

Introduction

The study of animal anatomy has led to some of the most striking images ever created.



For two and a half thousand years, animal bodies have been picked apart to drive arguments in natural philosophy, to reinforce dogma, to remind us of death, to horrify, educate, and enthrall.

I teach comparative anatomy to veterinary students at Cambridge University, so I spend my days surrounded by the interior world of animals—skeletons, pickled pots of viscera, tendons, ligaments, offal. I have unexpected objects in my office, and many of them are just begging to be drawn. Some are impressive and some beautiful.

There is much more to animal anatomy than describing the structure of animals for those who need to work with them—I would call that practical “veterinary anatomy.” Another reason to create images of animals’ constituent parts is to add to the sum of human scientific knowledge by finding out how animals work, or why they are dispersed into such a myriad of bewilderingly disparate forms; this could be called “comparative anatomy” or even “zootomy.” A further reason to depict animal anatomy is art itself: to exploit animal structure to create works that inspire.

These three motivations inform the works in this book to varying extents, but art is always there. Even the most pragmatic, functional images hidden in anatomy textbooks are framed, distorted, simplified,

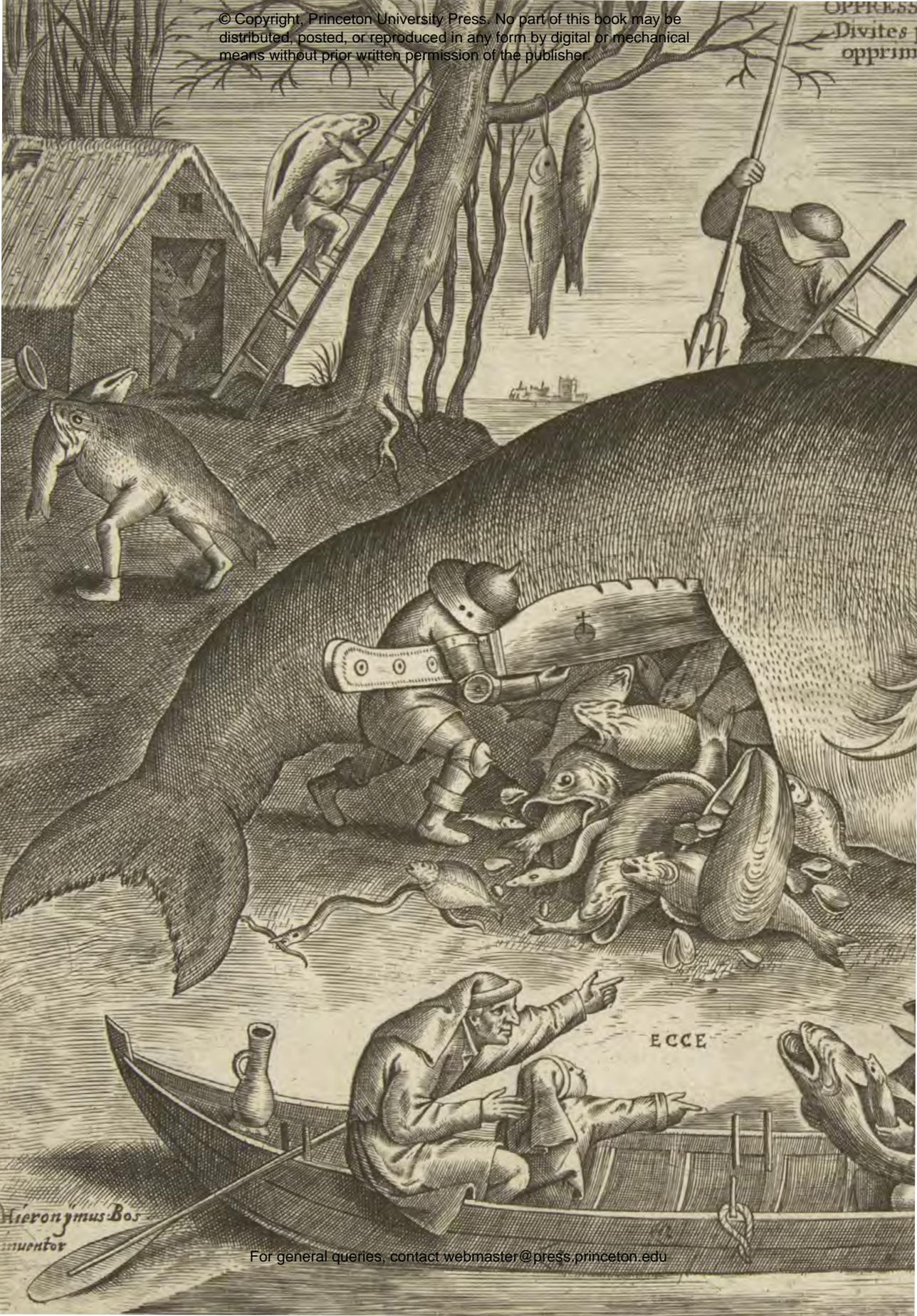
or augmented for artistic impact. Artists draw animals because they respect or love them, or both, and the emotional impact of viewing animals cannot be expunged from their work. A flamingo’s skeleton is not just an armature of spindly struts, and a cow’s innards are not just a series of pipes. Artists cannot ignore the fact that a rearing cobra comes with an instinctual backstory of fear and threat, even when it is reduced to a skeleton. In short, there is usually a lot more art and emotion in these images than is strictly necessary.

In producing the works in this book, craftsmen extracted a clean, simple truth from dirty, complex objects. Dissection is rarely a neat procedure, and many of the subjects depicted must have been messy and malodorous at the time. Yet here they are, abstracted objects of clarity and beauty, cleansed of their mundane filth and presented in woodblock print, pen and ink, lithograph, oil, or luminous spray paint.

My favorite moment in preparing this book was to discover in my workplace a forgotten sixteenth-century Venetian imprint of the *Anatomia del Cavallo* (“Anatomy of the Horse”), the motherlode of Western animal anatomy by Carlo Ruini

Synsacrum of a domestic fowl.





Hieronymus Bosch
inventor

OP PAV PERU M.
oer potentiam
unt vos. Iacob 2, 6.

OPPRESSION DES PAVVRES.
Iacob 2, 6.

VERDRUCKINGHE DER ARMEN
Iacob 2, 6.



(Previous page) Pieter van der Heyden after Pieter Bruegel the Elder, *Big Fish Eat Little Fish*, 1557.

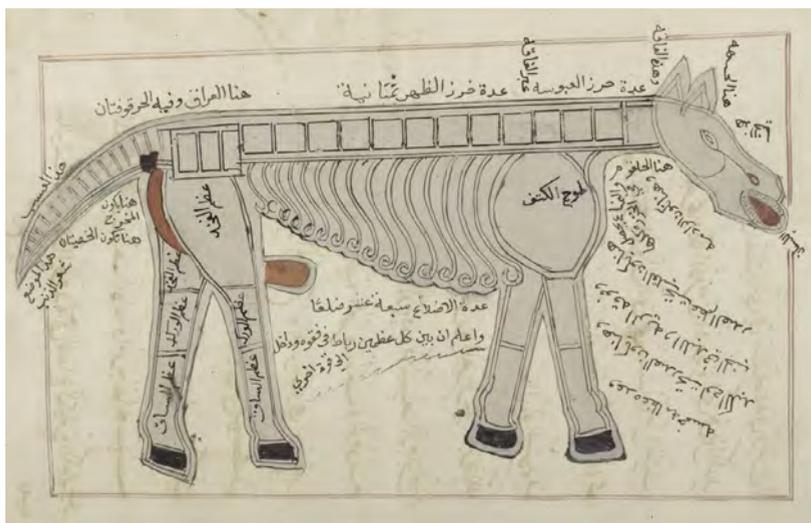
(see page 54). (For examples of Ruini's work, see pages 54–60.) This volume is in remarkable condition, with stout, firm binding, and its crisp, surprisingly modern-looking images still look fresh in today's jpeg world. Yet among the pictures hides a profile of a horse's face, veins exposed, its eye staring terrified from the plane of the page as if to remind us that these beautiful creations spring from somewhere dark and hidden from genteel view.

Images of animal anatomy are also arresting because they remind us of other things. Spars of bone vault and arch like the pillars and buttresses of a cathedral, and, indeed, they perform precisely the

***Kitâb al-baytara* ("Treatise on Hippiatry"). Egyptian manuscript, 1670; Skeleton of a horse.**

same mechanical functions. Muscles and tendons radiate and converge like pistons in a strange, medieval war-engine. And guts wriggle like convoluted sewers beneath some steampunk city. Today, we understand what all these body parts actually do, and, unlike many of our predecessors, we also know that they were not fashioned by a benign creator, but by the uncaring hand of patient natural selection. To realize that the working animal components depicted in this volume were not consciously designed is remarkable enough, but it is truly incredible to consider that, instead, a few simple evolutionary rules forged all this complexity and variety.

This book recounts the intertwined intellectual and artistic journeys of animal anatomy from antiquity to the present day. Rather than offering an exhaustive listing, it focuses on the distinctive artistic flavors of the five main overlapping phases of anatomical endeavor. The first phase is largely defined by that which no longer remains: we know that savants from antiquity to the Renaissance drew animal





J. E. V. Boas (1855–1935) and Simon Paulli (1865–), *The Elephant's Head: studies in the comparative anatomy of the organs of the head of the Indian elephant and other mammals.*

anatomy, but what remains mainly tells a story of charming ignorance and accidental survival. Then, from the sixteenth century, the horse was king, and can sometimes appear to have been the only animal worth depicting, probably as a result of its practical, financial, and social value, and also, no doubt, because horses are rather handsome. The third phase, from the seventeenth to the nineteenth centuries, reflected an obsession with the sheer variety of nature, with artists deliberately selecting the most bizarre and obscure creatures they could find as their models. Next came the nineteenth century, when God lost control and anatomists first realized that mundane processes generate animal form: sex, inheritance, evolution, embryonic development, and physics. The fifth and last phase is the twentieth century, when everything changed, as new techniques, new ways of thinking, and a

drive for artistic and scientific progress created the modern world.

I imposed one restriction on myself when writing, and that is the types of animals I included. The images are all of *vertebrates*: animals defined by having backbones and which also possess limbs, mouths, eyes, ears, and faces that make them more emotionally accessible to the human eye. There are no insects, worms, or molluscs, partly because I know little about them and partly because I would argue they are just too alien for us to relate to emotionally.

So, here instead are only vertebrates. After all, they look a little like us and seem a bit like us, too. Horses opened like books, the leer of a shark's eye, the humming loom of the brain—all life is featured here, dissected and depicted.

David Bainbridge, Cambridge, 2018