

The three ages of fire

Fire: A Brief History

by Stephen J. Pyne

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How did humanity attain its dominance in the natural world when fossil evidence indicates that, a million years ago, our ancestors were subservient to the great cats of Africa? The answer must surely lie in the blossoming of human intellect and its highly effective expression through culture and technology.

Of all the important items in the hominid cultural tool-kit, none has been more crucial than the management of fire; in fact, the first step taken by our ancient ancestors to overcome the ever-present threat posed by powerful predators was very likely the management of fire at their camp sites. This does not imply that those pioneering and imaginative entrepreneurs knew how to start a fire at will — presumably they gathered burning branches from lightning-induced fires and took them back to their sleeping places. Imagine the frustration that must so often have been

experienced when, on waking in the morning, people found that their fire of the night before had died and there was no obvious way to resurrect it!

It is hardly surprising that fire came to be regarded as a magical substance, to be treated with the greatest care and reverence. Since those early days, many people have been obsessed by fire and by the never-ending ramifications into which the technology of fire has led them.

One such is Stephen Pyne, an environmental historian who has spent much of his productive career researching the topic of fire and writing extensively about it. The synthesis — *Fire: A Brief History* — is his latest contribution to a six-volume series entitled “Cycle of Fire”, in the Weyerhaeuser Environmental Books series, published by the University of Washington Press under the general editorship of William Cronon, who also contributed a foreword to each book. The previous volumes have explored a wide variety of themes, but the essence of these has been distilled in this brief history in a flowing and delightfully readable form.

Although fire appeared on Earth long before the coming of humans, it has not always been a feature of this planet. Combustion, in the sense referred to here, requires the presence of oxygen, and this was not an important component of the early atmosphere. It slowly

accumulated as a photosynthetic by-product of cyanobacteria, algae and, later, plants. Initially, an abundance of reduced iron and other material in Precambrian waters would have absorbed any oxygen released, so it was only about 2.3 billion years ago that free oxygen formed a significant component of the air. Another obvious requirement for fire is the presence of combustible fuel and this, too, was the product of living organisms. So it is true to say that fire was born of life and has been its companion for at least 400 million years, when charcoal makes its appearance in the fossil record during Devonian times. Such burning would have resulted from what Pyne refers to as “first fire” — combustion caused by lightning or the heat of volcanic action. “Second” and “third” fire had to await the appearance of the hominids.

For hunter-gatherers, managed fire would have cooked their food and dislodged unwanted predators from dense vegetation around their camp sites. But it was when people took to agriculture that fire became a necessity. It literally cleared the way for the planting and harvesting of crops. This was “second fire” and, as it spread around the world, it told of the presence of agriculturalists, who changed the nature of the world’s habitats for ever.

With agriculture came an unprecedented growth of human populations and the establishment of cities. Here, in an industrial context, “third fire” was destined to flourish. It relied very largely on the combustion of fossil fuels — coal, oil and gas — in which the energy of age-old sunlight had been stored by once-living organisms. This energy could be released again through combustion but, in the industrial context, flames would seldom be seen. Release would generally occur in confined spaces, such as within an internal combustion engine, or at a power station where electricity is generated for a multitude of human needs. People have come a long way from the time of their first fires; now, for instance, it is said that ‘superior fire-power’ is likely to be the deciding factor in any military encounter.

This historical account of fire, ancient and modern, presented so well by Stephen Pyne, allows the reader to view an essential component of civilization with new insight and enlightenment. ■

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More on fire

Flammable Australia: The Fire Regimes and Biodiversity of a Continent

edited by Ross A. Bradstock, Jann E. Williams & A. Malcolm Gill

Cambridge University Press, £90, \$130



To the ends of the Earth

Inhabitants of the Yap Islands in the Pacific Ocean fish the inshore coral reef. This is one of many photographs charting 15 years of voyages by the ship *Explorer* to be found in *Ship in the*

Wilderness: Voyages of the MS “Explorer” Through the Last Wild Places on Earth (Gaia Books, £19.99, \$35). Photographs are by Jim Snyder, with narrative by Keith Shackleton.