

Jonathan Kingdon



Mammals of Africa

“Mammals of Africa” Drawings as Documents

This exhibition consists of drawings, watercolours and prints drawn from the recently published “Mammals of Africa” (MOA), a six volume inventory of the entire continent’s mammalian fauna and including *Homo sapiens*!

The documents illustrating MOA have drawn heavily on images previously published in three earlier works, “East African Mammals” (1971-1982) and my Field and Pocket Guides (1997 & 2004).

MOA started with the stipulation that I was to be its sole illustrator and there would be no photographs. One reason for excluding them came from an experience in my 20’s, when medical colleagues, researching malnutrition and kwashiorkor in rural children, asked me to investigate the effectiveness of imagery among illiterate peasant farmers. What I found was that the latter were unable to interpret photographs, holding them, puzzled, upside down. Instead, they loved medieval iconography and understood drawings. Subsequently, I learned that the visual cortex in human brains does not operate like a camera but, like the process of drawing, puts lines and outlines around things, isolating the forms of visual interest from their surroundings.

It is not only rural illiterates that are visually uneducated; one sophisticated western scientist, reviewing “East African Mammals,” wrote “This book is unusual in there being no pictures, just drawings”, using the common misnomer for photography as a “picture”, which originally meant a painted image by an artist. The habit of carefully examining an image to extract its meaning is now rare and most people scan images as rapidly as they would scan road signs or airport signage.

A second reason for stipulating that my drawings were to be the sole illustrations lay in reaction to the poverty of visual



Golden Fruitbat Drawing

Cover Gabon Squirrel Galago Giclée Print



Bale Monkey

Giclée Print



Cape Hare

Drawing

education in the schooling of my generation. Any form of art was an 'extra' that parents had to pay for. The core of education was thought to lie in books. The inordinate status of words uttered by authorities over observation and original experiment and denigration of the effort to formulate visual meaning was probably a left-over vestige of religion's monopoly over education. As for Protestant, Judaic or Muslim puritans, words did not only trump images; in the absence of any education into the meaning and the creation or analysis of imagery, any form of representation, in the mind of verbal pedants and visual paupers, became suspect, thus reinforcing my generation's reliance on words to the effective exclusion of imagery.

Confronting such limitations in the visual education of my peers became a leitmotif at the time I became a University teacher in the late 1950s and my insistence on the value of imagery in science began with "East African Mammals". The fact that my mother taught me to draw from life before she taught me to read and write undoubtedly reinforced my insistence on personally illustrating "East African Mammals", "Island Africa", my Field and Pocket Guides and "Mammals of Africa".

For a new and very different generation all the assumptions that dominated life in a still-Colonial 1950s Africa have gone but mammals are still avatars for human symbolism, mammals are still targets for hunters of all sorts. Mammals are still mere adjuncts to recreation or "tourism", but at long last, there is the growing awareness that any mammal represents many layers of reality embedded in deep time. The fact that much more remains to be discovered than was ever discovered in the past, and present, has become a thrilling challenge to new generations.

A central plank in all my books, especially MOA, a central motive for pursuing their completion, has been the conviction



Thomas's Dwarf Galago

Drawing



Golden Moles

Drawing



Fire-footed Rope Squirrel

Giclée Print



Pygmy Hippo

Drawing



Crowned Monkey

Giclée Print

that the evolutionary process offers incomparable intellectual delights in its logic and especially in its beauty. Some of the beginnings of this conviction lay in my Tanganyika childhood, some in a classical art education and still more in contemporary evolutionary science. In 1971 I summed up my intentions in preparing the “documents”, drawings and illustrations for “East African Mammals”, as follows:

“The large-scale drawings in this work are intended to display some of the detail of an animal’s external appearance, and the direction of hair and the tonal values of an animal’s coat are indicated wherever possible. However, the limitations of a single representative animal drawn from a single viewpoint should be remembered, for animals vary and they change with growth, with sex and with posture. Mammals are only static when they are stuffed in a museum so that the sheets of quick sketches are a reminder of their plasticity, complexity and ceaseless activity. Small movements can bring about a revolution in an animal’s appearance. Such changes may have evolved as part of the animal’s communication system and must, in the majority of cases, confer some benefit on the animal. Thus visual effects may act as a warning, as in the zorilla, or a confusion to predators, as in the bobbing hindquarters of a gazelle, or they may act as flags or signals, between individuals of a species.

The visual effects are often the outcome of independent developments in different parts of the body, combining coloured areas of skin, fur or horn in overall patterns. The analysis of these patterns and their correlation with behaviour is one of the most stimulating aspects of modern ethology. In the sheet sketches those designs, structures, actions and postures that seem most characteristic of each species have been shown. In the text, these characteristics have been related whenever possible to the behaviour towards which they appear to be directed. These patterns have favoured the species’ survival, so a visual bias in exploring distinctness of appearance in mammals needs no apology.



Giant Hog

Drawing



Olive Baboon

Drawing



Greater Galago Dissection

Offset litho print

The drawings of mammal dissections and the exposure of their skeletal structures are made in order to underline the fundamental form of an animal. Also, the dissected animal may be more readily compared with others, for the gross musculature is fairly easily recognised and the changing position and emphasis of muscles on body frames that are adapted for differing modes of life can be appreciated. I have adopted the naturalist's and artist's procedure of viewing the whole. This is admittedly superficial in more senses than one, for I have not attempted analytical division



Salt's Dikdik

Giclée Print



Crested Rat

Giclée Print

and description. Anatomy is a specialist field, but the subject matter of anatomy should not be regarded as closed to the naturalist or layman for want of a disciplined methodology. I know that my own curiosity about the “form” of mammals has been one of the incentives for preparing this work and I believe that this curiosity is widely shared and not easily satisfied.

It is perhaps trite to remark that when we look at the distinctive form of a mammal we are seeing the outcome of millions of years of natural selection, for we are no nearer comprehension of the process with the knowledge. However, we do know that even slight dissimilarities in appearance between species can usually be related to functional differences in the way of life to which the respective species are adapted. In considering these formal dissimilarities, drawing seems to me to be, in its own way, as appropriate an expression of thought as mathematical formulae or tables, even if the only common ground shared by the scientist's mode of thought and the draftsman's is the effort of the mind to extract meaningful relationships from “forms”.

It is possible to view the gross form of an organism as the manifestation of forces and stresses and this form has been organised to cope with certain environmental conditions. For instance, the form of a dolphin or a dugong has been moulded by certain properties of the environment, water, in which these animals live and the submarine's resemblance to aquatic animals is no accident. Land animals are dominated by gravity, and the body framework is the means by which the animal is supported against gravity. A mammal's limbs and tissues demonstrate principles of efficient construction, using the organic materials of the body in a variety of ways but always with the utmost economy.

There is, I find, a relationship between the mental processes involved in this sort of biological thinking and those linked with the creative looking which is involved in drawing.

It is hardly possible to compare animals without asking questions, and drawing is an exercise in comparisons, comparing the proportions of parts with parts, parts with wholes and comparing one form with another. Drawing also seeks to parallel in lines on paper those subtle and unique combinations of interacting forces that characterise a particular organism.

Convention has assigned to drawing two limited functions. The first is that of depicting an idea, the executor of the illustration and the originator of the idea being usually two individuals. The second function, being expression of emotion, is generally closed to the scientist. The fact that drawing is a language in its own right has been ignored or forgotten. The comparison of forms, as I have already remarked, raises questions, and drawing can be employed as a wordless questioning of form; the pencil seeks to extract from the complex whole some limited coherent pattern that our eyes and minds can grasp. The probing pencil is like the dissecting scalpel, seeking to expose relevant structures that may not be immediately obvious and are certainly hidden from the shadowy world of the camera lens. At the very least I hope the drawings will leave the reader with a feeling of more intimate knowledge of the animals discussed in this work, and the sketches, which are a form of "field note", should be of some help in pinpointing those unique characters that allow a field naturalist to recognise an animal instantly in the field, an ability that distinguishes him from the cataloguer of descriptions. Two dimensional representations suffer from similar limitations to a distant view; there is more implied in them than the explicit silhouette or lines that meet the eye. Coward, the ornithologist, once asked an old fisherman how he could name his birds when they were a great distance away; "by the *jizz* of them" was the answer. It is one of the intentions of this book and particularly of the drawings to cultivate *jizz*, which is both an unconscious summing up of form, stance and movement, often called intuitive "feeling" for an animal and, more plainly, an accurate assessment

of that balance of forces which is manifested in "shape". Many of the drawings here are the outcome of an attempt to formulate *jizz*."

In 2013 I suggested a somewhat different argument when describing the illustrations for MOA in an introductory chapter. Comprehension of mammalian biology can be deepened and supplemented by a variety of graphic media from maps, diagrams, histograms, gene charts, videos, photographs to all sorts of pictorial illustration. These modes of representation are sometimes self-sufficient for the sort of information they



Aardvark

Offset litho print

seek to propagate. However, Mitchell (1994) has pointed out that representation, in both modern and postmodern senses, becomes a conceptual issue when there are perceptible ruptures between image and text, and that illustrated texts can be better conceived not as a juxtaposition of two separate media but as composite synthetic works.

In these volumes the text is augmented by maps and drawn illustrations. A large number of the latter derive from a very long-term enterprise that has generated very many thousands of drawings (Kingdon 1971-1982, 1983, 1997). One of reasons for preparing my "East African Mammals: An Atlas of Evolution in Africa" and my Field and Pocket Guides was to enlist graphic imagery as a mode of exploration and discovery in itself. With my pencil I set out to record, both in field and laboratory, the morphology, functional anatomy and behaviour of many little-known mammals in the confidence that my audience would share with me a Darwinian excitement in making discoveries. Many of the smaller mammals that I have observed or trapped had never been drawn, let alone photographed before and some of my work actually had the character of "first contact" documents. Some 40 years after publication of the first volume of my Atlas these exploratory documents have been greatly augmented, often in close collaboration with the authors of this work, who have helped to extend this enterprise into another millennium. We have been assisted by new forms of graphic aids that were inconceivable when I was drawings mammals in the 1950s and 1960s; among the most exciting are camera-trap and space-tracking systems. Nonetheless, the greater part of an animal's structure is hidden under its coat, and photographs, however beautiful, seldom offer more than a hint of what lies beneath the surface. Of course, single-view drawings are similarly constrained but there is much greater scope for the isolation and presentation of those features that are most diagnostic of a species' appearance. Where the production of drawings has included detailed anatomical records of dissection and progressive stripping down to the skull and



Derby's Eland

Giclée Print



Hero Shrew

Drawing

skeleton, such representations gain in authority. In the corpus of work from which these illustrations have been selected, there were more than 300 such published dissections and several hundred skulls and other anatomical details were also drawn. The skull drawings have been augmented here by many hundreds more but these have been rendered in a more conventional format to assist comparability between taxa.

Verbal language is not our only artefact in the effort to study and conceptualize 'meaning' in the physical existence of mammals. Anatomically correct drawing, particularly when backed up by dissection and field sketches of ephemeral behaviour and postures, can augment description with a useful type of non-verbal functional analysis. Unfortunately, most expressions of contemporary visual media are designed for instant absorption and the habit of taking time to carefully examine both real objects and man-made pictorial images has become exceptional. Most of the drawings in this work are the outcome of sustained and time-consuming contemplation and analysis of representative individuals of particular species, with particular attention to the relative proportions of functional components. Many of the drawings were made under quite trying conditions in the field, during floods, heat-waves, downpours, out in the open, under canvas, in contention with innumerable insects or in the relative comfort of a vehicle. In the final production of coloured illustrations I have sought to recognise and display as many intimations of uniqueness as are possible in a single image. In "East African Mammals" these were augmented by line drawings of relevant details of anatomical form and sheets of sketches that illustrate behaviour and posture. Similar augmentation has been applied to some of the species profiled in this work.

I hope the pioneering intentions of the drawings/documents on offer here will continue to help viewers formulate a deeper and more contemplative appreciation for their subjects.

Jonathan Kingdon 2013



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Design: Gallery Pangolin
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Hartmann's Mountain Zebra
Bronze
Edition of 10
65cm high