

# **THE KINGDOM OF MAN**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649141579

The kingdom of man by E. Ray Lankester

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.  
Cover @ 2017

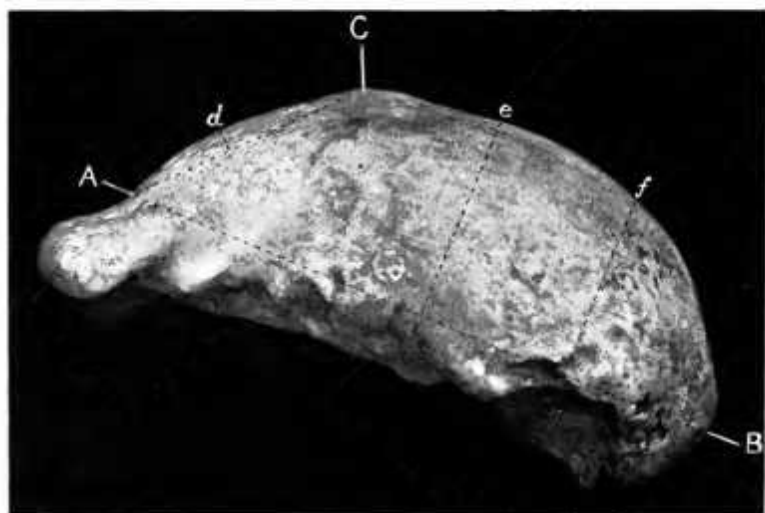
This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

[www.triestepublishing.com](http://www.triestepublishing.com)

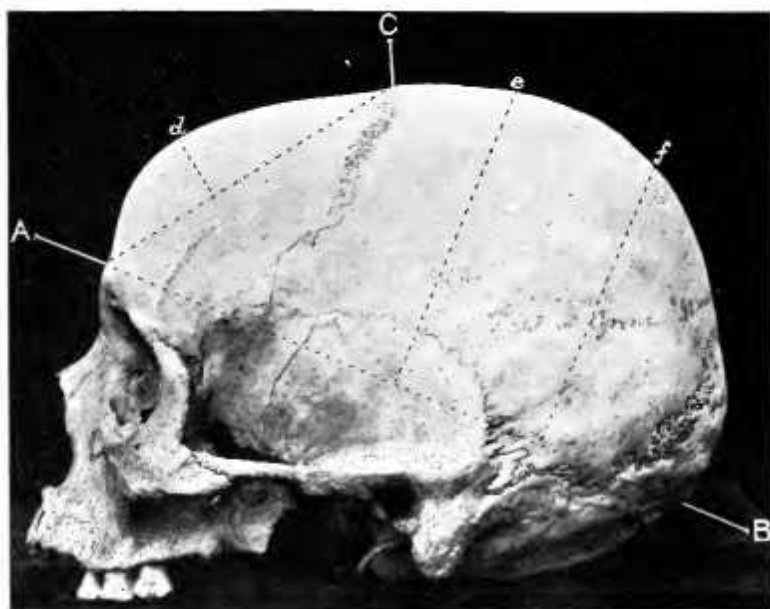
**E. RAY LANKESTER**

**THE KINGDOM  
OF MAN**





Cranial Dome of *Pithecanthropus erectus* from river gravel in Java.



Skull of a Greek from an ancient Cemetery.

# THE KINGDOM OF MAN

BY  
E. RAY LANKESTER

M.A. D.Sc. LL.D. F.R.S.

HONORARY FELLOW OF EXETER COLLEGE, OXFORD; CORRESPONDENT  
OF THE INSTITUTE OF FRANCE; EMERITUS PROFESSOR  
OF UNIVERSITY COLLEGE, LONDON; PRESIDENT  
OF THE BRITISH ASSOCIATION FOR THE  
ADVANCEMENT OF SCIENCE

DIRECTOR OF THE NATURAL HISTORY DEPARTMENTS OF THE  
BRITISH MUSEUM

LONDON  
ARCHIBALD CONSTABLE & CO LTD  
10 ORANGE STREET, LEICESTER SQUARE

1907

# EXTINCT ANIMALS

BY

**Prof. E. RAY LANKESTER, F.R.S.**

With a Portrait of the Author, and 218 other  
Illustrations

*Demy 8vo. Price 7s. 6d. net*

## DESCRIPTIVE NOTE.

THE author gives us here a peep at the wonderful history of the kinds of animals which no longer exist on the surface of the globe in a living state, though once they flourished and held their own. Young and old readers will alike enjoy Prof. Lankester's interesting narrative of these strange creatures, some of which became extinct millions of years ago, others within our own memory. The author's account of the finding of their extant remains, their probable habits and functions of life, and their places in the world's long history, is illustrated profusely from point to point, adding greatly to the entertainment of the story.

*Nature*: "... We give the book a hearty welcome, feeling sure that its perusal will draw many young recruits to the army of naturalists, and many readers to its pages."

*The Times*: "There has been published no book on this subject combining so successfully the virtues of accuracy and attractiveness . . . Dr. Lankester's methods as an expositor are well known, but they have never been more pleasantly exemplified than in the present book."

*The Athenaeum*: "Examples of Extinct Animals and their living representatives Professor Lankester has described with a mastery hardly in these present pages."

LONDON

ARCHIBALD CONSTABLE & CO LTD  
10 ORANGE STREET, LEICESTER SQUARE

EVER & SPOTTISWOODE, U.M. PRINTERS, LONDON



## DESCRIPTION OF THE FRONTISPIECE

The upper figure is from a cast of the celebrated specimen found in a river gravel in Java, probably of as great age as the palaeolithic gravels of Europe. Though rightly to be regarded as a 'man'—the creature which possessed this skull has been given the name '*Pithecanthropus*.' The shape of the cranial dome differs from that of a well-developed European human skull (shewn in the lower photograph, that of a Greek skull) in the same features as do the very ancient prehistoric skulls from the Belgian caves of Spey, and from the Neanderthal of the Rhineland. These differences are, however, measurably greater in the Javanese skull.

The three great features of difference are: (1) the great size of the eye-brow ridges (the part below and in front of A in the figures) in the Java skull; (2) the much greater relative height of the middle and back part of the cranial dome (lines *e* and *f*) in the Greek skull; (3) the much greater prominence in the Greek skull of the front part of the cranial dome—the prefrontal area or frontal 'boss' (the part in front of the line A C, the depth of which is shewn by the line *d*).

The parts of the cranial cavity thus obviously more capacious in the Greek skull are precisely those which are small in the Apes and overlie those convolutions of the brain which have been specially developed in Man as compared with the highest Apes.

The line A B in both the figures is the ophryo-tentorial line. It is drawn from the ophryon (the mid-point in the line drawn across the narrowest part of the frontal bone just above the eye-brow ridges), which corresponds externally to the most anterior limit of the brain, to the extra-tentorial point (between the occipital ridges) and is practically the base line of the cerebrum. The lines *e* and *f* are perpendiculars on this base line, the first half-way between A and B, the second half-way between the first and the extra-tentorial point.

C is the point known to craniologists as 'bregma,' the meeting point of the frontal and the two parietal bones.

The line A C is drawn as a straight line joining A and C—but if the skull is accurately posed it corresponds to the edge of the plane at right angles to the sagittal plane of the skull—which traverses both bregma (C) and ophryon (A)—and where it 'cuts' the skull marks off the prefrontal area or boss. (See for the full-face view of this area in the two skulls—Figs. 1 and 2.) The line *d* is a perpendicular let fall from the point of greatest prominence of the prefrontal area on to the prefrontal plane. It indicates the depth of the prefrontal cerebral region. Drawn on both sides on the surface of the bone and looked at from in front (the white dotted line in Figs. 1 and 2) it gives the maximum breadth of the prefrontal area.

By dividing the ophryo-tentorial line into 100 units, and using those units as measures, the depths of the brain cavity in the regions plumbed by the lines *d*, *e*, and *f*, can be expressed numerically and their differences in a series of skulls stated in percentage of the ophryo-tentorial length.





## CONTENTS

	PAGE
CHAPTER I.—NATURE'S INSURGENT SON . . . . .	I
CHAPTER II.—THE ADVANCE OF SCIENCE, 1881-1906	66
CHAPTER III.—NATURE'S REVENGES: THE SLEEP- ING SICKNESS . . . . .	159

## LIST OF ILLUSTRATIONS

FRONTISPIECE :—Profile views of the Cranial Dome of <i>Pithecanthropus erectus</i> , the ape-like man from an ancient river gravel in Java, and of a Greek skull.	
FIG. 1.—Frontal view of the Cranial Dome of <i>Pithecanthropus</i>	16
FIG. 2.—Frontal view of the same Greek skull as that shown in the frontispiece . . . . .	16
FIG. 3.—Eoliths, of 'borer' shape, from Ightham, Kent . . . . .	18
FIG. 4.—Eoliths of trinacrial shape, from Ightham, Kent . . . . .	20
FIG. 5.—Brain casts of four large Mammals . . . . .	23
FIG. 6.— <i>Spirochaeta pallidum</i> , the microbe of Syphilis discovered by Fritz Schaudinn . . . . .	37
FIG. 7.—The Canals in Mars . . . . .	43
FIG. 8.—The Canals in Mars . . . . .	44
FIG. 9.—Becquerel's shadow-print obtained by rays from Uranium Salt . . . . .	73
FIG. 10.—Diagrams of the visible lines of the Spectrum given by incandescent Helium and Radium . . . . .	76
FIG. 11.—The transformation of Radium Emanation into Helium (spectra) . . . . .	83
FIG. 12.—Dry-plate photograph of a Nebula and surrounding stars . . . . .	90

	PAGE
FIG. 13.—The Freshwater Jelly-fish, <i>Limnocoedium</i> ... ..	97
FIG. 14.—Polyp of <i>Limnocoedium</i> ... ..	97
FIG. 15.—Sense-organ of <i>Limnocoedium</i> ... ..	97
FIG. 16.—The Freshwater Jelly-fish of Lake Tanganyika ...	98
FIG. 17.—Sir Harry Johnston's specimen of the Okapi ... ..	99
FIG. 18.—Bandoliers cut from the striped skin of the Okapi ...	99
FIG. 19.—Skull of the horned male of the Okapi ... ..	100
FIG. 20.—The metamorphosis of the young of the common Eel...	101
FIG. 21.—A unicellular parasite of the common Octopus, producing spermatozoa ... ..	102
FIG. 22.—The <i>Coccidium</i> , a microscopic parasite of the Rabbit, producing spermatozoa ... ..	102
FIG. 23.—Spermatozoa of a unicellular parasite inhabiting a Centipede... ..	103
FIG. 24.—The motile fertilizing elements (antherozoids or spermatozoa) of a peculiar cone-bearing tree, the <i>Cycas revoluta</i> ... ..	104
FIG. 25.—The gigantic extinct Reptile, <i>Triceratops</i> ... ..	106
FIG. 26.—A large carnivorous Reptile from the Triassic rocks of North Russia ... ..	107
FIG. 27.—The curious fish <i>Drepanaspis</i> , from the Old Red Sandstone of Germany ... ..	107
FIG. 28.—The oldest Fossil Fish known ... ..	108
FIG. 29.—The skull and lower jaw of the ancestral Elephant, <i>Palæomastodon</i> , from Egypt ... ..	109
FIG. 30.—The latest discovered skull of <i>Palæomastodon</i> ...	110
FIG. 31.—Skulls of <i>Meritherium</i> , an Elephant ancestor, from the Upper Eocene of Egypt ... ..	111
FIG. 32.—The nodules on the roots of bean-plants and the nitrogen-fixing microbe, <i>Bacillus radicola</i> , which produces them ... ..	114
FIG. 33.—The continuity of the protoplasm of vegetable cells ...	116
FIG. 34.—Diagram of the structures present in a typical organic 'cell' ... ..	117
FIG. 35.—The Number of the Chromosomes ... ..	119
FIG. 36.—The Number of the Chromosomes ... ..	120