



*Figure 4*  
Pinhole Borer attack, associated with dryside, in karri.

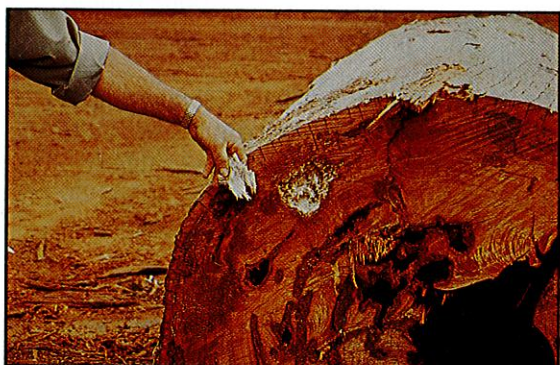




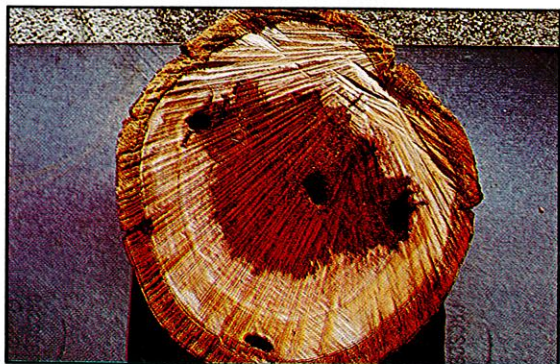
*Figure 5*  
Witchetty Grub tunnels  
in karri.



*Figure 6*  
Cubical rot in jarrah.



*Figure 7*  
Straw rot in karri. Note also  
the gum ring, the off-centre heart,  
and the witchetty grub or  
cossid moth larva tunnel.



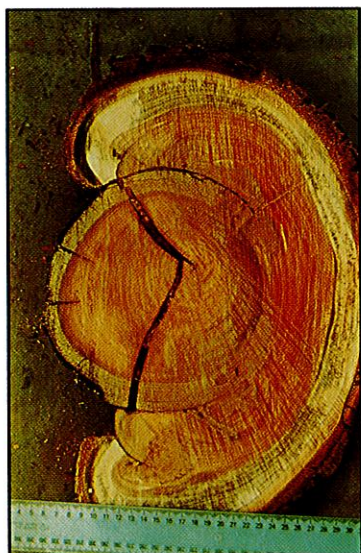
*Figure 8*  
Brown wood in young  
karri with holes caused  
by witchetty grubs.



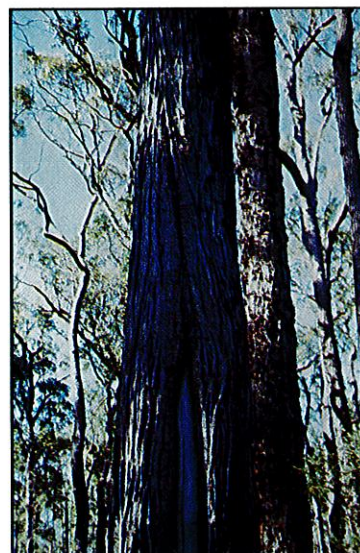
*Figure 9*  
Burl on marri tree.



*Figure 10*  
Buttress on mature jarrah tree.

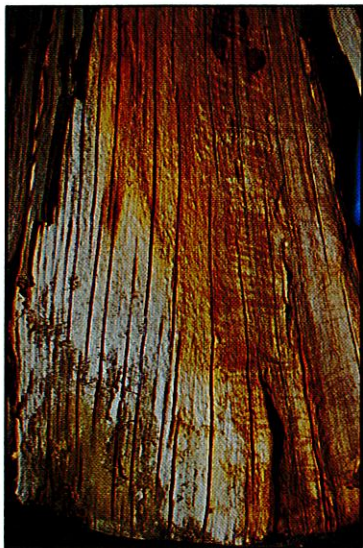


*Figure 11*  
Young karri showing  
development of callus tissue  
in response to fire damage.

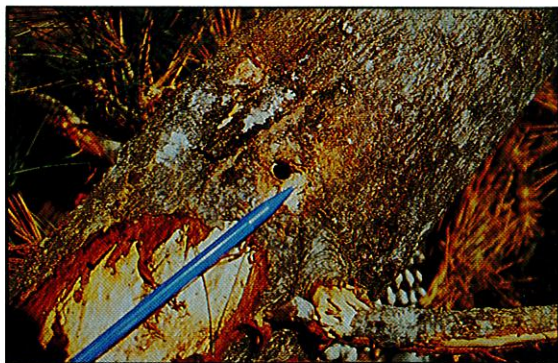


*Figure 12*  
Overgrowth in jarrah  
associated with dry side.

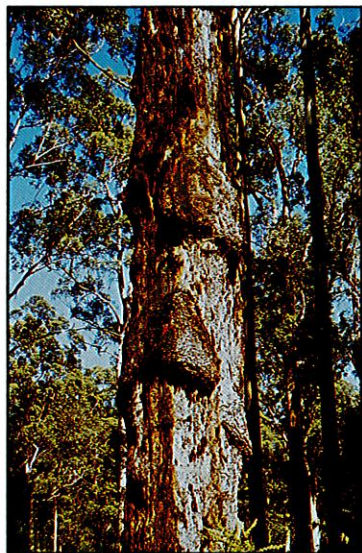




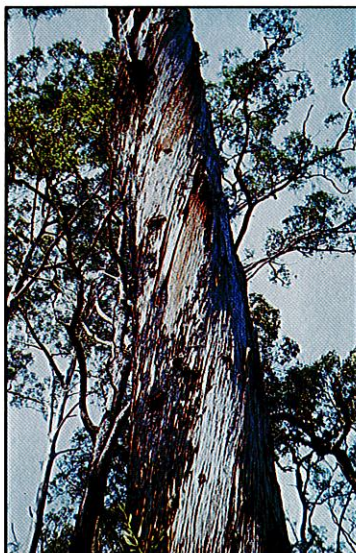
*Figure 13*  
Surface checks on karri.



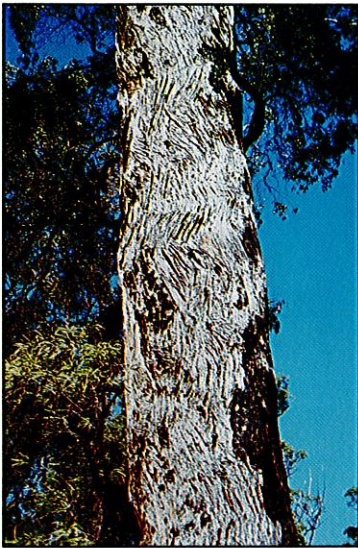
*Figure 14*  
Cone hole in radiata pine.



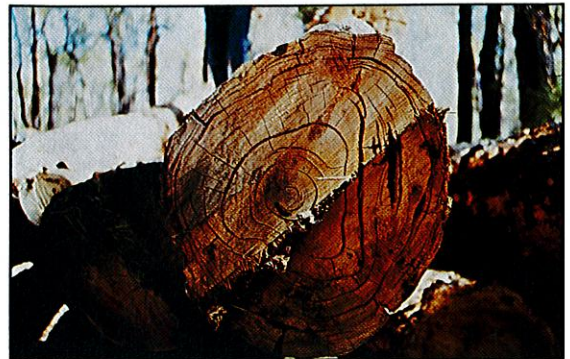
*Figure 15*  
Elephant ears in marri.



*Figure 16*  
Spiral grain in jarrah.



*Figure 17*  
Wild grain in jarrah.



*Figure 18*  
Gum veins and gum rings in marri.

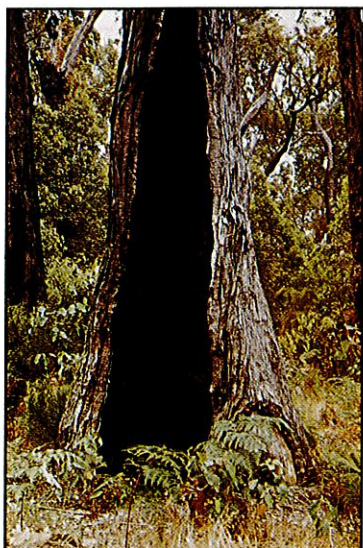


*Figure 19*  
Cross section of jarrah log  
showing "off-centre" heart  
with associated rot.



*Figure 20*  
Double heart in jarrah.

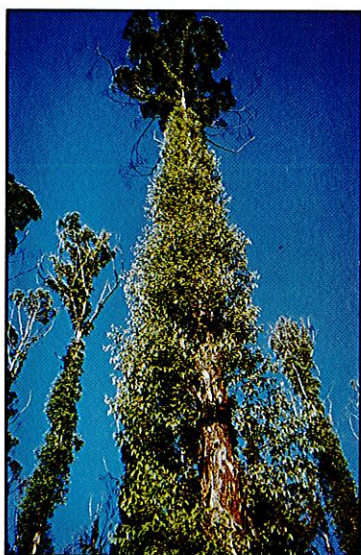




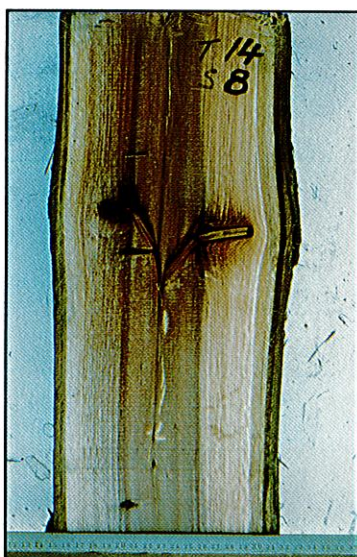
*Figure 21*  
Hollowbutt in jarrah.



*Figure 22*  
Knot in radiata pine. This is an "intergrown knot".



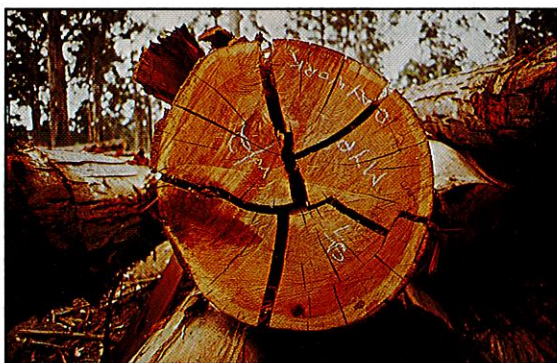
*Figure 23*  
Epicormic limbs in karri  
following wildfire.



*Figure 24*  
Section of young karri log showing  
limb stubs, completely overgrown,  
leaving slight swellings or bumps  
on outside of log.



*Figure 25*  
Pipe in karri.



*Figure 26*  
Popping in karri.



*Figure 27*  
Pulled wood in radiata pine.



*Figure 28*  
Heart shake in karri, with  
associated rot.





Figure 29  
Ring shake in karri.



Figure 30  
Star shake in karri.

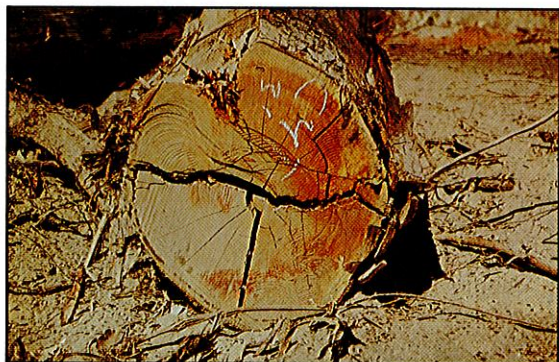


Figure 31  
Shatter in karri.

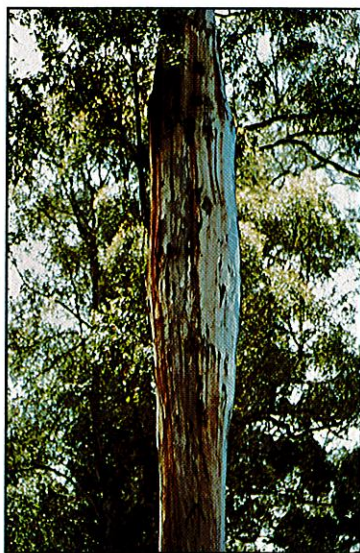


Figure 32  
Swelling in karri.

### **Charcoal**

Charcoal is the dark, carbonized remains of wood following incomplete burning. Charcoal is not acceptable on logs destined for high quality paper production because it cannot be bleached in the pulping process.

### **Check**

The word "check" refers to the separation of wood fibres along the grain forming a fissure that does not extend through the log. Checks result from either the loss of moisture from logs or from the release of growth stresses.

"End checks" occur on the ends of logs. They may be reduced by coating the log ends with a moisture sealant such as petrolatum, or by water spray storage.

A "surface check" is a check confined to the surface of a log, of no appreciable depth. Surface checks are sometimes referred to as "sun cracks" or "shrinkage checks" (Figure 13).

"Barrel checks" are checks on the surface of a log of appreciable depth.

### **Cone Hole**

This is a hole remaining in timber resulting from the stalk of a seed cone which has fallen or been pulled out from the trunk of a pine tree (Figure 14).

### **Crook**

A localized curvature of small radius in a log, not affecting the general alignment. (See Bend for comparison).

### **Dry Side**

"Dry side" is a term used to describe the dead side of a living tree, usually caused by physical damage following fire or mechanical abrasion. The utilization potential of a tree or log with a dry side depends on the extent of subsequent deterioration of the dead wood due to fungi, insects, seasoning or fire (Figure 12).

### **Elephant Ears**

"Elephant Ears" is a term used to describe a peculiar growth often found on the bole of marri trees. Elephant ears are usually solid, but may be underlain by gum. They often make debarking difficult (Figure 15).

### **Fork**

A division of the main bole of a tree into two or more branches. The angle of a fork determines the extension of double heart in the main bole.

### **Grain**

The word "grain" refers to the general direction of the fibres or wood elements relative to the main axis of a tree or log. The direction or pattern of grain can have a significant effect on the utilization potential of a log.

"Spiral grain" refers to the situation where fibres or other longitudinal elements take a spiral course about the axis of a tree or log. Other terms often used to describe this characteristic are "wind", "twist", "sloping grain" and "cross grain" (Figure 16).

"Wild grain" is used when describing trees or logs in which the arrangement of the fibres is grossly irregular (Figure 17).

The greater the deviation of grain from the main axis, the less the strength of the timber after sawing. However, deviating grain visible on the surface of a tree or log may not extend far into the heartwood. Sometimes the arrangement of fibres gives an attractive look to the finished piece of wood, without necessarily being a defect. "Fiddleback" or "curly grain" is one example.

### **Gum**

Gum is a natural exudation produced in or exuded from hardwood trees as a result of fire, mechanical damage, insect attack or other causes. The technically correct term for this exudate is "kino", however gum is the generally used term. The similar exudate in softwood trees is known as "resin". Gum, in pockets, rings or veins, occurs in all hardwood species, often unpredictably. It is most common in marri and is the reason why marri is not used more extensively as a sawn timber. In jarrah, gum is commonly associated with poor sites.

### **Gum Ring**

A gum ring is a deposition of gum, concentric with the growth rings, extending around a considerable proportion of the circumference of a ring.

### **Gum Vein**

A gum vein is a deposition of gum between growth rings. "Loose" gum veins refer to gum veins associated with extensive discontinuity of woody tissue. "Tight" gum veins refer to gum veins which are bridged radially at close intervals with woody tissue (Figure 18).

### **Heart**

Heart is that position of a log that includes the pith and any associated defective wood, a term usually confined to hardwoods. Normally heart is located in the centre of a log. If not, the heart is referred to as being "off-centre". Heart should not be confused with "heart wood" (Figure 19).

"Brittle heart" is wood characterized by abnormal brittleness caused by compression failures in the wood fibres. It is usually located in the heart, but may occur elsewhere in the tree.

"Double heart" occurs when a cross section of a log displays two hearts, caused by a fork (Figure 20).

"Wandering heart" occurs when the heart deviates from a line parallel to the log axis.

### **Hollowbutt**

A hollowbutt occurs when the butt of a tree has been severely burnt, usually to the heart. Hollowbutts are usually caused by a burning log or burning debris adjacent to the butt, resulting in direct removal of bark and wood forming a hollow (Figure 21).

### **Kink**

A kink is an abrupt offset in a length of a log (See Bend for comparison).

## **Knot**

A knot is a section of a branch embedded in the wood of a tree trunk or a larger branch. Knots have a significant deleterious effect on the strength properties of sawn timber. In softwood plantations, pruning is carried out simply to produce clear wood free of knots. If strength of the timber is not important, the presence of knots, for example in furniture or panelling, is often considered attractive. Knots in round timbers such as poles have a much smaller effect on strength than in sawn timber (Figure 22).

Knots may be described in many different ways:-

A "dead knot", or "dry knot" is one in which the wood fibres are not intergrown with those of the surrounding wood for any part of its circumference, due to the enclosure of a dead branch by further growth of the tree.

A "decayed knot" is a knot that is softer than the surrounding wood and affected by or containing decay.

A "defective knot" is one that is not solid across its face or not firmly held by the surrounding wood.

An "encased knot" is a knot partially or wholly surrounded by bark tissue.

An "enclosed knot" is one that does not appear on the surface of a log.

An "intergrown knot" or "live knot" is a knot completely integrated with the surrounding wood of the supporting stem or branch.

A "loose knot" is one that cannot be relied upon to remain in place.

A "tight knot" is one so fixed by growth or position that it will firmly retain its position.

A "knot cluster" occurs when two or more knots are grouped together as a unit with the fibres of the wood deflected around the entire unit.

A "knot hole" is a hole caused by the removal of a knot.

A "knot whorl" is a group of knots resulting from a branch whorl.

## **Limb**

A limb is a solid branch growing out of the main bole of a tree. Limbs have the same effects on wood properties as knots.

A "heart limb" is a limb, the heart of which is connected to the heart of the bole of the tree.

An "epicormic limb" or "sap limb" is a limb derived from a dormant bud on the bole of a tree or an older branch. Epicormic limbs often follow a severe wildfire or severe insect defoliation. Young and small epicormic limbs are usually referred to as "epicormic shoots" (Figure 23).

## **Limb Stub**

A "limb stub" is the protruding remains of a broken limb. Depending on limb size, overgrowth may completely occlude a limb stub, leaving a swelling. Dead limbs or limb stubs provide a source of entry for fungi and insects into the bole of the tree (Figure 24).

## **Pipe**

Pipe is the term used to describe a longitudinal cavity along the growth centre or heart of the log (Figure 25).

### **Pith**

The pith is the central core of a stem consisting of soft tissue, a term usually confined to softwoods.

### **Popping**

"Popping" is a term used to describe the splitting of the end of a log soon after felling. It is often associated with the release of growth stresses in logs from young, fast-grown trees. Rapid moisture loss from the ends of logs also causes popping (Figure 26).

### **Pulled Wood**

"Pulled wood" refers to the tearing of wood fibres from the main bole due to incorrect felling technique (Figure 27).

### **Shake**

A "shake" is a partial or complete longitudinal separation between adjoining layers of wood due to causes other than drying and usually originating either in the standing tree or in the log during felling or conversion. The key to successful recovery of sawn timber from logs with shake is to locate the breaking down cuts along the major shakes to produce largely shake-free flitches.

A "heart shake" is a shake extending from the heart or centre of a log (Figure 28).

A "radial shake" is a shake originating on the circumference of a log and extending inwards along the radius.

A "ring shake", also known as a "cup shake" or "water shake", is a shake following a growth ring (Figure 29).

A "star shake" occurs when a number of heart shakes together form a star pattern (Figure 30).

### **Shatter**

"Shatter" is a multiplicity of long splits or shakes, often caused when a tree is felled over an object such as a log or stump. Shatter can take an unpredictable pattern through a log, and sawing a log containing shatter can pose a safety hazard as broken pieces of wood fly from the saw (Figure 31).

### **Split**

A "split" is a lengthwise separation of wood fibres extending through a log from one surface to another. Split is a general term only.

### **Sweep**

A curvature of large radius, or a gradual curve in a log over an extended distance (See Bend for comparison). Sweep is common in the butt of softwoods, probably due to incorrect planting angle, but possibly also due to exposure to wind in the early years.

### **Swelling**

A "swelling" refers to any abnormally enlarged portion of the bole of a tree. Small swellings are often called "bumps" (See Bump). Natural or inherent swellings, similar to burls, usually show rough, fissured and crinkly bark development. These swellings are generally associated with sound wood. Swellings resulting from growth over broken or damaged limbs are usually associated with unsound or decayed wood. The surface of these swellings tends to be smooth. In these cases the fungi causing the decay have entered the tree before overgrowth is completed. Usually, the larger the swelling, the greater the amount of decayed wood beneath (Figure 32).



## **SECTION 4**

### ***GLOSSARY OF COMMON TERMS USED IN THE LOGGING INDUSTRY IN WESTERN AUSTRALIA***

#### **BANDING**

The practice of attaching a thin metal band around the end of a log to prevent end-splitting.

#### **BOLE**

An alternative name for the trunk or main stem of a tree.

#### **BUTT**

The base of a tree or the lower end of a log.

#### **BUTT END**

The part of a log which was oriented toward the butt in the standing tree.

#### **BUTT LOG**

A log cut from the butt end.

#### **CAMBIUM**

Soft tissue between the bark and the sapwood, responsible for a tree's growth.

#### **CHIP LOG**

A log destined for chipping.

#### **CLEAR TIMBER**

Timber that is free, or clear of defects.

#### **CROWN**

The top of a tree or the upper end of a log.

#### **CROWN CUT**

A cross cut made at the crown end of a log to remove a defective section.

#### **CROWN END**

That part of a log which was oriented toward the crown in the standing tree.

**CROWN LOG**

A log cut from the crown end.

**DEBARKING**

The practice of removing attached bark from the outer surface of a log. Usually carried out by a mechanical debarker at the mill.

**DEFECT**

Any characteristic or irregularity that lowers the strength, durability or utility of a tree or log.

**DISCOLOURATION**

Change in colour of wood from normal, due to presence of fungi.

**DOCK**

vb. To cut a generally short length from one end of a log to remove defects.

**END-COATING**

The practice of painting log and timber ends with a water-proof wood preservative such as petrolatum or Ceramel C to reduce the rate of drying and prevent end checking.

**FALL (or FELL)**

vb. To cut a standing tree in order to bring it to the ground.

**FALLER**

n. One who falls trees.

**FRASS**

Excrement or other refuse left behind by insect larvae.

**GANG NAILING**

The practice of nailing a metal plate, known as a "gang plate" or "toothed plate connector", onto the ends of logs and sawn timber to prevent end checking.

**GIRTH**

The circumference of a log.

**HANG-UP**

A tree, cut by a faller, which has fallen into a nearby tree and failed to reach the ground.

## **HEART WOOD**

The innermost wood which lies beneath the sapwood or outer wood within a log. Heartwood is generally a darker colour than sapwood and is characterised by enhanced durability.

## **LONG BUTT**

- vb. To cut a defective section from the butt end of a log immediately after felling.
- n. The defective piece cut from the end of a log immediately after felling.

## **MILLABLE**

Referring to a log of sufficient quality to be considered saleable to a sawmill.

## **MOISTURE CONTENT**

The water content of a log, expressed as either

- i) a percentage of the oven-dry weight, or
- ii) a percentage of the wet or green weight.

## **MORGANER**

A tree lying on the ground, usually wind-blown some considerable time in the past, containing utilizable timber.

## **PROOF CUTTING**

The practice of cutting through a log to test for the presence of rot or other defects; also known as "test cutting" - not a practice to be encouraged!

## **QUEEN CUTTING**

The practice of applying two cross cuts to remove a defective central portion of a log, resulting in two shorter logs.

## **RESIDUE**

Off cuts and waste wood materials resulting from the breakdown of logs into sawn products in a sawmill. Also refers to non-marketable trees or logs in the forest.

## **SAPWOOD**

The outer woody portion of the stem lying between the heartwood and the bark, usually lighter in colour than heartwood.

## **SCARF**

The wedge-shaped piece of wood cut from the base of a tree by a faller, giving control over the direction in which the tree falls.

**SLOVEN**

The angular cut at the butt end of a butt log resulting from the cutting of a scarf during falling.

**SOUNDING**

The practice of testing the solidity of a log or tree by analysing the sound produced when struck with a heavy object, usually an axe or hammer. A solid log will produce a ring whereas a hollow or rotten log will produce a dull thud-like sound.

**TAPER**

The narrowing of the bole of a tree, or a log, from the butt end to the crown end.

**TRIM**

To remove branches from a log.

**WIDOW-MAKER**

A loose or dead branch in a tree likely to fall and injure persons standing beneath that tree.

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