

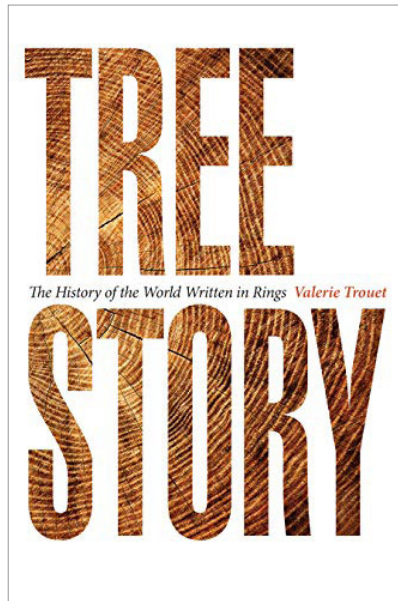
## Tree Story – The History of the World Written in Rings

Valerie Trouet

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This is a fascinating book on a subject that has become increasingly important as we endeavour to understand climate change. Most people know that to estimate the age of a tree you count the rings. Few people, however, realise that the study of tree rings has made amazing contributions to our understanding of the earth's climate and its influences on the last 2,000 years of human history. In this captivating new book, Valerie Trouet reveals how the relatively familiar concept of counting tree rings has inspired momentous scientific break-throughs that illuminate the complex web of interactions between nature and people.

Trouet, a leading tree-ring scientist, is a professor at the Laboratory of Tree-Ring Research at the University of Arizona. In her book she brings us on field-trips ranging from remote African villages to radioactive Russian forests, all the while offering an insider's view of the discipline of dendrochronology and in the process, tracing her own journey while exploring dendrochronology's origins and applications. The word dendrochronology comes from the Greek, *dendros* meaning tree and *chronos* meaning time. Trouet describes how tell-tale tree cores are collected and dated with

ring-by-ring precision, and explains the astonishing insights science has gained from the resulting samples.

Blending popular science, travelogue and cultural history, the book highlights exciting findings of tree-ring research, including the fate of lost pirate treasures, successful strategies for surviving California wildfires, the secret of Genghis Khan's victories, the connection between Egyptian pharaohs and volcanoes and even the role of olives in the fall of the Roman Empire. These fascinating stories are deftly woven together to demonstrate the myriad ways in which dendrochronology sheds light on global climate dynamics and uncovers the clear link between humans and our leafy neighbours. Trouet delights us with her dedication to the tangible appeal of studying trees, a passion that has taken her to austere and alluring landscapes around the globe and has enabled scientists to solve long-pondered mysteries from around the earth and about its human inhabitants.

There was a story doing the rounds for years that a scientist once cut down a bristlecone pine in order to count the rings but most people believed it to be it a yarn. However, Valerie names him as Don Curry from the University of North Carolina. Reports have it that in 1964 he stumbled upon a tree known as Prometheus and began to bore it. There are different accounts of what happened next, some say the borer was too short and got stuck, others say he didn't understand how to core such a large and distorted tree or that he preferred a full cross section for his studies. In any case, he got permission to fell the tree from the US Forest Service. Later that night in his hotel room he counted 4,862 rings and he then realised with horror that he had killed the oldest known living tree on earth! Understandably, Curry switched research topics and dedicated the remainder of his scientific career to the study of salt flats! (Rather unfairly, history does not relate which civil servant in the Forest Service granted the ill-considered felling licence.) It would be almost a half a century later before another researcher, Tom Harlan, sampled a bristlecone pine, this time only with a borer, leaving the tree standing and found it to be 5,062 years old. The tree's identity and exact location remain a closely guarded secret.

Mike Baillie, Professor Emeritus of Palaeoecology at Queen's University, Belfast, is referenced for his work on sessile oak, *Quercus petraea*. Mike has developed a 7,272 year-long chronology based on oak preserved in Irish bogs. An account of his work can be found in *Irish Forestry* (Vol 56, 1999, pages 29-38). In this article he argues that little dendrological information finds its way into forestry literature, despite the interest that it should have for foresters. This book certainly fills that gap.

Trouet's research also focused on the Irish Annals which chronicle events for over a 1,000 years (431-1649) and can be considered a *Game of Thrones avant la letter*. These texts include detailed descriptions of wars, political intrigues, events such as

early plague pandemics (e.g. Justinian's plague in the sixth century), but also reports on storms, droughts and other extreme weather events<sup>1</sup>.

The author argues that dendrochronologists have a powerful tool in hand to help solve the global carbon puzzle. With an increment borer we can investigate how much wood has grown, under what environmental conditions and how much carbon is stored by trees of different species, of different ages, on different soils, and in different climates. We can study how lengthened growing seasons can influence woody growth. How droughts, extreme weather, and rising temperatures impact growth and how these impacts change as climates shift. Tree rings have taught us how climatic changes have impacted past societies.

Trouet ends her book by stating that to explore this new frontier and harness its potential, dendrochronologists will need to collaborate with foresters, ecologists, geographers, sociologists, anthropologists, biogeochemists, atmospheric scientists, and policy makers among others. As she says, "we have our work cut out for us"!

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<sup>1</sup> Francis Ludlow, a geographer at TCD has extracted weather information from more than 40,000 written entries and was able to link particularly cold and severe winters to past volcanic eruptions.