

# TURNOUT

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THE OFFICIAL NEWSLETTER OF NORTHERN TURNERS INC.

## FROM THE EDITOR

I received this email with a link from Dale Starr and found it frightening. The articles posted on the American Association of Woodturners (AAW) (reference <https://www.woodturner.org/page/FractalBurning>). I am sure that the AAW do not mind me copying and referring to their web site.

I witnessed this activity at the Merry Month of May event held at Southern Turners a couple of years ago. I must admit that it fascinated and scared the hell out of me.

After reading the articles, I would like the Northern Turners committee to review the practice and follow the lead by the AAW and ban its use and acceptance.

As of January 23 2019 there have been 16 known deaths associated with this practice globally. There was even one in Kangaroo Island last year.

Reported by [ABC News Australia](#) - Name withheld—April 15, 2018

## **Fractal Burning Has Killed and Could Kill You.**

As of January 2019, we know of ten deaths caused using fractal, or Lichtenberg, burning. We only know of those deaths that are reported by the media and show up in internet searches; it is highly likely there are more. The American Association of Woodturners has banned the use of this process at all of its events, has banned articles about fractal burning in all of its publications and will not allow the display of works that were created by the process at its events.

The reported cases of fractal burning deaths range from hobbyist woodworkers through experienced woodworkers to an electrician with many years experience working with electricity. It only takes one small mistake and you are dead; not injured, dead. Some of those who died were experienced at using the process and some were not. What is common to all of them: fractal burning killed them.

High voltage electricity is an invisible killer; the user cannot see the danger. It is easy to see the danger of a spinning saw blade. It is very obvious that coming into contact with a moving blade will cause an injury, but in almost all cases a spinning blade will not kill you. With fractal burning, one small mistake and you are dead.

This is true whether you are using a homemade device or a manufactured one.

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### **Northern Turners Committee**

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### **Send all articles to**

***turnout@woodgroupsa.org.au***

### **Your Northern Turners**

- *Seeking Excellence*
- *Encouraging Individualism*
- *Fostering Creativity*
- *Teaching Skills*
- *Providing Support*

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**There are many ways to express your creativity. Do not use fractal burning. If you have a fractal burner, throw it away. If you are looking into fractal burning, stop right now and move on to something else. This could save your life.**

—Rick Baker, Chair, AAW Safety Committee

—Harvey Rogers, AAW Safety Committee

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## **Why Lichtenberg burning is dangerous**

Lichtenberg burning works by passing electricity at very high voltage between two electrodes while they are in contact with a piece of wood. An electrolyte (a solution that conducts electricity) is often placed on the wood to help the electricity move between the two electrodes. The electricity seeks the path of least resistance while generating heat along the wood surface and between the electrodes, burning the wood as it goes.

Electrocution happens when high-voltage electricity enters through any part of the body, passes across the heart, and then exits the body. If you grabbed one electrode of a Lichtenberg burner in each hand while the voltage is on, the electricity could flow from one hand, across your heart, and out the other hand. This could stop your heart and kill you. Accidental skin contact with an energized electrode, the electrolyte, a loose wire, or even standing on a conductive floor can all contribute to conditions causing electrocution.

In addition to voltage, the burner's level of amperes, or "amps"—a measure of electrical current—is also important; the greater the amps, the greater the risk. Furthermore, the transformer, wire, insulators, and other components used to construct a Lichtenberg burner also contribute to the risks of using it if they are not properly rated. Simply getting a Lichtenberg burner with very low amperage and made from correctly rated, quality components may not be sufficient to protect the user. Even low-amperage current can stop a beating heart if it passes through at the wrong moment. If the burner is capable of burning Lichtenberg figures in wood, it is capable of hurting or killing the user.

This means, at minimum, that the user of a Lichtenberg burner needs to take extraordinary and unusual precautions, including wearing appropriately rated insulating protective gear, locating the wood on an insulating surface that is not grounded, and making sure the user's body does not come into contact with the object being burned or anything that is grounded. Following these precautions, however, cannot guarantee safety. In short, many variables exist when using this technique that can make the difference between a safe experience and pain or death. The AAW believes that those variables are not sufficiently understood or adequately controlled for Lichtenberg burning to be considered reasonably safe and therefore prohibits the demonstration of Lichtenberg burning techniques at its Symposia.

## **Lichtenberg burning vs. other risks**

Since woodturning itself is inherently dangerous, some readers may question why the AAW has chosen to focus on the risks of Lichtenberg burning. Woodturning techniques have been developed over many, many years, allowing woodturners to learn a great deal about the things that put them at risk. That learning does not yet exist for Lichtenberg burning, which is quite new. While there are well-established procedures for handling high voltage and industry standards for the design of high-voltage electrical equipment, no specific safety standards exist for Lichtenberg burning, per se, and the use of high voltages related to decorative wood embellishing.

In regard to the risks related to turning wood, most are fairly well known, if not obvious. Few turners are not aware of the dangers of flying wood objects, toxic wood dust and other harmful materials, as well as the need for adequate PPE. The risks from Lichtenberg burning, on the other hand, are largely hidden and the standards for personal protection poorly understood. Incorrect assumptions can easily lead to injury or death.

Lichtenberg burning is not a core activity for the majority of woodturners; it is just one method of embellishing a turning or other wooden object. The AAW does not feel it has either the responsibility or the expertise to help develop adequate safety standards for Lichtenberg burning. The AAW therefore expects that this policy will remain as part of the general safety practice for its Symposia until validated standards and practices are in place.

If you engage in the activity of Lichtenberg burning despite these warnings, please research the technique and risks

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carefully, consult with people who have significant experience working with high-voltage electricity, wear adequate protective gear, choose your equipment and its components very carefully, and take extraordinary precautions. All of this will not be enough to guarantee your safety but may help reduce your risk.

The AAW Safety Committee and Board of Directors strongly recommend woodturners avoid the risk altogether, by refraining from the use of Lichtenberg burning techniques.

—John Ellis, AAW Board Member and Chair, AAW Safety Committee

—Rob Wallace, Former Chair, AAW Safety Committee

—Harvey Rogers, AAW Safety Committee

#### LIBRARY MATTERS:

The following items of interest can be found in the latest WOODTURNING magazines that have just been received by the library:

#### **NOVEMBER -**

PROJECTS: Making a sphere (by the late Neil Scobie)

Hinged bracelet

TECHNIQUES: How to make resin inlays

Lets talk (a new series) work holding

#### **DECEMBER -**

PROJECTS: Box with finial (by Andrew Potocnik)

Apple box - a fruit inspired container

TECHNIQUES: Simple carved textures

Let's talk - tool selection part 1

Anne Kerr

#### FROM THE EDITOR

My wife and I have just returned from caravanning in Tasmania and will be for a further 3 weeks. I have attached a couple of items I hope you find interesting.

*Horizontal Scrub (Anodopetulum Biglandulosum) is a slow growing tree endemic to the west of Tasmania. A member of the ancient Gondwanan plant family Cunoniaceae, the plant gets its name from the curious way it grows forming virtually impenetrable thickets.*

*The tree develops thick solid branches that droop under their own weight while still thin. They then thicken up and grow more vertical shoots, which in turn may droop as they thicken. The result is a tangled mess of very thick solid branches, as well as thin stems. The process is repeated until a lattice-work of tough, slippery branches covers acres of rainforest.*

*All rain forests are described as impenetrable but the habit of this species to form a vertical and horizontal tangle of branches made progress through this kind of countryside notoriously difficult for early settlers.*

*Tasmania's horizontal scrub did have some benefits though. The guards at penal settlements surrounded by rain forest, such as at Macquarie Harbour on Tasmania's west coast, knew that even if a prisoner escaped, the chances of getting through such a tangle of forest were virtually impossible.*

An example in the Tamar Forest Tasmania

George Pastuch



## Endemic trees in Tasmania

*“Many of the rainforest tree species are endemic (ie restricted to the state). The reason for the high endemism amongst woody rainforest plants is in part related to the isolation of Tasmania and in particular this cool wet habitat from similar areas on the mainland of Australia. It is also because many of these plants have very ancient origins and have evolved insitu in Tasmania from plants of the ancient supercontinent of Gondwana more than 60 million years ago. The following account gives a description of the major species to be found in Tasmania's cool temperate rainforests, but is by no means exhaustive.*

*Myrtle-beech *Nothofagus cunninghamii**

*The dominant species of the cool temperate rainforest, the myrtle-beech is representative of species that once grew extensively throughout not only Australia, but also the southern continents of South America and Antarctica. It was part of the distinctive suite of plants that evolved on the supercontinent of Gondwana. Today the species finds its stronghold in Tasmania but also occurs in Victoria.*

*Myrtle-beech can attain heights of up to 50m and ages in excess of 500 years. Although it is not as shade tolerant as sassafras and leatherwood it maintains its dominance in the forest by having a relatively fast growth rate, being larger and longer lived. When it dies it leaves a very large canopy gap which allows in sufficient light to enable young myrtle seedlings to grow.” Ref—<https://www.parks.tas.gov.au/?base=3211>*

During a guided walking in the Tamar Forest, the Myrtle tree was one of the many trees highlighted by our guide. This example had a number of burls that sprouted new growth. I found this fascinating as my perception of burls were like scabs on an injured part of the tree that does not regrow. Apparently damage is caused to the Myrtle trees during the rainy season as debris is swept against the tree damaging it. The tree creates a burl and it shoots growth.

Another interesting fact was that eucalypts are fast growing and provide a canopy for undergrowth after a fire or storm etc where the forest is decimated and help Myrtle trees grow. Once established Myrtles act like parasites and kill the eucalypts. The dead branches of these eucalypts high above the cool temperate climate forest are locally called stags.

George Pastuch



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