

**Teachers Notes**  
**by Robyn Sheahan-Bright**

**Steam, Steel and Speed**

Transport, Trade and Travel in Australia 1850s – 1920s

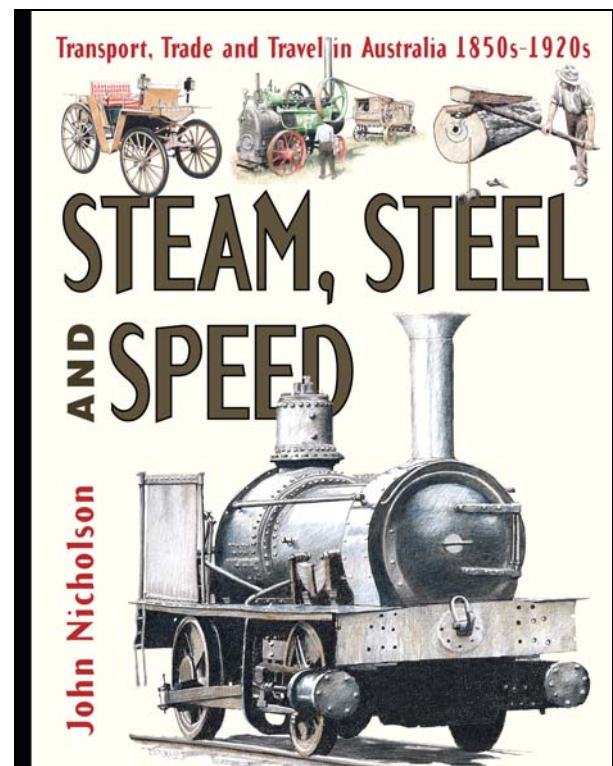
by  
**John Nicholson**

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**Recommended for readers 9 yrs or older**

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## INTRODUCTION

In *Steam, Steel and Speed*, the fourth book in his series on *Transport Trade and Travel in Australia*, John Nicholson moves on to the age of steam, steel and rail travel. He shows in this title (as he did in Books 2 and 3) how the early import and export of goods to and from Australia led to the need for new transport networks which in turn led to further settlement, urbanisation and the development of river, rail and road systems.

This book also shows how steam power influenced the power of various towns and states and created a pattern of competition, and of growth and decline, in many areas. It also describes the role which the mining of gold, silver, iron ore, coal and copper played in the development and use of steam-powered transport. To illustrate the nature of these early communication networks the book tells some fascinating stories. Who could forget the story of the fire aboard the *Bunyip*? Or the outlandish machinations and games played by state authorities in trying to advantage their own trading networks? Who could believe the folly of developing a rail system using different gauges in each state, or that of attempting to kill off the river trade in order to give more power to state governments in terms of trade?

This book traces the influence of the Industrial Revolution detailing one of the most rapid periods of development in history. Steam was to some people a 'religion'. And it certainly changed the world forever.

*Previous books in the series include:*

- Book 1 – *Songlines and Stone Axes* which details the trading practices already in place amongst Aboriginal people, and shows how the arrival of European settlers not only displaced Aboriginal people but destroyed their trading networks and altered the land dramatically.
- *Book 2 – Cedar, Seals and Whaling Ships* describes the way in which European settlement transformed the land and established a network of transport which continues to this day.
- *Book 3 – Wool, Wagons and Clipper Ships* covers the industries of cattle, wool, wheat, mining and forestry which encouraged the growth of horse-, bullock- and sail-powered transport networks.

## THEMES & CURRICULUM TOPICS

**Themes** suggested by the book which might be explored with class groups include:

- Trading and Trading Practices
- Transport and Travel (including roads, waterways and shipping)
- Secondary and Primary Industries
- Land and Property Ownership (Competition and Rivalry)
- Workers Rights
- Historical Accuracy
- National Infrastructure Growth and Development

**Topics** which relate to these themes fall into **Curriculum areas** such as:

- SOSE/HSIE – Studying Society and Societal Issues
- Language and Literacy

- Creative Arts
- Food & Public Health
- Maths

## SOSE/HSIE

In this curriculum area there are several topics you might explore with your students:

### 1. STEAM POWER

The invention of the steam engine led to the period known as The Industrial Revolution. The book states that *'no technological revolution in history – neither the printing press, nor the petrol engine, nor even computers – has had such a big effect'* (p. 7).

*Question:* What were these huge effects? What are the disadvantages of steam power?

*Activity:* Compare the predictions made about steam power and how it would defeat poverty, unemployment etc, to the same predictions about computers.

*Activity:* Topics to be researched in relation to the spread of steam power in Australia include: Housing estates, holiday destinations, farming and the invention of the word 'suburbs' (p. 8).

*Activity:* Examine the drawing of a steam engine and how it works (p. 9). You might be able to conduct an experiment with your class to make a primitive steam engine. Read the entry on 'Steam Engines' in *Wikipedia*.

*Activity:* Iron, steel, electricity, lubricants made of oil, and telegraphic communications are further topics you might explore (p. 10).

*Activity:* The Great Exhibitions held in Australia in the nineteenth century are a fascinating part of our history to explore as well. Read about the Royal Exhibition Building in Melbourne built for the 1880 exhibition.

<http://www.environment.gov.au/heritage/worldheritage/sites/royal/index.html>

Read about *'Great Exhibitions The World Fairs 1851-1937'* an exhibition held in Melbourne from May 2007 to March 2008.

<http://www.ngv.vic.gov.au/greatexhibitions/index.html>

*Activity:* The invention of the telegraph was another revolutionary change in the nineteenth century (p. 10). Research and discuss its effects. We are inclined to think that the invention of the computer in the 20<sup>th</sup> century was a huge change, but in each era there have been such changes. Think back to the invention of printing and how that also changed societies and cultures and influenced economies and the environment.

*Activity:* The Industrial Revolution ushered in a whole new set of jobs, tasks and occupations. Choose an industry (such as railways) and write a list of all the types of worker employed in that industry.

### 2. STEAM BOATS AND RIVER TRADE

The world's first steam boat was trialled in England in 1789 and the *Sophia Jane* was the first steam ship to operate in Australian waters in 1830. Steam-powered boats or paddle steamers would revolutionise trade in early Australia.

### Quiz Questions:

1. What was the name of the first steam drive ferry on Sydney Harbour in 1832?
2. What was the first steam ship to ply its trade between Melbourne and Williamstown in 1835?
3. Why did the paddle steamer skippers or captains watch the weather forecasts so carefully?
4. What was the main cargo carried by the paddle steamers on the Murray-Darling river system?
5. What was one of the problems attached to building steamers out of wood?
6. What was one of the problems attached to building steamers out of iron?
7. What role did politics play in the early river trade?
8. What was the average wage of an unskilled worker in these times?
9. How many people generally crewed a paddle steamer?
10. When the river banks were steep the crew had to sometimes lug the cargo up the banks, in what was heavy back-breaking work. What was this practice called?

### Quiz Answers:

1. *Surprise*
2. *Firefly*
3. Because water levels had to be high enough to allow safe passage or their ships would founder and be left stranded until levels rose sufficiently again.
4. Wool.
5. If they became stranded and were left out of the water, the timber could crack and split in the intense dry heat.
6. If they hit something underwater the iron joints could spring leaks.
7. Intense rivalries between Victoria, South Australia and NSW saw legislation passed to hamper or advance the river trade in order to advantage each state. The railway system was also influenced by these rivalries (see p. 15).
8. 4-5 pounds per month.
9. 10-12 people.
10. The 'Hobnail Express'.

*Activity:* Read about paddle steamers [See **Related texts and other sources.**] There are still many such craft which are operational and very popular in the tourist trade in Australia. Ask students to find out about these various services. You may even be able to take a class trip on a paddle steamer if there's one in your area.

*Activity:* Read about Tommy Freeman (p. 14) and Swan Anderson (p. 15). What else can you discover about them or other paddle steamer skippers?

### 3. RAIL TRAVEL AND THE RAIL INDUSTRY

The chapter on railways is called 'iron horses' because the rail carriages were like automotive packhorses. Each state began quite early in the nineteenth century to build railway lines, but how they built them would continue to create problems to the present day. For instead of using a standard gauge from state to state, different gauges were

selected by various state governments. (See p. 18 for details.) The importance of rail networks is indicated by the number of lines which existed in Western Tasmania, after tin was first discovered there in 1872 (see p. 19) and by the fact that 'The Western Australian government even had a policy that no farmer should have to travel more than 24 kilometres to the nearest railway station or siding.' (p. 20)

*Question:* What's the origin of the term, 'navvies', to describe construction labourers? (See p. 17 for the answer.)

*Activity:* The map (pp. 20-1) shows the major stock routes used by early drovers which in turn led to the strategic construction of rail networks and stations. Research one of these stock routes.

*Activity:* The fact that many early stock routes followed the Aboriginal dreaming paths is a fascinating insight. Many early settlers and explorers followed closely the paths already established by Aboriginal people, despite some people's lack of recognition of this early reliance on the knowledge of the first inhabitants of Australia. Research and read more about this subject.

*Question:* What was the 'tea-and-sugar' train? (See p. 22.)

*Question:* State railways were amongst Australia's largest employers. What law did the Victorian government pass in 1903 in response to the perceived power of their railway workers? (See p. 23.)

### **True or False?**

1. Dajarra, a town near Mount Isa in Queensland, was the largest cattle-loading yard in the world.
2. Railway workers lived in large tent cities up until the 1960s.
3. Tasmanian Railways provided the *Railway Songster* to its passengers – a book of songs which they could sing together to while away the time on board.
4. There were more train lines one hundred years ago than there are now.
5. Railways used to provide special trains for people to travel to funerals, and many cemeteries had their own railway stations.

### **4. A STEAM-DRIVEN WORLD**

Steam quickly began to dominate every aspect of early trading and production processes in Australia. In 1883 the Melbourne tram network was begun, and by 1891 it had the largest cable tram network in the world!

*Activity:* Australia mechanised farming processes earlier than some other countries because the Gold Rush led to a shortage of unskilled workers. For example, the first mechanised shearing process was adopted at Dunlop Station NSW in 1888! The same pattern of 'early adoption' could be said to have existed with urban industrial processes. Whereas in Britain there was concern that the Industrial Revolution was threatening jobs, wages and livelihoods, 'In Australia, where there was too much work to do and not enough people to do it, the new machinery was more welcome' (p. 29). Research and discuss.

*Activity:* The beginning of large scale irrigation powered by steam pumps in the Murray River is mentioned (p. 28). Research the impact of this practice in present day Australia.

*Question:* What part did the discovery of gold, silver and iron play in the increasing demand for steam power?

*Activity:* Research the development of smelting at places such as Esk Bank, Lithgow, NSW and Port Augusta, SA. [See **Related texts and other sources.**]

*Question:* Why was NSW Chief Engineer John Whitton suspicious of locally produced iron?

*Question:* What great Aussie building material was first produced in 1893?

*Question:* What were the bad effects of steam-powered industry? (See pp. 30-1.)

*Question:* Nicholson (p. 31) lists some of the aspects of steam power which have survived to the present day. Research and discover how much coal and steam power is still used, and in which industries.

## 5. NATIONAL INFRASTRUCTURE GROWTH AND DEVELOPMENT

This series reveals how a pattern of successive 'waves of settlement' has influenced each phase in Australia's historical development.

*Question:* How have Aboriginal trading and cultural practices permeated the development of transport and communication networks since European settlement?

*Activity:* The rivalry between the states of Australia has influenced and determined the nature of this nation's infrastructure from its earliest settlement. What effect did such rivalry have on the development of public transport networks?

*Activity:* Cooperative federalism is something the current government is attempting to encourage. What messages does this book convey about the danger attached to states not acting in cooperation with each other?

*Activity:* Relate some of these questions to contemporary issues, for example, the debate about uranium power or the continuing reliance on coal power in the development of our ports.

## LITERACY & LANGUAGE

Several activities might relate to this curriculum area.

'**Faction**' is a word which might be applied to the story which opens this text (like the one in Book 3) which here illustrates the hazards of steam boat travel. The blaze aboard the *Bunyip* claimed the lives of people and injured others. But it's a true story too, for the *Bunyip* did burn on the Murray River in 1863 near Chowilla Station.

*Activity:* Make up your own story about any of the people mentioned in this book. Research and then create a fictional evocation of that person's life.

*Activity:* Read other works of fiction or non-fiction which explore the era of steam trains and paddle steamers. [See **Related texts and other sources.**] Invite your students to write a story or an essay based on anything they read in these stories which interests them.

**Vocabulary** used in this text includes many terms relating to the technical aspects of steam power.

*Activity:* Make a list of lesser-known words such as 'velocipede' or 'penny farthing'. Then write their definitions. Mix them up and present them to your class as a quiz to be solved.

*Activity:* The book also includes phrases which are unfamiliar and interesting such as: 'Not all beer and skittles'; 'riding on the sheep's back'; 'Mud Pirates'; 'Tent Cities'; 'Billy Boy'. Research the meaning and origin of such phrases and expressions.

**Visual literacy** is an aspect of this text and the other books in the series which you might like to explore. In Nicholson's images he uses his scientific and geographical knowledge in creating maps and models of steam processes.

*Activities:* Examine the pictures in this book for *the use of perspective*. You'll notice that in each of his drawings the use of this technique adds depth and makes the picture three-dimensional in the reader's eyes. He often makes things appear closer or alternatively takes a long distance view of the image. Discuss.

*Activity:* The *medium* chosen adds depth to a picture in terms of *texture* as well. eg the smoke from the *Bunyip* burning (pp. 4-5) is drawn in a hazy charcoal with contrasting red flames.

*Activity:* A locomotive is depicted from *different angles* (pp. 6-7 and p. 17). Discuss with students the choices you make when drawing an image, such as point of view and angle.

*Activity:* A riverboat is depicted across the *double page spread* (pp. 12-3). What effects does this technique have?

*Activity:* *Scale, measurement and detail* are important in visually creating a picture; for example, the details of the stone bridge (pp. 18-9) or the Rookwood Cemetery railway station (p. 24). Students might like to re-create one of the images in the book.

## CREATIVE ARTS

This non-fiction text contains or suggests a range of exciting stories which could offer stimulus for several creative arts activities.

**Visual Arts:** Create a display of images related to early railways; make a model of any object in this book which appeals to you.

**Drama:** Re-enact any scene in this book, for example, the sinking of the *Bunyip* or the arrival of the *Sophia Jane* in Sydney Harbour.

**Music:** What sorts of songs might have been included in the *Railway Songster* (p. 24)? Find a copy of one and learn it as a class.

**Multimedia Performance:** Base a performance on one of the exciting tales told by Nicholson in this book and series.

## FOOD & PUBLIC HEALTH

This book suggests a range of public health issues for discussion and research.

*Question:* What workers' health issues are suggested in this book? What accidents or workplace health and safety issues were experienced by steam ship crews, railway workers and others?

*Question:* What are the environmental hazards attached to coal burning and steam power?

## MATHS

Some simple maths activities might be related to this text.

*Question:* See tables of trade exports (p. 16). What percentage in growth occurred in export from 1861-1921? What percentage growth in imports occurred in this same period?

*Activity:* The book tells us that Victoria's goldfields burnt nearly 3000 tonnes of firewood a day (p. 30). How many tonnes did they burn in a year? 'Kalgoorlie was the champion wood-guzzler, burning a staggering 12,000 tonnes every day!' (p. 30) How many tonnes a year were burnt there?

## QUESTIONS FOR READING AND DISCUSSION

1. Nicholson calls steam a 'religion' (p. 7). What does this mean?
2. What role did 'excursion steamers' (p. 16) play in these early days?
3. What has happened at Mount Lyell (p. 19) since the mining there has ceased?
4. What forms of transport (discussed in this book) did oil eventually displace?
5. 'The story of Australian mining is one of dazzling discoveries, riches beyond imagining, booms and busts, rogues, rascals and millionaires' (p. 26). Discuss and research.

## CONCLUSION

Each book in this series offers the reader fascinating questions to pursue further via research and reading.

### IN-DEPTH RESEARCH TOPICS TO PURSUE

1. The book outlines the many technological changes which occurred in the nineteenth century (p. 10). Research this further and write a researched analysis.
2. Read the statement: 'Each colony, it seems, had its own reasons for wanting to kill off the river trade' (p. 15). Give a talk outlining why this was so.
3. Examine the Australian rail network and how successive governments have failed to make this the efficient alternative to individual transport which it might have been.
4. Rail workers suggest many social subjects (such as tent cities). Ask students to choose any related subject and research it in relation to early transport and trade in Australia.
5. The role of coal power in our current economy is referred to in the final pages of this book. How have steam and coal power influenced this country's economy and what are the alternatives? Research and write an essay on this topic.

## RELATED TEXTS AND OTHER SOURCES

### BOOKS

#### Non-Fiction

Barwick, John & Jennifer, *Trade in Australia* (Database of Australia series), Heinemann Library, Port Melbourne, 2000.

*Big Book of Trains*, DK Publishing, 1998.

Emberley, Ed, *Ed Emberley's Drawing Book of Trucks and Trains*, L.B. Kids, 2002.

O'Brien, Patrick, *Steam, Smoke and Steel: Back in Time with Trains*, Charlesbridge, 2000.

Weitzman, David, *Superpower: The Making of a Steam Locomotive*, David R. Godine, 1995.



## Fiction

Try to find fictional texts which feature steam power. For example:

Awdry, Rev. W., *Thomas the Tank Engine* (The Railway Series).

Booth, Philip, *Crossing*, Illustrated by Bagram Ibatoulline, Candlewick, 2004.

Fatchen, Max, *The River Kings*, Illustrated by Clyde Pearson, Methuen, London, Hicks Smith, Sydney, 1966.

Thiele, Colin, *River Murray Mary*, Illustrated by Robert Ingpen, Rigby, Adelaide, 1979.

Read some of the Scholastic *My Story* series which are fictional accounts of real events in Australia's history.

## ARTICLES

'Conversation between John Nicholson and Rosalind Price' *Magpies*, Vol 11, Issue 4, September 1996, pp. 8-13.

Crew, Gary, 'Fiction, Nonfiction and the Limits of Faction', *Magpies*, Vol 19, Issue 2, May 2004, pp. 8-10.

## WEBSITES

'The Development of the Lithgow Region.' *It's More Than its Seams- History. Draft Economic Development Strategy for Lithgow - History.*  
[http://www.lisp.com.au/~lithtour/history/partb\\_2.htm](http://www.lisp.com.au/~lithtour/history/partb_2.htm)

*Great Exhibitions The World Fairs 1851-1937.*  
<http://www.ngv.vic.gov.au/greatexhibitions/index.html>

*The Lithgow Iron and Steel Industry.*  
<http://www.lisp.com.au/~lithtour/blasthist.htm>

*Murray River Paddle Boats.* This website advertises the trips available and contains lots of images and even videos of paddles steamers.  
<http://www.murrayriver.com.au/boating/paddlesteamers/default.htm>

*National Library of Australia Digital Collections.* This site contains many photos of paddle steamers, steam trains and other related subjects.  
<http://www.nla.gov.au>

*Paddle Steamer.* This website shows kids how make a simple paddle steamer from two bottles!  
[http://www.things2make.com/Things2make\\_files/instructions%20over%205/Paddle%20Steamer.htm](http://www.things2make.com/Things2make_files/instructions%20over%205/Paddle%20Steamer.htm)

*Paddle Steamship Animation.*  
[http://www.bbc.co.uk/history/british/victorians/launch\\_ani\\_paddle\\_steamship.shtml](http://www.bbc.co.uk/history/british/victorians/launch_ani_paddle_steamship.shtml)

*Paddle Steamers at Echuca on the River Murray.*  
[http://www.pbase.com/magfos/river\\_boats](http://www.pbase.com/magfos/river_boats)

'The Port Augusta Smelters.' *Flinders Ranges Research*  
<http://www.southeasternhistory.com.au/augusta.htm>

*The Queensland Stock Route Network (SRN).*  
<http://www.nrw.qld.gov.au/land/stockroutes/>

'Railways in Australia and Great Train Journeys.' *Australian Government Culture and Recreation Portal*  
<http://www.cultureandrecreation.gov.au/articles/railways/>

*Royal Exhibition Building, Melbourne.*

<http://www.environment.gov.au/heritage/worldheritage/sites/royal/index.html>

*Steam and Engine of Australia.*

<http://www.steamengine.com.au/steam/index.html>

'Steam Engine.' *Wikipedia*

[http://en.wikipedia.org/wiki/Steam\\_engine](http://en.wikipedia.org/wiki/Steam_engine)

'Traction Engine.'

*Wikipedia* [http://en.wikipedia.org/wiki/Traction\\_engine](http://en.wikipedia.org/wiki/Traction_engine)

## **ABOUT THE WRITERS**

### **JOHN NICHOLSON**

John Nicholson is an award-winning author and illustrator, who has produced a number of children's books for Allen & Unwin. Three of John's books, *A Home among the Gum Trees*, *The First Fleet* and *Fishing for Islands*, have been awarded the Children's Council of Australia's Eve Pownall Award for Information Books. He was trained as an architect but now writes and illustrates full-time. His books are mostly non-fiction, and he believes that 'information books' can be as exciting and adventurous as fiction. John Nicholson's other publications for children and teenagers include:

*Paper Chase* 1993

*Homemade Houses* 1993

*Gold!* 1994

*The Cruellest Place on Earth* 1994

*The First Fleet* 1995

*Australian Explorers* 1996

*Kimberley Warrior* 1997

*A Home Among the Gum Trees* 1997

*Who's Running This Country?* 1998

*Fishing for Islands* 1999

*The State of the Planet* 2000

*Building the Sydney Harbour Bridge* 2000

*The Mighty Murray* 2002

*Animal Architects* 2003

*Australia Locked Up* 2006

*Songlines and Stone Axes* 2007

*Cedar, Seals and Whaling Ships* 2007

*Wool Wagons and Clipper Ships* 2008

Within NSW, school visits by John Nicholson can be organised through Lateral Learning. Visit <http://www.laterallearning.com> or email [bookings@laterallearning.com](mailto:bookings@laterallearning.com).

Within Victoria, school visits can be organised through Booked Out.

Visit <http://www.bookedout.com.au/> or email [bookings@bookedout.com.au](mailto:bookings@bookedout.com.au)

### **DR ROBYN SHEAHAN-BRIGHT**

Dr Robyn Sheahan-Bright operates **justified text** writing and publishing consultancy services, and publishes regularly on children's literature, Australian fiction, and publishing history. She was inaugural director of and is a Life Member of the Queensland

Writers Centre, and was co-founder of Jam Roll Press. Her latest publications include *Paper Empires: A History of the Book in Australia (1946-2005)* (2006) co-edited with Craig Munro, *Kookaburra Shells Port Curtis Literature* (2006), and *Hot Iron Corrugated Sky: 100 Years of Queensland Writing* (2002) co-edited with Stuart Glover. She has chapters in several textbooks including *Making Books* edited by David Carter and Anne Galligan (UQP, 2007) and *Crossing the Boundaries* edited by Michelle Anstey and Geoff Bull (Pearson Education, 2002). Her PhD thesis traced the development of the Australian children's publishing industry, and she teaches for Griffith University (Gold Coast) and USQ.