



Nick Middleton

RIVERS

A Very Short Introduction

OXFORD

Nick Middleton



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Introduction

Rivers flow on every continent and on all but the smallest island. They occur with an almost bewildering variety, ranging from a mere trickle to a mighty surge. As a source of water, rivers have always been objects of wonder and practical concern for people everywhere. They have acted as cradles for civilization and agents of disaster. A river may be a barrier or a highway. It can bear trade and sediment; culture and conflict. A river may inspire or it may terrify.

This book shines a light on the numerous roles that rivers have played in the life of our planet and its inhabitants, highlighting their importance to facets both obvious and obscure, ranging from sanitation to ichthyology, via divinity and literary criticism. The flow of rivers has inspired poets and painters, philosophers and scientists, explorers and pilgrims. No one can hope to understand the city of London without an appreciation of the River Thames, nor Egypt without the Nile. Rivers have lent their names to countries and determined the outcomes of wars.

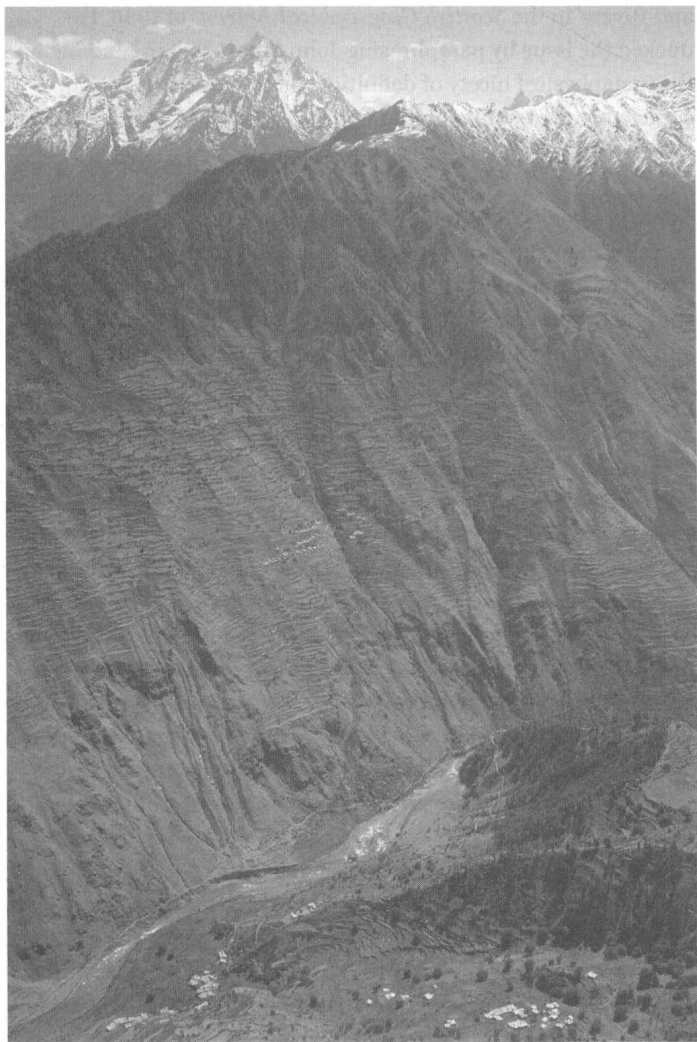
A river can cleave a deep canyon and twist like a giant snake across its plains; plunge over great cliffs and stretch fingers of earth into the oceans. Rivers dominate landscapes, eroding and creating them. They are, without doubt, the product of a complex suite of natural processes. But the evolution of many rivers has

been driven as much by social systems as by natural ones, surprising though this may at first seem.

Physically, people have long interacted with rivers, extracting their water and fish, modifying them to suit their needs. Rivers, in turn, have influenced innumerable aspects of culture through the ages, generating both myths and hydro-energy. Rivers have their place in legend, religion, and many other aspects of society, including music, art, and poetry. They are, therefore, not simply physical objects, part of the material world, but also cultural entities which interact with the social system. In many ways, rivers convey values as much as water.

It may not be surprising, then, to learn that precisely defining a river is not an easy task. Our friend the *Oxford English Dictionary* has it that a river is 'a copious natural stream of water flowing in a channel to the sea or a lake etc'. This definition serves for many rivers but not for all. Rivers in very cold places do not flow all the time. Neither do most rivers in deserts. In the former case, the water is frozen for lengthy periods; in the latter, there is often no water at all. The word 'copious' is tricky, too. Many readers will make a distinction in their minds between a river and a smaller body of water, such as a brook or stream. However, not all do. In legal terms, the word 'river' usually includes all natural streams, no matter how small. More difficult still is the word 'natural'. People have been interacting with rivers and changing them for thousands of years, so that today there are not many that can be described as completely natural and unmodified. To complete our deconstruction of the dictionary definition, let us remember that not all rivers flow into the sea or a lake. Some rivers disappear into the ground or dry up completely before reaching another body of water.

So, contrary to what we expect of a dictionary, its definition is not universal. This is not a modern conundrum. Dr James Clyde, whose book *Elementary Geography* reached its 25th edition in the late 19th century, was presented with it in his article on 'Rivers



1. Rivers play a primary role in shaping landscapes, sometimes in dramatic ways, as here in the Himalayan mountains in Nepal

and Rivers' in the *Scottish Geographical Journal* of 1885. He ducked the issue by paraphrasing John Stuart Mill in renouncing the metaphysical nicety of definition: 'every one has a notion, sufficiently correct for common purposes, of what is meant by river'.

There is a body of geographical research into how small children perceive their surroundings, and their notions of what a river should be are as good as any. Some of the best taken from a recent study are: 'wet water running down', 'a long blue thing that's wet', and 'something that flows and has fish and water'. All are sufficiently correct for our purposes.

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Chapter 1

Nature's driver

Water is the driver of Nature.

Leonardo da Vinci (1452–1519)
(Italian painter, architect, and engineer)

We live on a wet planet. Water is the most abundant substance on Earth and covers two-thirds of its surface. It is also found in smaller quantities in the air we breathe, the plants and animals we see, and the ground on which we tread. This water is continuously on the move, being recycled between the land, oceans, and atmosphere: an eternal succession known as the hydrological cycle. Rivers play a key role in the hydrological cycle, draining water from the land and moving it ultimately to the sea.

Any rain or melted snow that doesn't evaporate or seep into the earth flows downhill over the land surface under the influence of gravity. This flow is channelled by small irregularities in the topography into rivulets that merge to become gullies that feed into larger channels. The flow of rivers is augmented with water flowing through the soil and from underground stores, but a river is more than simply water flowing to the sea. A river also carries rocks and other sediments, dissolved minerals, plants, and animals, both dead and alive. In doing so, rivers transport large amounts of material and provide habitats for a great variety of