THE HISTORY OF ALBRECHT DÜRER'S RHINOCEROS IN ZOOLOGICAL LITERATURE

by

F. J. COLE

ALBRECHT DÜRER'S well-known and justly admired woodcut of the Indian Gomda[1] was drawn and cut in 1515. It was for over two centuries accepted as a trustworthy representation of the rhinoceros, and it figures so often and in so many disguises in early zoological works that a history of its 'deambulations' is worth attempting.[2] Before doing so, however, it is material to summarize briefly what was known of the animal in classical times.[3] The references in the Bible to the 'unicorn' are too vague to admit of satisfactory identification, and indeed probably do not refer to the rhinoceros; but Aristotle is more definite in the *Historia animalium* and in the *De partibus animalium*, where he states, it is true at second hand, that the 'Indian ass' has a single horn and a non-cloven hoof. This may possibly be a reference to the Indian rhinoceros in spite of the fact that the species has three sufficiently distinct toes, albeit less obvious than in other Ungulates. Strabo the geographer (*c.* 64 B.C.–A.D. 21) is the first to give us a recognizable description of a rhinoceros with one horn, based on a single individual which he claims to have seen. He refers, at second hand, to its combats with the elephant—a tale which is widely repeated in the writings of the Middle Ages and in some later works. Strabo uses the word rhinoceros or nose-horn, *ρινό-κερως*. He mentions the plicae of the skin, and hence his example was of the Indian species.

The mosaic pavement of the Temple of Fortune at Praeneste, now Palestrina, which was constructed probably between 80 B.C. and A.D. 200,[4] illustrates scenes on the Nile, and includes a figure of a rhinoceros with *two* nasal horns, which hence must have been the African species, *R. bicornis*, and so fits into the scene.[5] Another Roman mosaic discovered in a garden at Perugia includes an undoubted figure of the African rhinoceros, but the disproportion in length between the two horns is somewhat exaggerated[6] (Fig. 1). According to Pliny, an Indian rhinoceros made its first appearance

[1] This is the Hindu equivalent of rhinoceros adopted by Dürer himself. Other variants are: Ganda, Genda, Gainda, Gomela, Gonda, Gainra.

[2] I ought to explain that I have not specifically searched the literature for Dürer material, but have used only such examples as have been accidentally encountered during many years when engaged in other historical studies. A complete list has therefore still to be compiled. See the bibliography, arranged alphabetically by authors, for detailed references to the works cited in these footnotes. Except for Fig. 2, all the illustrations are from copies of works in my own library. For the excellent photographs I am indebted to Mr. F. C. Padley.

[3] For further details consult the works of Oken (1838), Camper (1782), Klein (1751), Buffon (1754), Shaw (1800), and the early encyclopaedists.

[4] Marucchi (1904) and Hinks (1933) put the date of this mosaic at about the time of Hadrian, and the former suggests that it may have been inspired by Aelian, who was a native of Praeneste. The rhinoceros figured here has three digits in the foot, and not one as in the horse.

[5] Athenaeus quotes Callixenus of Rhodes (? third century B.C.) as his authority for the statement that an Ethiopian rhinoceros took part in Ptolemy's parade, which was held in the third century B.C. No horn or horns are mentioned, and hence it is not certain that this was the two-horned African rhinoceros.

[6] Cf. Guardabassi (1877).

in Rome during the games organized by Pompey the Great on his return to Italy (?61 B.C.), and Suetonius mentions that the Emperor Augustus (63 B.C.–A.D. 14) exhibited a rhinoceros in Rome, which has been interpreted as a contradiction of Pliny, but may refer to another occasion. Domitian (A.D. 52–96)[7] also brought a rhinoceros to Rome, and the interest so aroused was responsible for the references to the animal in the epigrams of the poet Martial (*c.* A.D. 40–104)[8] and for the minting of two Roman coins representing the two-horned rhinoceros, in one of which the animal is facing right and in the other left. A rhinoceros was again shown in Rome in the reign of Antoninus Pius (A.D. 86–161), but on the fall of the Roman Empire living examples did not appear in Western Europe until the sixteenth century, when the original of Dürer's figure arrived in Lisbon from India in 1515.

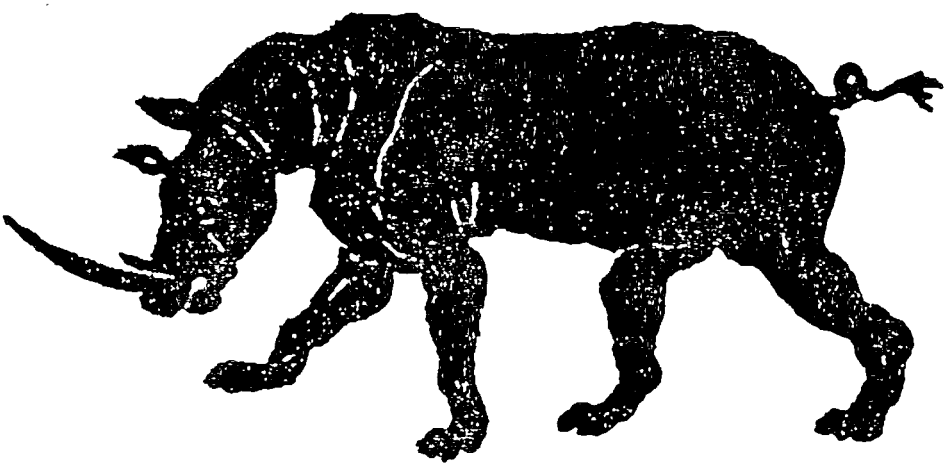

Fig. 1. The two-horned African rhinoceros as figured in a Roman mosaic at Perugia.

Martial's observations on the rhinoceros have been frequently discussed by learned editors. What he *says* is that the rhinoceros 'tossed a heavy bear with his double horn', which can refer only to the two-horned African species. This attribution is confirmed by the Domitian coins and the testimony of Pausanias (second century A.D.), whose 'Ethiopian bulls called rhinoceroses' have one horn at the end of the nose and behind it another but smaller one.[9] Owing to ignorance or scepticism of such a species, various modern commentators have attempted to explain away Martial's 'double horn', and the text has been emended by the substitution of 'urus' for 'ursus', which transfers the two horns to the victim, and even to the tossing of two bears with a single horn. In the latter case, however, we are assured that the bears would not have been tossed simultaneously. Another solution was suggested by Scaliger, who welcomed the publication of Dürer's woodcut as a sufficient confirmation of Martial's species.

An interesting reference to the rhinoceros in the Middle Ages occurs in a Latin hymn to Saint Paul by Abelard, written in the first half of the

[7] Cf. Mattingly (1930).

[8] Cf. Martialis, *De spectaculis*, xxii.

[9] The Ethiopian rhinoceros was re-described by the geographer Cosmas (*fl.* A.D. 535–47).

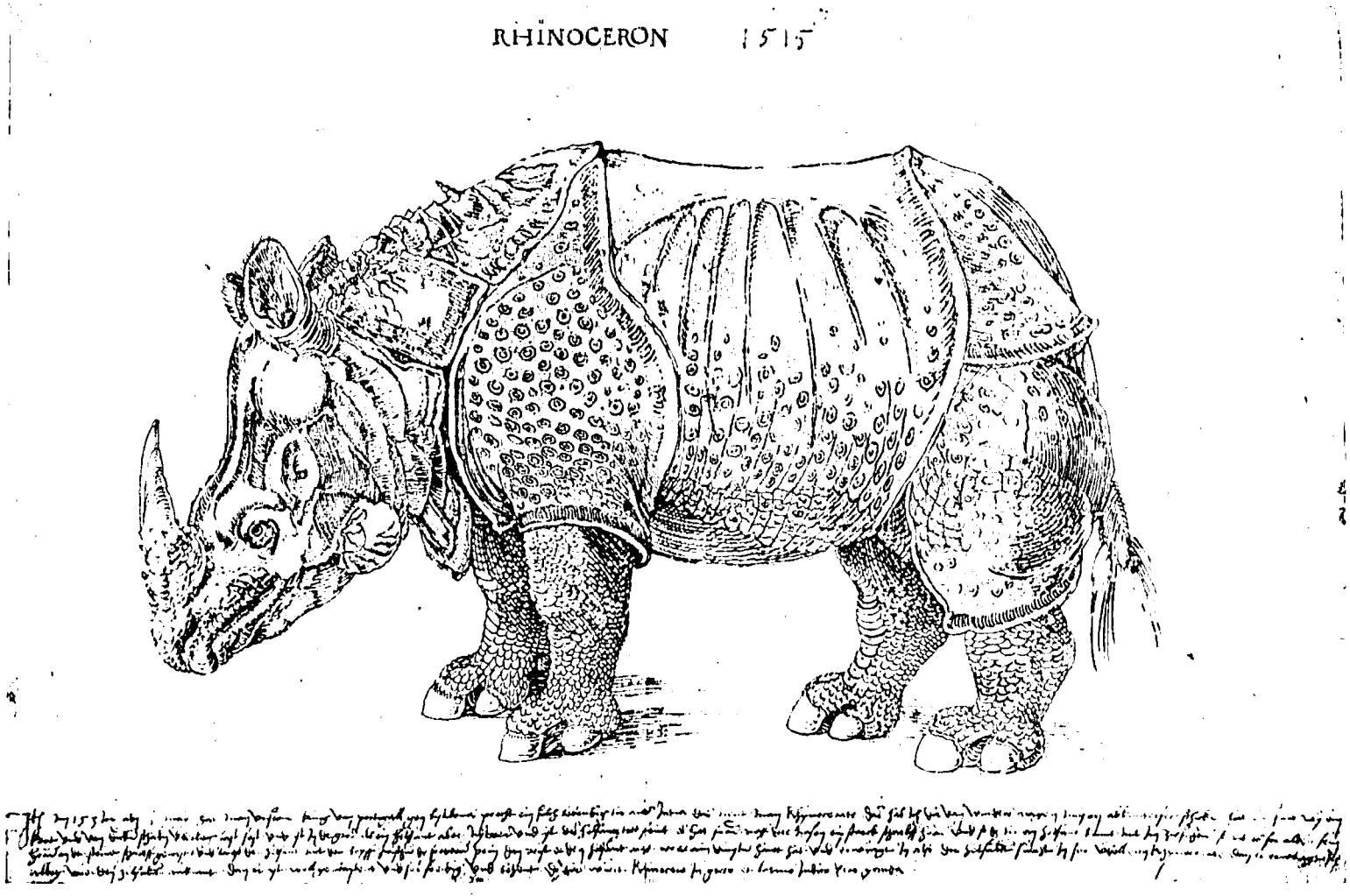

FIG. 2. Albrecht Dürer's drawing of the Indian rhinoceros. (British Museum, Department of Prints and Drawings. Reproduced by permission)
The date '153' in the legend is an error for '1513'

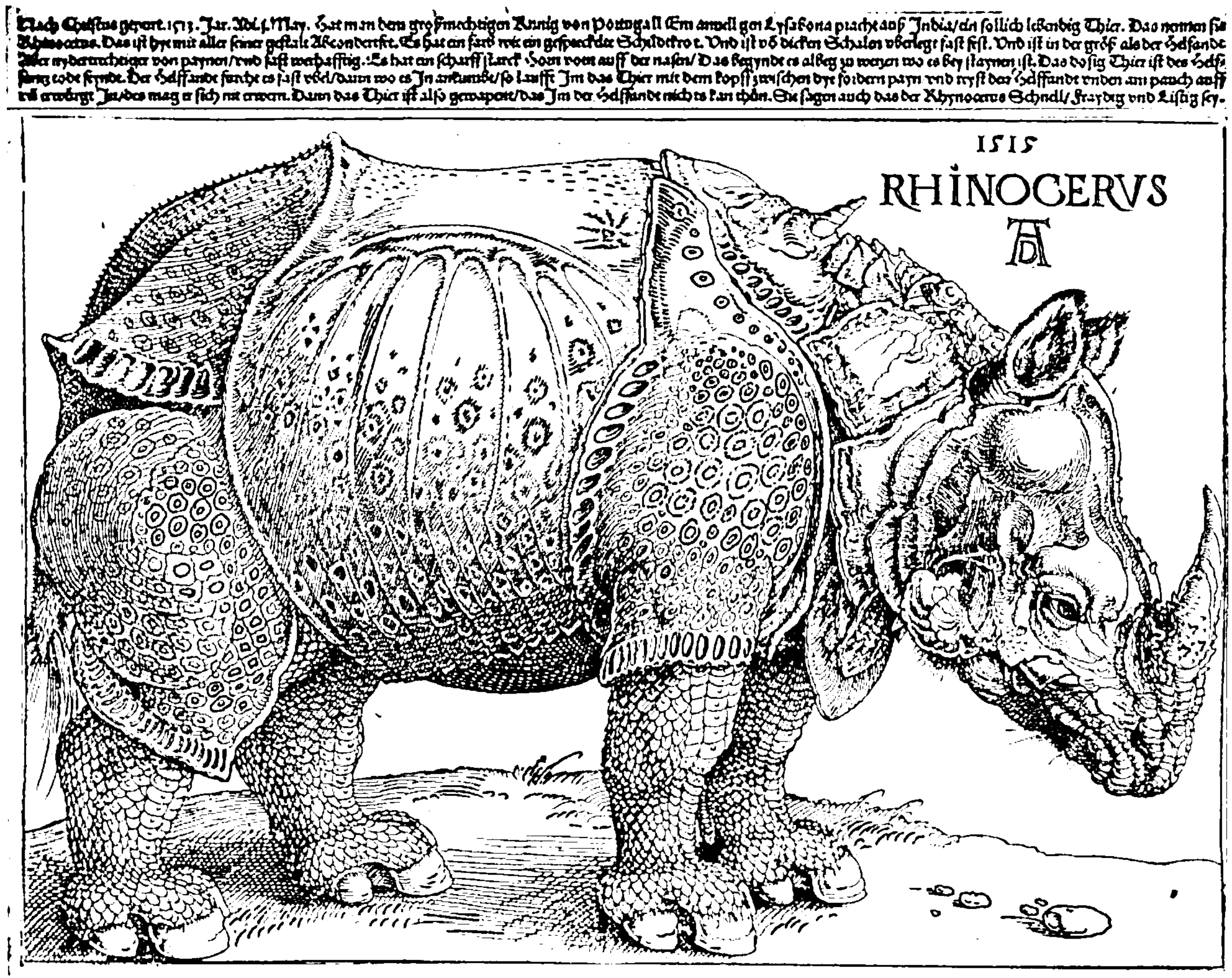

FIG. 3. Dürer's woodcut. From an impression of the very rare first state in the author's possession

The letterpress inscription is wrongly dated '1513', but the woodcut itself is correctly dated '1515'

twelfth century.[10] The verse runs:

Ut rinoceros est indomitus,
Quem ad aratrum ligans Dominus,
Glebas vallium frangit protinus.

Saint Paul is unrestrained and untiring, even as the rhinoceros, when his hand has been put to the plough.

The story of Dürer's rhinoceros was first told by Giovio[11] in 1555, and recently da Costa[12] and Campbell Dodgson[13] have added considerably to what was previously known. It is only necessary here to summarize very briefly the more important facts. The specimen, an Indian rhinoceros, *R. unicornis*, was presented by the Sultan of Guzerat to the Portuguese Mission in India in 1514, and it arrived at Lisbon on 20 May 1515. It was sketched and briefly described by a Portuguese artist, and this was the document[14] which later reached Dürer at Nürnberg, and provided the basis and stimulus for his famous drawing[15] and woodcut of 1515. Da Costa considers that the drawing was the work of the Portuguese artist, but on all grounds the Dürer attribution is unassailable. The rhinoceros itself left Lisbon in December 1515 and reached Marseilles in January 1516, on its way to Rome as a present to Pope Leo X. The ship sailed at the end of January, but in February a storm overwhelmed the vessel in the Gulf of Genoa and it was lost with all on board. The corpse of the rhinoceros, however, was washed ashore, and, after being stuffed, was dispatched to the Pope. Dürer's drawing was made in 1515, and impressions of the woodcut were published in the same year. The date on the drawing, viz. '153' (for '1513'), and in the inscription of the early states of the woodcut, is an error. The drawing (Fig. 2) became the property of the English physician Sir Hans Sloane, whose collections were purchased by the nation in 1754, and are now in the British Museum. Dürer himself had never seen a rhinoceros, living or dead, when his drawing was made.[16] Nevertheless, it envisages the distinctive congruity of the animal better than later ones executed from the life. It should be noted that a woodcut of a rhinoceros, also dated 1515, by Hans Burgkmair is known only from a single impression in Vienna. This appears to be relatable to the Portuguese sketch, but has none of Dürer's embellishments; and it may well be that the first valid representation of the animal which has come down to us was swamped by the rapid success of Dürer's print.

It is surprising that of all the authors who reproduced Dürer's figure Gesner[17] is the only one who acknowledges the obligation. Some of them

[10] *v.* under Abelard in bibliography. (Sir Eric Maclagan kindly drew my attention to this passage.)

[11] *v.* Giovio (1555).

[12] *v.* Da Costa (1937).

[13] *v.* Dodgson (1903, 1938).

[14] The document has since been lost, but an Italian translation has survived.

[15] The original sketch plays no part in the present story, since it was obviously unknown to the numerous plagiarists of the woodcut.

[16] The edition of Dürer's woodcut issued by Hondius, *c.* 1620, includes the erroneous statement that a living rhinoceros was sent by the King of Portugal to Germany, where Dürer made a sketch of it from the life.

[17] *v.* Gesner (1551 and 1553).

comment on the woodcut in a way which strongly suggests that they had seen it. The learned Bochart,[18] however, refers to Dürer as a distinguished artist who had in 1515 'accurately' drawn an Indian rhinoceros which was at the time alive in Portugal. The dorsal horn, he correctly says, is known only from that drawing. Bochart was not convinced of the existence of a rhinoceros with two *nasal* horns, although he was familiar with the classical references to such a species. If something can be said in extenuation of Dürer's imposing coat of armour, which after all is only an artistic elaboration of the plicae of the skin, it must be conceded that the small dorsal spiral horn is entirely and gratuitously fictitious. What induced him to introduce this quaint and not unpleasing feature? He had presumably heard of a two-horned rhinoceros, but in his own time and for long after there was no convincing evidence of the occurrence of a species with two *nasal* horns. On the contrary, much dubiety existed as to its reality. The Portuguese sketch showed only one, and Dürer, perhaps anxious that his figure should not be found wanting in so striking a feature, ventured to invent an inconspicuous second horn on the withers, where it might easily have escaped the notice of his predecessors. In this connexion it should be borne in mind that the two-horned African rhinoceros does not appear in modern zoological literature until 1661, when it was described and figured by Estienne de Flacourt,[19] who saw the animal in South Africa on his way home from Madagascar. The rhinoceros does not occur in Madagascar itself. Dürer therefore would not have at his disposal a contemporary description or figure of the two-horned species.

A comparison of Dürer's drawing in the British Museum with the first state of the woodcut (Fig. 3) reveals some noteworthy differences.[20] The most important is that in the woodcut the body is relatively shorter and heavier, and hence less natural. It is difficult to escape the conclusion that a deficiency in width of the block compared with its height was the factor that determined the ungainly proportions of the woodcut. Thus the horn actually touches the border-line of the block and there is not sufficient room for the whole of the tail, although it is pressed closer to the body. In the woodcut the dorsal horn becomes more prominent, hairs are added to the chin and neck, the shading at the edges of the plicae of the skin is converted into an ornamental pattern, and the median dorsal projection behind the ears is omitted. In both drawing and woodcut the toes are too distinct, but their number is correct.

The first author to copy Dürer's figure was Gesner (1551).[21] As already mentioned, the woodcut, and not the drawing, is the only source known to the plagiarists.[22] Gesner's figure (Fig. 4) has been accurately reduced so as not to disturb the proportions of the parts, and it is a faithful copy of the original, no attempt being made to improve upon it or to add to Dürer's

[18] *v.* Bochart (1663).

[19] *v.* Flacourt (1661). It may be necessary to alter the date of the first appearance to 1658, when the first edition of this work was published. I have not seen this edition.

[20] According to A. M. Hind, Dürer did not cut the blocks himself, but duplicated his drawings on the wood and left the cutting to a craftsman.

[21] *v.* Gesner (1551).

[22] Edward Wotton, in his *De differentiis animalium*, 1552 (colophon dated 1551), was evidently not acquainted with Dürer's woodcut.

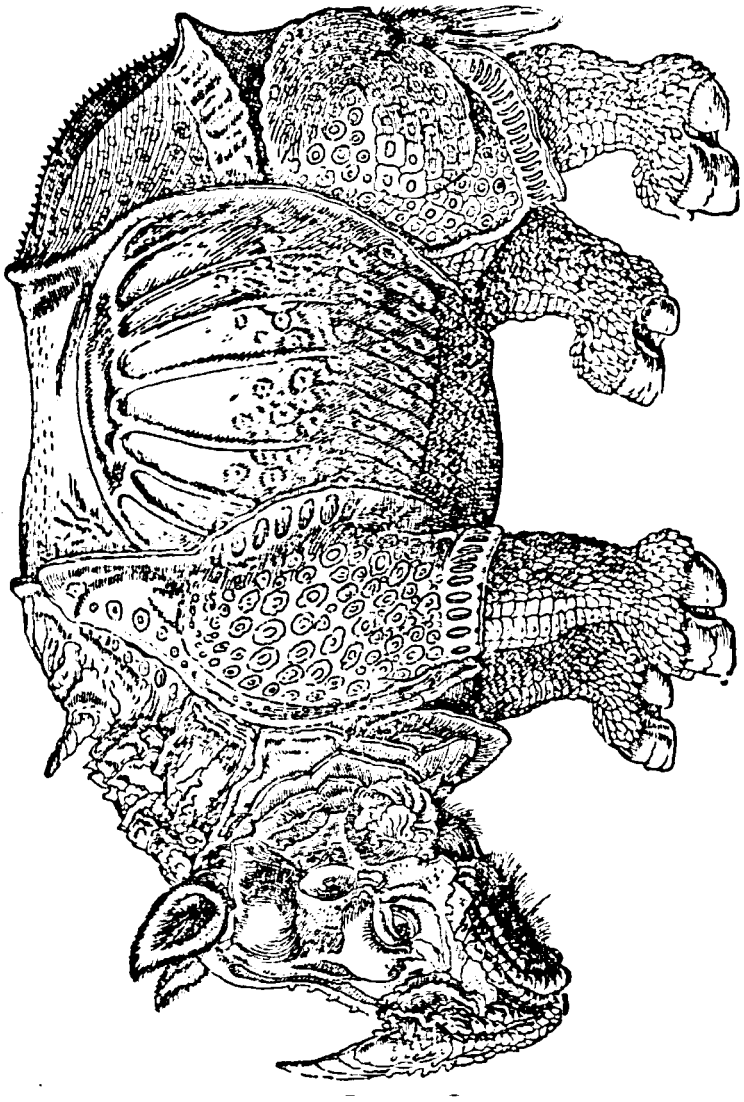

FIG. 4. Gesner, 1551. Copy in reverse of Dürer's woodcut

embellishments. The second horn is perhaps slightly less prominent. The origin of the figure is acknowledged, and its merit and popularity are referred to in terms of great admiration. No other author admits his debt to Dürer, nor can their failure to do so be ascribed, at least in many cases, to ignorance of the original. Gesner was aware of the references to a two-horned rhinoceros in classical literature, and he may even have assumed that Dürer's figure was the animal there referred to, notwithstanding that the second horn was not on the nose.

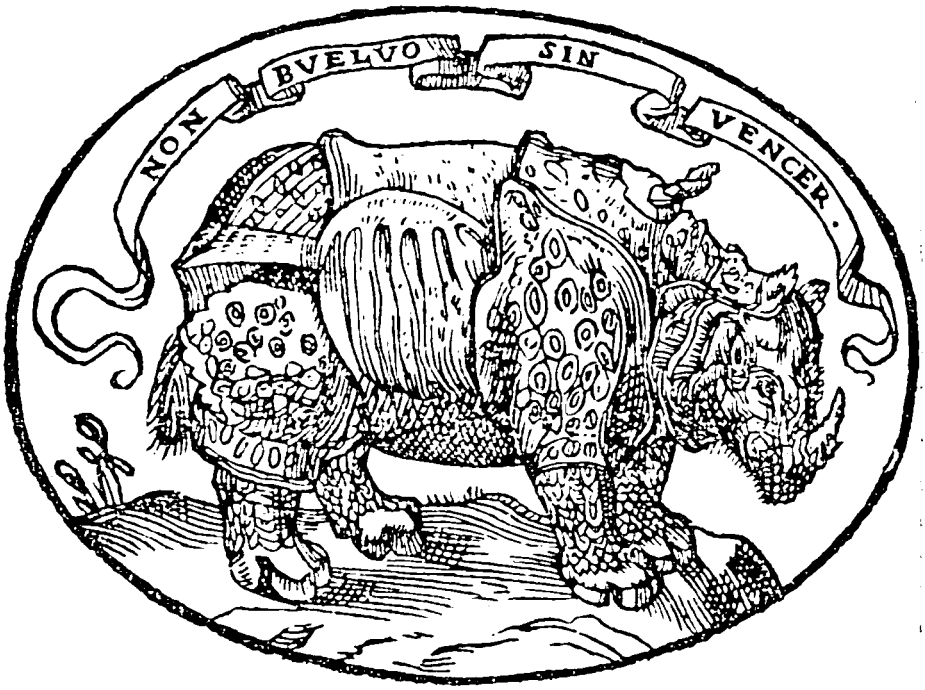

Fig. 5. Giovio's emblematic figure of Gomda, (?) 1556. Enlarged. Reproduced from the 1574 edition.

In a posthumous work on decorative devices or emblems with appropriate mottoes (?1556), Giovio[23] includes a reduced figure of Dürer's Gomda as the symbol of unconquerable might (Fig. 5). This was the accepted view of the animal, and is expressed by almost all the early writers. Bishop Giovio's version is an ungainly distortion of the original, in which the ears are too small and the dorsal horn is exaggerated until it is as large as the nasal horn. In the unillustrated first edition (1555) Giovio provides the first account of the fatal voyage of the Lisbon rhinoceros, which doubtless explains his knowledge of Dürer's figure and its appearance in the *Dialogo*. In the following year (1556) Valerianus,[24] inspired by Martial's epigram, introduced a figure of Dürer's rhinoceros tossing a bear—apparently with its ears (Fig. 6). The analogous figure by Camerarius (1595) is much more realistic. Valerianus' emblematical woodcut at first suggests a comparison with that of Giovio, but there are points of difference which indicate that it is based

[23] *v.* Giovio (1555 and 1574). Cf. Redgrave, *Trans. Bib. Soc.*, 1910, xi, 39–58. The first edition of the work of 1555 has no illustrations. I do not know in which edition the figure of the rhinoceros appeared, but it must have been before 1574, possibly in 1556.

[24] *v.* Valerianus (1556).

directly on Dürer, who, however, is not mentioned. Valerianus was familiar with the coins of Domitian embodying the two-horned African rhinoceros, but he distinguishes between this species and the Indian rhinoceros sent to Portugal, which, he says, 'has the second and smaller horn farther back, as all who saw the animal agreed'. This is obviously a reference to Dürer's figure, which is thus regarded as a reliable drawing of the Indian species.

Fig. 6. Valerianus, 1556. Dürer's rhinoceros tosses a bear.

Paré's woodcut of 1573 (Fig. 7) is a shapeless caricature of Dürer's Gomda.[25] It appeared in many editions of Paré's works. In 1579 he used also Thevet's figure of a combat between the rhinoceros and the elephant.[26] He used both figures again in his *Discours . . . De la Mvmie* (1582). (Johnson, in his translation of Paré's works (1634), copied Gesner's figure in addition.) Paré credits Pausanias with the statement that the second horn is very small, sharply pointed and situated high up on the shoulder. This is Dürer but not Pausanias.

Thevet[27] (1575) was the first to introduce major divergences from Dürer's Gomda, and his figure (Fig. 8) was used not only by Paré but also by Valentin in 1704. Thevet is credited with having seen a rhinoceros in Cairo in 1554,

[25] *v.* Paré (1573). [26] *v.* Paré (1579). [27] *v.* Thevet (1575).

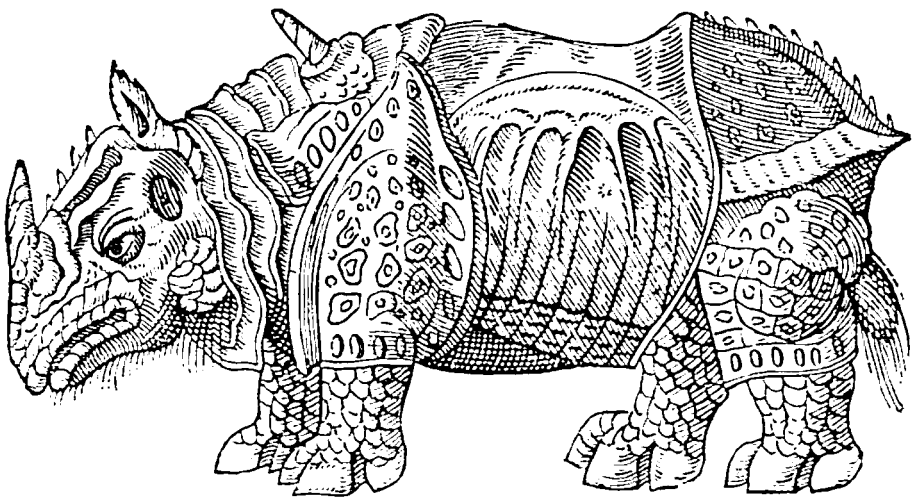

Fig. 7. Ambroise Paré's woodcut, first used in 1573, reproduced from his *Discours . . . De la Mvmie*, 1582.

Fig. 8. Thevet, 1575. Elephants attacked by Gomda.

but nevertheless he describes scales in the skin like those of a crocodile. Dürer's second horn is increased almost to the size of the first, the appearance of external armour plating is much exaggerated, and the three toes of the foot are replaced by a cloven hoof like that of an ox. The old story of the rhinoceros attacking the elephant is repeated and illustrated. A drawing (or picture) of a rhinoceros was executed by Marcus Gheeraerts the Elder (Gerardus

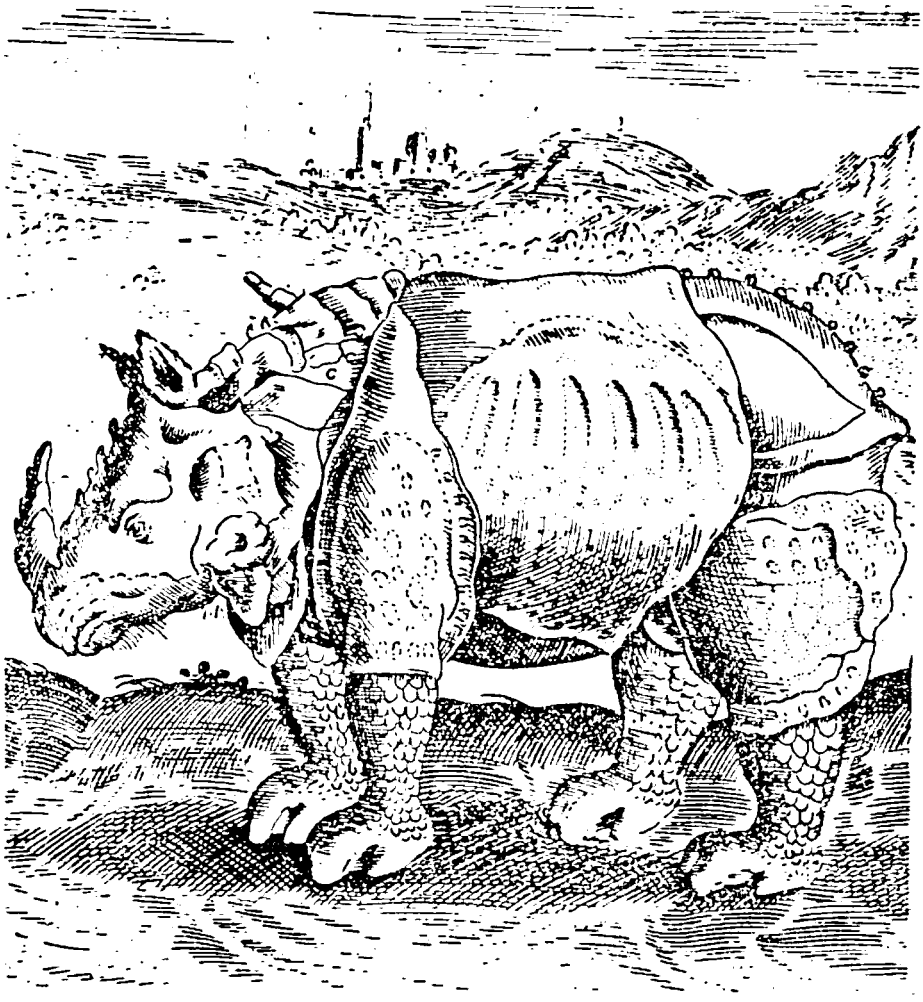

Fig. 9. Marcus Gheeraerts the Elder, 1583 [enlarged].

Brugensis) in 1583,[28] and was published by C. J. Vischer about 1630 in an oblong atlas of animal types without text (Fig. 9). It is based on Dürer, and its crude departures from the original are chiefly those arising from a lack of skill on the part of the engraver. The tail is omitted. Also, the head of an Indian rhinoceros appears in the engraved title-page of this work.

Very attractive miniature etchings by Hans Sibmacher of two rhinoceroses, one of which is tossing a bear (Fig. 10), were published in 1595 by Camerarius

[28] *v.* Gheeraerts (*c.* 1630).

the younger,[29] who acknowledges that the source of his information is an accurate drawing *received from Spain*. If the figures are not too accurate, they are at least based on nature, and, apart from Burgkmair's print, they are the first representations of the Indian rhinoceros in modern literature of which this can be said. There is no suggestion of Dürer's influence in them, nor does Camerarius mention his name, but he is familiar with Dürer's Gomda, which he identifies with Martial's two-horned species. He wrongly criticizes Martial for an abuse of the privilege of poetic licence, since, he says, the second horn is

Fig. 10. Camerarius, 1595 [enlarged]. Not based on Dürer.

only a tuberosity on the back and not a true horn. This is clearly a reference to Dürer's second horn, from which it seems that he shared the prevailing ignorance of the existence of the African two-horned rhinoceros, which figures on Roman coinage in the first century, is unmistakably described by Pausanias in the second century, and in his own time was figured by Agustín[30] in 1587. Camerarius, it is true, mentions Pausanias, but says nothing of his reference to the two horns.

[29] *v.* Camerarius (1595).
[30] *v.* Agustín (1587).

Topsell's figure (1607)[31] is a woodcut, and is a remarkably close copy of Gesner's figure. He admits that he has never seen the animal, but believes that Gesner's figure was taken from the life in Lisbon before many witnesses. Eucherius is quoted as stating that the rhinoceros has two horns on its nose, which Topsell says is 'utterly false', in spite of the fact that Martial 'seems to express' the same thing. He concludes that Pausanias' second horn *is the dorsal horn of Dürer*, and hence he has no knowledge of the African species.

The first modern attempt to figure in detail the two-horned African rhinoceros is the *Asinus cornutus* of Aldrovandus[32] (Fig. 11), published in 1616, and copied with modifications by Jonston, Kircher and Scheuchzer.

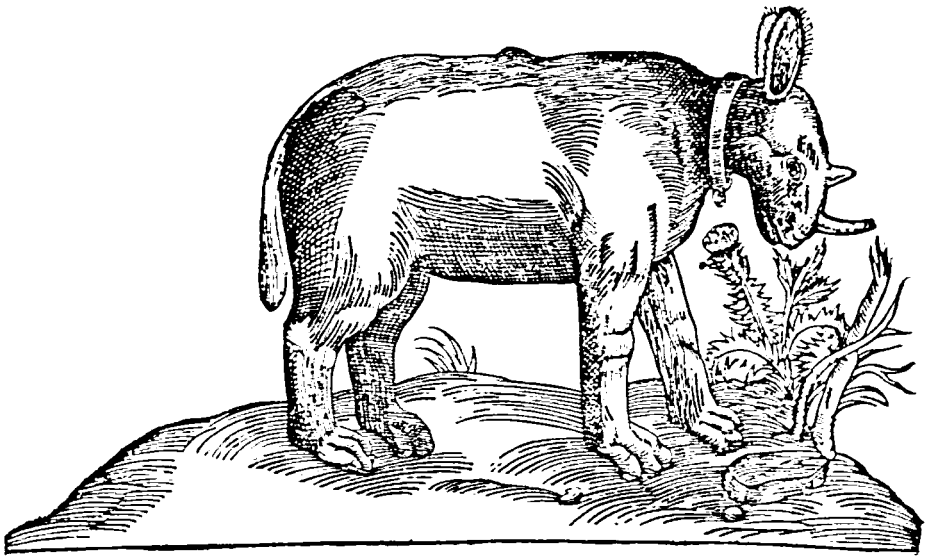

Fig. 11. Aldrovandus, 1616. The first modern figure of the African rhinoceros.

It is a tame young animal provided with a leather collar, and the species is said to occur in India, Scythia and Africa; but Aldrovandus disclaims that he speaks from personal knowledge and cannot therefore vouch for what he has heard. This doubtless explains the asinine bias. The source of his information may have been the German traveller Samuel Kiechel (1563–1619) although he admits indebtedness to Camerarius. In Johnston's copy[33] the proportions and strength of the parts are so transformed that the figure is less like a rhinoceros than ever. His object may have been to make it look more like an ass, and in this he succeeds.

The armorial bearings of the Society of Apothecaries,[34] dating from 1617, are remarkable in having a crest which is a greatly reduced and simplified version of Dürer's Gomda (Fig. 12). In spite of these modifications, however, the relationship is beyond question, if only in virtue of the ribs and dorsal horn, which latter is greatly increased in relative size so as to be almost as large as the spiralized nasal horn. The figure of a rhinoceros occurs in the coats of arms of many English families subsequent to the fifteenth century, but

[31] *v.* Topsell (1607).
[32] *v.* Aldrovandus (1616).
[33] *v.* Jonston (1650).
[34] *v.* Dickinson (1929).

all such examples portray the single-horned Asiatic species without trace of the Dürer convention. The coat of arms of the Apothecaries was the work of William Camden (1551–1623), antiquary and historian. The suggestion that he introduced the rhinoceros as a foil to the unicorns ignores the fact that its horn was then important in the pharmacopœia. Its inclusion was thus justified on medical grounds. The validity of Dürer's drawing had not so far been challenged; it is thus strange that his well-known figure, more

Fig. 12. Armorial bearings of the Society of Apothecaries, 1617. The only appearance of Gomda in heraldry.

artistic and accurate than its competitors, should have been preferred only once. I have discovered that the book-plate of Peter Butcher, of Ipswich, plagiarized the arms of the Apothecaries. The book is not dated, but below the arms is written, 'Peter Butcher, his book, MDCCXXIII'. The Society's archives contain no reference to Butcher.

Aldrovandus never saw a rhinoceros, but he was familiar with Dürer's print, and his later figure[35] of 1621 is based on Gesner's version, of which it is a

[35] *v.* Aldrovandus (1621).

full-sized fairly close copy, except that the dorsal horn is slightly less prominent.[36] Parkinson[37] (1640) has preferred to imitate Camerarius rather than Dürer, except that his rhinoceros is engaged in a more peaceful and amiable diversion than in tossing a bear (Fig. 13).

Jonston's copperplate (Fig. 14) of 1650,[38] which was copied by C. Bartholin in 1678, and by Scheuchzer, without the tail, in 1732, is a reduced copy of Dürer's woodcut; but the reduction has accurately preserved the proportions of the original, and the superior perspective obtainable by the use of a metal plate larger than the subject has resulted in a less ponderous

Fig. 13. Parkinson, 1640. Indian rhinoceros, not based on Dürer.

rhinoceros than Dürer gives us.[39] In 1650 G. G. Rossi published, in an oblong atlas without text, figures of animals stated to have been drawn and engraved by Antonio Tempesta (d. 1630).[40] Tempesta's rhinoceros (Fig. 15) is also based on Dürer's woodcut, and he was probably familiar with Paré's figure of 1573. Dürer's animal is accurately reduced to one-half, but the accuracy applies only to the outline. The decision to retain the size of the detail whilst reducing the area it occupies has resulted in falsifying the general appearance of the animal as drawn by Dürer.

[36] Klein quotes Catelanus (*q.v.* 1625) as accepting Dürer's figure, but I have not seen this work.

[37] *v.* Parkinson (1640).

[38] *v.* note (33).

[39] The *Theatrum universale omnium animalium*. Amsterdam, 1718, nominally by Hendrik Ruysch (1663–1727), is only a later issue of Jonston with a cancel-title, and hence may be relegated to the limbo of pirated works.

[40] *v.* Tempesta (1650).

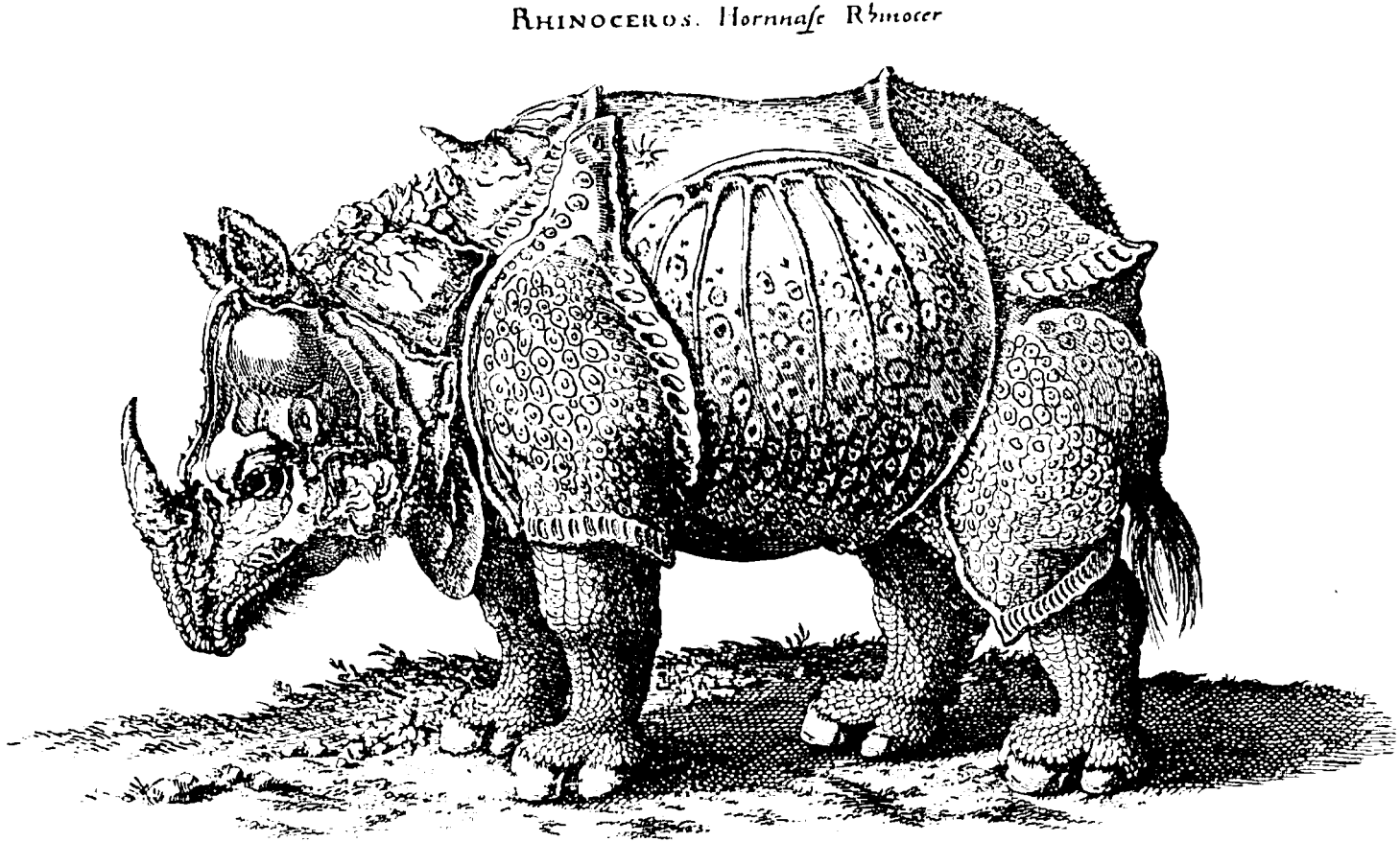

FIG. 14. Jonston, 1650. The first detailed and competent metal engraving of Gomda

FIG. 16. Engraved title-page of the second edition of Piso's work on the East Indies, 1658, in which Gomda is accompanied by the Dodo, the Babirusa and other valid species

The second edition of Piso's work on the East Indies (1658) includes a contribution by Bontius,[41] and an engraved title-page not present in the first edition (Fig. 16). Bontius has personally observed large numbers of the Indian rhinoceros, and he rejects Dürer's dorsal horn, armour plating and decorations, without, however, mentioning his name. The separate dermal plates, he says, correctly, are simply continuous folds of the skin. His own figure, which was supplied by Piso, is very poor, especially as regards the head and feet, the latter seeming to be provided with claws. It has, however, some importance as one of the first attempts to draw the animal from the life. The imposing engraved title of this work includes three interesting figures—the babirusa, the dodo and Dürer's Gomda, and it is the only work in which a rhinoceros taken from the life appears together with the creation of Albrecht Dürer.

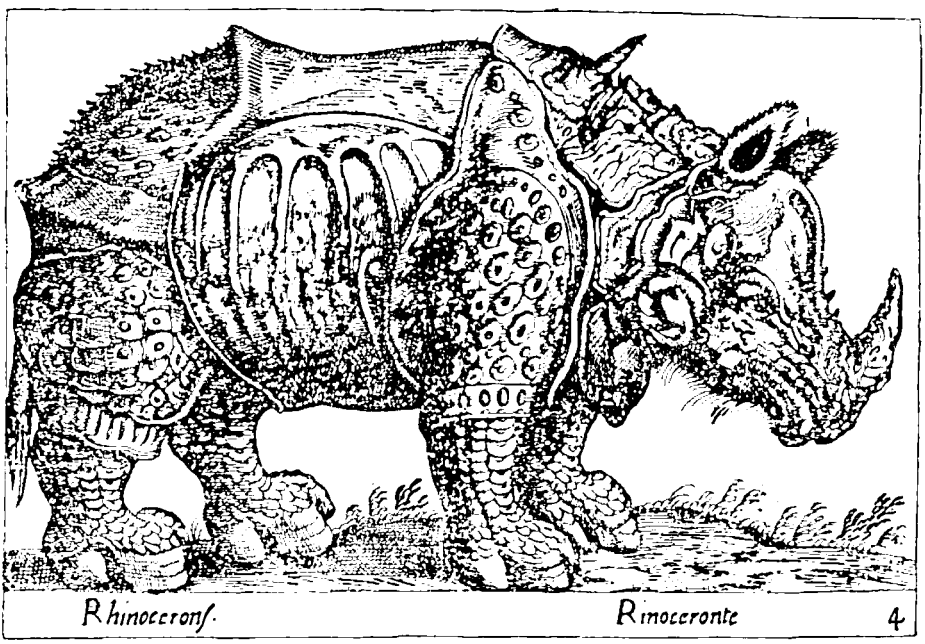

Fig. 15. Tempesta, 1650. Engraving, derived from Dürer, but not comparable with Jonston's published in the same year.

The second figure of the African two-horned rhinoceros to appear in modern times was published by de Flacourt[42] in 1661. He encountered the animal in South Africa on his way home from his investigations in Madagascar. The figure is very small and crude, with no traces of Dürer influence, but there can be no question of its identity. In Kircher's highly imaginative work on Noah's Ark (1675)[43] we find among the fortunate occupants of that capacious vessel two species of rhinoceros—one a woodcut copy of Jonston's travesty of the *Asinus cornutus* of Aldrovandus, and the other a greatly reduced and deplorable caricature of Dürer's Gomda (Fig. 17). The latter appears again

[41] *v.* Bontius (1658). [42] *v.* Flacourt (1661). [43] *v.* Kircher (1675).

alongside some of his aquatic refugees, and the place assigned to him in the Ark has in adjacent cubicles the elephant and the bear—the traditional foes of the rhinoceros. We may congratulate Noah, therefore, in refusing to countenance the tales which celebrate the mutual encounters of these formidable monsters.

In the second edition of Thomas Bartholin's work on the Unicorn, edited and extended by his son Caspar (1678),[44] we find a greatly reduced but competent etching of Jonston's version of Gomda, without any noteworthy modifications. The Jonston source is acknowledged, but Dürer's name is not mentioned. Bartholin is aware of the existence of a species with two nasal horns and gives figures of them removed from the body. Grew[45] (1681) is one of the numerous authors who, in ignorance of the two-horned African rhinoceros, interpret references to such a species in terms of Dürer's figure.

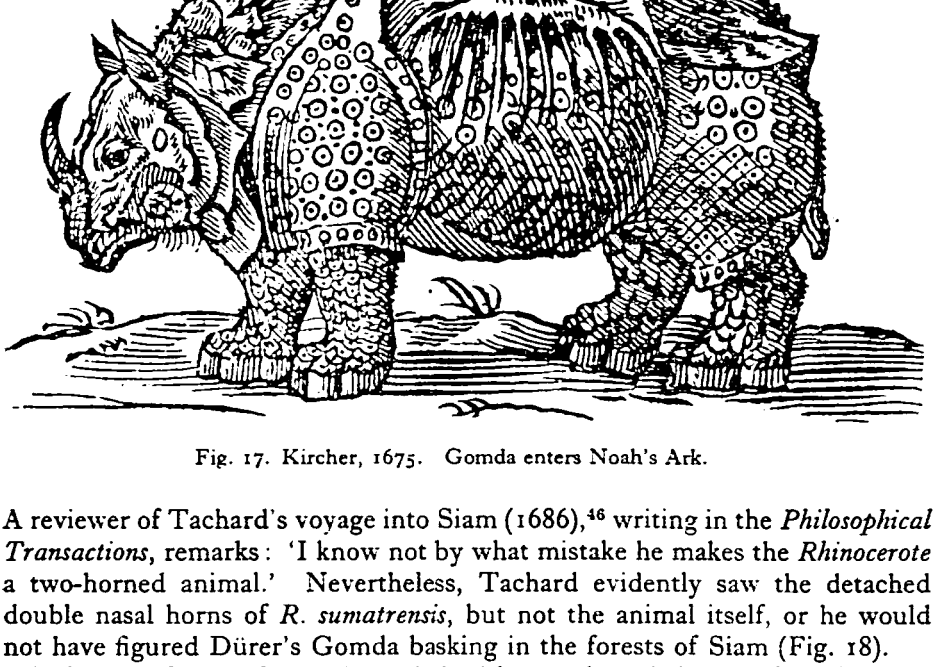

Fig. 17. Kircher, 1675. Gomda enters Noah's Ark.

A reviewer of Tachard's voyage into Siam (1686),[46] writing in the *Philosophical Transactions*, remarks: 'I know not by what mistake he makes the *Rhinocerote* a two-horned animal.' Nevertheless, Tachard evidently saw the detached double nasal horns of *R. sumatrensis*, but not the animal itself, or he would not have figured Dürer's Gomda basking in the forests of Siam (Fig. 18).

Valentin's figure of 1704 is copied without acknowledgment from Thevet, but in his second volume (1714)[47] he produces three variants of Dürer, although one of them lacks the dorsal horn (Fig. 19). They differ from all previous figures which I have seen and there is no mention of them in the text. Gomda thus appears to have relatives, and Valentin's discovery of three new species must be recorded and duly accredited to their industrious

[44] *v.* Bartholin (1678).
[45] *v.* Grew (1681).
[46] *v.* Tachard (1686).
[47] *v.* Valentini (1704, 1714)

FIG. 18. Tachard, 1686. Gomda in the forests of Siam

FIG. 19. Valentini, 1714. Three new species of Gomda

inventor.[48] Chardin[49] (1711) saw living rhinoceros many times, and his figure was based 'very exactly' on a captive example and owes nothing to Dürer. Yet it is an indifferent and lifeless caricature, and is actually less suggestive of the species than Gomda, despite the extravagances of the latter. Hartenfels[50] (1715) revives the old story of the combat between the elephant and Gomda, who resembles some of his predecessors without being a close copy of any one of them (Fig. 20). Here, however, the elephant is the aggressor and his onslaught is awaited by a calm and even contemplative victim.

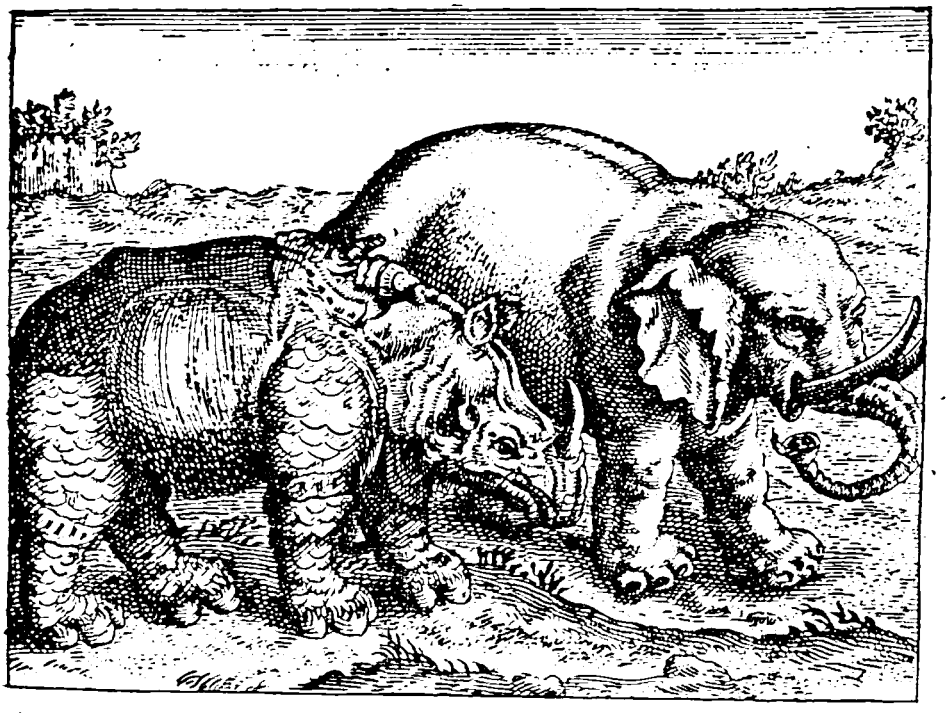

Fig. 21. Kolbe, 1719. The elephant and Gomda in peaceful association.

Kolbe[51] (1719) accurately describes the African rhinoceros from his own observations, and bluntly criticizes previous descriptions of the animal, which, he says, embody little truth or agreement. And yet his figure (Fig. 21) is a gross perversion of Dürer's Gomda, with its limbs covered with large fish-like scales. Such a flagrant violation of the obligations of veracity would call for severe condemnation were it not for the fact that Kolbe must be acquitted of responsibility for the figure, which was introduced by an anxious but misguided publisher intent on alleviating the dullness of the text. Scheuchzer,[52] in his work on the Natural History of the Bible (1731–5),

[48] It is difficult to believe that these figures are original, but if they are not their source is still to be discovered.

[49] *v.* Chardin (1711).

[50] *v.* Petri ab Hartenfels (1715).

[51] *v.* Kolbe (1731).

[52] *v.* Scheuchzer (1731–5).

reproduces Jonston's modified copy of the *Asinus cornutus* of Aldrovandus (1616), which has the additional defect of still further exaggerating the asinine, at the expense of the rhinocerine features of an original already sufficiently transmuted. This author also introduces five versions of Dürer's Gomda. In the first (1731) the second horn is shown on the back but not as a spiral, thus resembling the nasal horn. In the second a male and female are included in the procession entering Noah's Ark. The third (1732) is an artistic copy of Jonston's in picturesque surroundings (Fig. 22), but the engraver has not left himself room for the tail. The fourth is clearly a variant of Dürer, but I have been unable to trace its source, which, as in the other cases, is not given. The fifth (1733) illustrates only a part of the animal, and then not in detail. It represents the reasonable alarm of the Psalmist when attacked by lions, wolves and Dürer's rhinoceros.

Carwitham's unsatisfactory but original figure of a rhinoceros[53] (published 1739) is based on the specimen exhibited in London in 1685; but Parsons's drawings[54] of immature individuals of the Indian species which reached England in 1739 and 1741 are better and more natural, and were intended to correct the embellishments of Dürer. They are, however, unsatisfactory in detail, and their failure to focus more successfully the attributes of the living animal is an unconscious tribute to the intuition of the great painter who never saw the animal he was drawing. It is interesting to note that Parsons's second specimen was the animal seen and figured by Albinus[55] in 1742, and his sketches were introduced into the background of two of the Albinus plates of the skeleton and muscles of the human body (1747). They are somewhat impressionist in character, as befits their adventitious role in the plates, but more life-like than any previously published. The author excuses the instrusion of this irrelevant monster in a work on human anatomy on the ground that the species is rare, and provides a more agreeable perspective than a fictitious landscape.

It is difficult to understand why Hill,[56] the critic of the *Philosophical Transactions* in 1751, should ignore in 1752 Parsons's figures of 1743 in the same publication, and perpetuate the tradition that Dürer's Gomda was a valid picture of the rhinoceros. His version is Jonston's, without, however, the dorsal horn and with some modification of the head. Edwards's figure (1758),[57] drawn 'from the life' in 1752, is a passably good representation of an immature Indian rhinoceros with no suggestion of Dürer. He refers to a species with two horns, but he is not certain whether such specimens are true species or only 'accidental sports of nature'. Even Klein[58] and Buffon,[59] writing in 1751 and 1764, are still doubtful whether the one- and two-horned rhinoceroses are distinct species or merely varieties, and Klein and Valmont de Bomare[60] (1769) suggest that the male sex only has the small second horn on the back at the right shoulder, which is obviously Dürer's dorsal horn. To complete this comedy of errors J. Bruce,[61] the African explorer (1790), who

[53] *v.* Carwitham (1739).
[54] *v.* Parsons (1743 and 1766).
[55] *v.* Albinus (1747).
[56] *v.* Hill (1752).
[57] *v.* Edwards (1758).
[58] *v.* Klein (1751).
[59] *v.* Buffon (1764).
[60] *v.* Valmont de Bomare (1769).
[61] *v.* Bruce (1790).

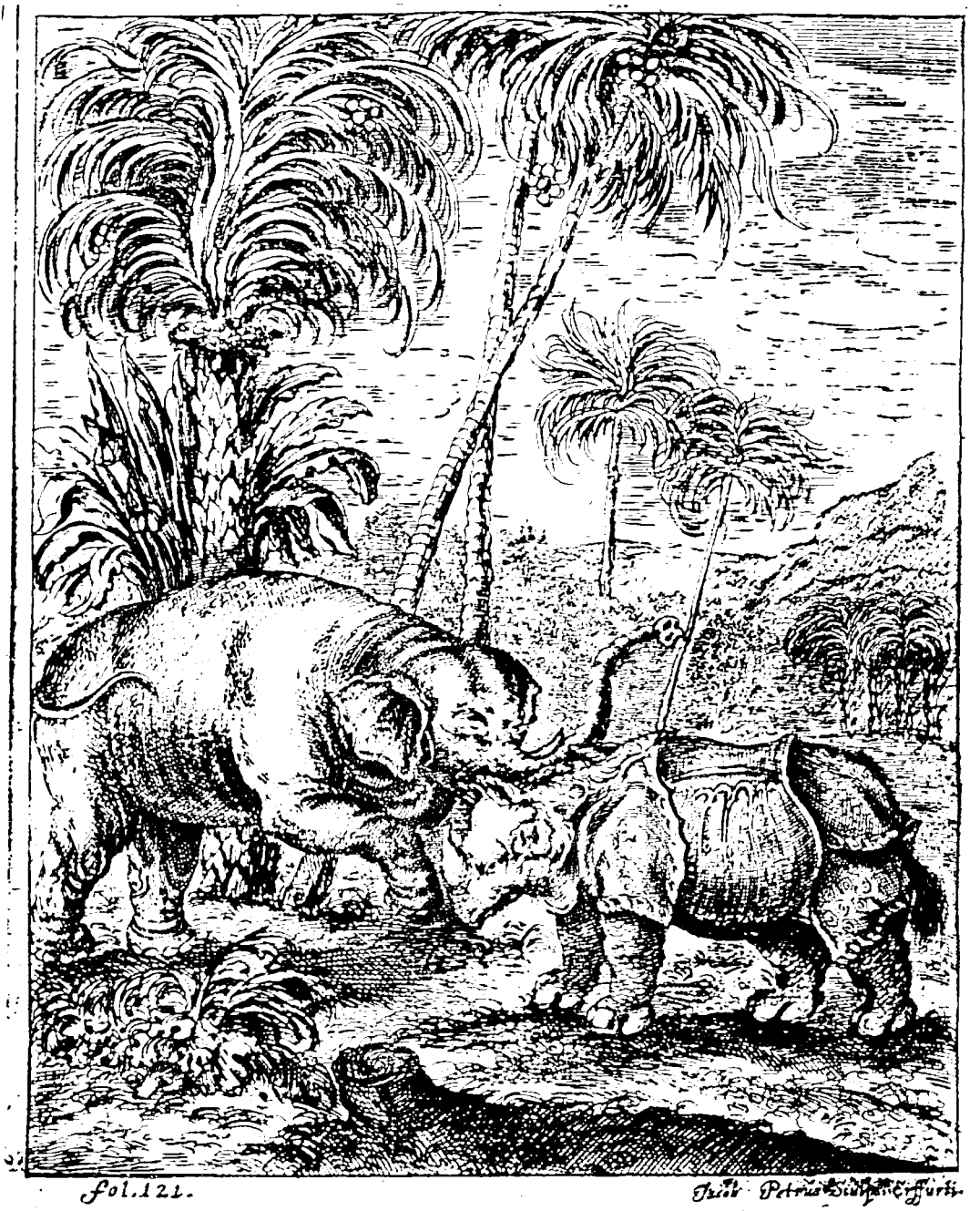

FIG. 20. Hartenfels, 1715. The elephant turns on Gomda

FIG. 22. Scheuchzer. 1732. Gomda enriches the fauna of the Old Testament

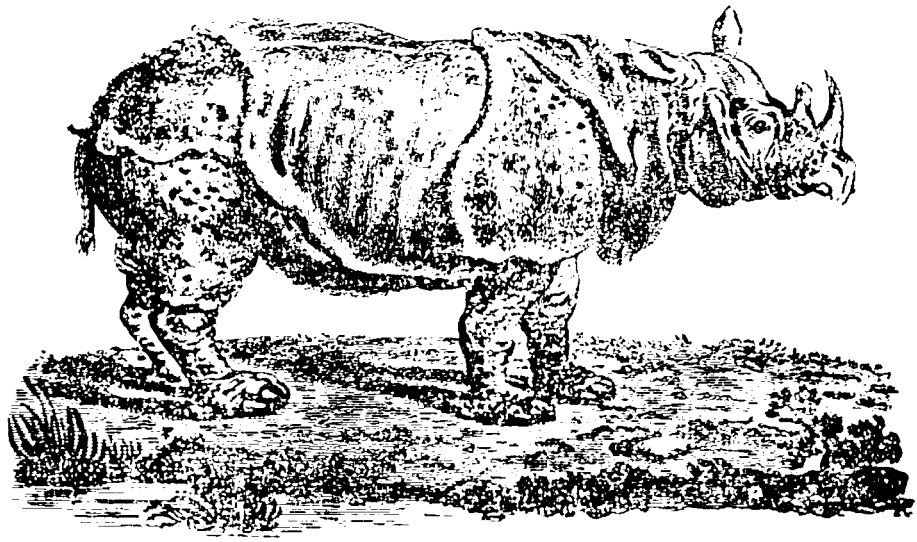

Fig. 23. Bruce, 1790. An Indo-African ghost.

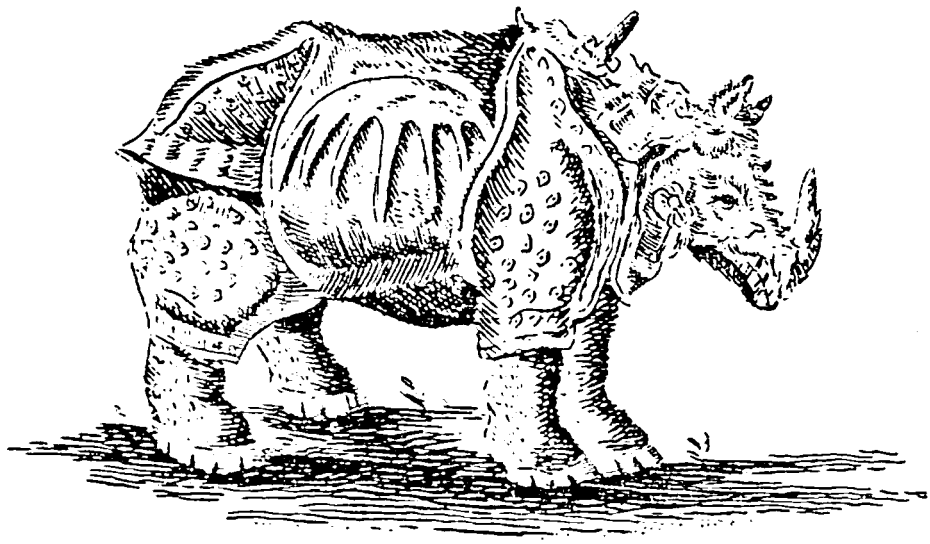

Fig. 24. Boreman, 1769. The last appearance of Gomda on the stage.

claims to have been thoroughly familiar with the appearance of the African rhinoceros, believes that the single-horned Asiatic species occurs also in Africa—a lapse which perhaps explains, but does not excuse, his own figure of the African species (Fig. 23). Dürer's woodcut, he says, 'was wonderfully

ill executed in all its parts, and was the origin of all the monstrous forms under which that animal has been painted ever since, in all parts of the world'. Bruce asserts that his drawing 'is the first that has been published with two horns, it is designed from the life, and is an African'. All this from the man who appropriated Buffon's figure of the *Indian* rhinoceros of 1764, adorned it with a second nasal horn, and thereby produced a hybrid which ranks with Dürer's Gomda as one of the simulacra of zoological literature.[62] He even testifies to the occurrence of traces of a third horn, and quotes native hunters as saying that they 'frequently see rhinoceroses with three horns grown', but ' only upon the male'. Labat[63] (1732), who travelled in Ethiopia, believed that the rhinoceros there had three horns, one on the nose, a second on the forehead and a third on the back. And so Dürer's dorsal horn, so far the prerogative of the Indian rhinoceros, now adorns the shoulders of its African relative.

Gomda's fate was by this time sealed. Attacked as he was on all sides, he is still to be found fighting hopefully for his life in unexpected and humble places. He has now a senile and weather-beaten appearance. His attempt to compensate for the loss of his tail by a parade of extra toes fails to divert the attentions of the doomster, and he finally expires (Fig. 24)—not in a magnificent and learned folio with hand-coloured plates, but in an unremembered, shabby compilation by a hack writer to which the author did not even put his name.[64] For over 250 years Gomda was in constant demand, he travelled over the whole world, and, especially in his younger days, he foregathered with the very aristocracy of natural history, albeit not always recognized for what he was. And even now that his active life is spent, and he has been laid aside among the bibliographical curiosities of his period, he still lives in the memories of the well-affected; and if you wish to possess his image as he was when he was born, you will need to thrust your hand deep into your pocket.

Peace be with thine ashes Albrecht Dürer, great artist and creator of the olympian rhinoceros.

BIBLIOGRAPHY

ABELARD, P. (1079–1142). Cf. J. P. MIGNE, *Petri Abaelardi Abbatis Rugensis opera omnia*. Paris, 1885, no. lxvii, col. 1806. 4to.

AGUSTÍN, ANTONIO [AUGUSTINUS]. *Dialogos de medallas*. Tarragona, 1587. 4to.

ALBINUS, B. S. (1697–1770). *Tabulae sceleti et musculorum corporis humani*. Lugd. Bat. et Leidae, 1747. Fol.

ALDROVANDUS, U. (1522–1605). *De quadrupedibus solidipedibus*. Bononiae, 1616. Fol.

—— *Quadrupedum omnium bisulcorum historia*. Bononiae, 1621. Fol.

BARTHOLIN, T., Sen. (1616–1680). *De unicornu*. Second edition. Amstelaedami, 1678. 12mo.

BOCHART, S. (1599–1667). *Hierozoicon, . . . de animalibus S. Scripturae*. London, 1663. Fol.

[62] Bruce's figure is reproduced in the 1807 edition of Boreman.

[63] *v.* Labat (1732).

[64] *v.* under Boreman (1769). The author of this work was Thomas Boreman, a bookseller of whom little is known.

BONTIUS, J. (1598–1631). In G. PISO (1611–1678), *De Indiae utriusque re naturali et medica*. Amstelaedami, 1658. Fol.

[BOREMAN, T.] *A description of three hundred animals*. Tenth edition. London, 1769. 12mo.

BRUCE, J. (1730–1794). *Travels to discover the sources of the Nile*. 5 vols. Edinburgh, 1790. 4to.

BUFFON, COMTE DE (1707–1788). *Histoire naturelle*. Paris. Vol. xi, 1754 (*sic* 1764). 4to.

CAMERARIUS, J., Jun. [KAMMERMEISTER] (1534–1598). *Symbolorum et emblematum ex animalibus quadrupedibus desumtorum centuria altera*. Norimberg, 1595. 4to.

CAMPER, P. (1772–1789). *Natuurkundige verhandelingen . . . over den Rhinoceros met den Dubbelen Horen*. Amsterdam, 1782. 4to.

CARWITHAM, J. *Various kinds of floor decorations*. London, 1739. 8vo.

CATELANUS, L. *Von der natur . . . des Einhorns*. Franckfurt am Mayn, 1625. 8vo.

CHARDIN, J. (1643–1713). *Voyages en Perse, et autres lieux de l'Orient*. Amsterdam, 1711. 12mo.

DA COSTA, A. F. *Deambulations of the Rhinoceros (Ganda) of Muzafar, King of Cambaia, from 1514 to 1516*. (Portuguese Republic Colonial Office. Division of Publications.) Lisbon, 1937. 8vo.

DICKINSON, T. V. 'The armorial bearings of the Worshipful Society of Apothecaries.' *Proc. Roy. Soc. Med.*, 1929, xxiii (Sect. Hist. Med.), 11.

DODGSON, CAMPBELL, *Catalogue of Early German and Flemish woodcuts preserved in the . . . British Museum*. London. Vol. i, 1903, p. 307. 8vo.

—— 'The Story of Dürer's Ganda.' In H. A. FOWLER, *The romance of fine prints*. (Kansas City Print Society.) Kansas, 1938. 8vo.

EDWARDS, G. (1694–1773). *Gleanings of natural history*. London, 1758, pt. i. 4to.

DE FLACOURT, E. (1607–1660). *Histoire de la grande Isle Madagascar*. Paris, 1661. 4to.

GESNER, C. (1516–1565). *De quadrupedibus viviparis*. Tiguri, 1551. Fol.

—— *Icones animalium quadrupedum viviparorum*. Tiguri, 1553. Fol.

GHEERAERTS, MARCUS, Sen. [GERARDUS]. *Animalium. Quadrupedum. Omnis. Generis. Verae. et. Artificiosissimae. Delineationes, pictore Marco Gerardo Brugense. A° 1583*. [Amsterdam, *c.* 1630] Obl. 4to. No text, 21 Pls.

GIOVIO, P. [JOVIUS] (1483–1552). *Dialogo dell'imprese militari et amorose*. Roma, 1555, 1574, and other editions. 8vo.

GREW, N. (1641–1712). *Musaeum Regalis Societatis*. London, 1681. Fol.

GUARDABASSI, M. *Not. scavi antic. Accad. Lincei*. Roma, ann. 1877, p. 6. 4to.

HILL, J. (1716–1775). *An history of animals*. London, 1752. Fol.

HINKS, R. P. *Catalogue of the Greek, Etruscan and Roman paintings and mosaics in the British Museum*. London, 1933, p. xlix. (The Nilotic pavement at Palestrina dates from the Hadrianic period.)

JONSTON, J. (1603–1675). *Historia naturalis de quadrupetibus*. Francofurti ad Moenum, 1650. Fol.

KIRCHER, A. (1602–1680). *Arca Noë*. Amstelodami, 1675. Fol.

KLEIN, J. T. (1685–1759). *Quadrupedum dispositio brevisque historia naturalis*. Lipsiae, 1751. 4to.

KOLBE, P. (1675–1726). *The natural history of the Cape*. London, 1731. 8vo. (First edition in German, Nürnberg, 1719, fol.)

LABAT, J. B. (1663–1738). *Relation historique de l'Ethiopie Occidentale*. Paris. Vol. i, 1732. 8vo.

MARTIALIS, MARCUS VALERIUS (*c.* A.D. 40–104). *De spectaculis liber*. xxii, 'De rhinocerote'.

MARUCCHI, O., *Bull. Comm. Archeol. Roma*, 1904, xxxii, 258. (For Palestrina mosaic.)
MATTINGLY, H. *Coins of the Roman Empire in the British Museum*. London. Vol. ii, 1930. 8vo.
OKEN, L. (1779–1851). *Allgemeine Naturgeschichte für alle Stände*. Stuttgart. Vol. vii, 1838, p. 1187. 8vo.
PARÉ, A. (1510–1590). *Deux livres de chirurgie . . . 2. Des monstres tant terrestres que marines, avec leurs portrais*. Paris, 1573. 8vo.
—— *Les œuvres*. Paris, 1579. Fol.
—— *Discours . . . Asçauoir, de la momie, de la licorne*. Paris, 1582. 4to.
—— *The workes of that famous chirurgion, Ambrose Parey*. Trans. T. Johnson. London, 1634. Fol.
PARKINSON, J. (1567–1650). *Theatrum botanicum*. London, 1640. Fol.
PARSONS, J. (1705–1770). 'The natural history of the rhinoceros.' *Phil. Trans. Roy. Soc.*, 1743, xlii, 523–41.
—— 'On the double horns of the rhinoceros.' *Phil. Trans. Roy. Soc.*, 1766, lvi, 32–4.
PETRI AB HARTENFELS, G. C. (1633–1718). *Elephantographia curiosa*. Erfordiae, 1715. 4to.
SCHEUCHZER, J. J. (1672–1733). *Physica sacra*. Augustae Vindelicorum et Ulmae, 1731–5. Fol.
SHAW, G. (1751–1813). *General zoology*. London, 1800. Vol. i, pt. i, p. 201. 8vo.
[TACHARD, G.] (*c.* 1650–1712). *Voyage de Siam des Peres Jesuits*. Paris, 1686. 4to.
TEMPESTA, A. (1555–1630). *Nova raccolta de li animali piu curiosi del mondo disegnati et intagliati da Antonio Tempesta*. Roma, G. G. Rossi, 1650. Obl. 4to.
THEVET, A. (1502–1590). *La cosmographie universelle*. Paris, 1575. Fol.
TOPSELL, E. (*c.* 1570–*c.* 1638). *The historie of foure-footed beastes*. London, 1607. Fol.
VALENTINI, M. B. (1657–1729). *Museum Museorum*. Franckfurt am Mayn, 1704, 1714. Fol.
VALERIANUS, J. PIERIUS [VALERIANO BOLZANI, G. P.] (1477–1558). *Hieroglyphica*. Basileae, 1556. Fol.
VALMONT DE BOMARE, J. C. (1731–1807). *Dictionnaire raisonné universel d'histoire naturelle*. Yverdon. Vol. x, 1769, p. 30. 8vo.

SCIENCE MEDICINE AND HISTORY

ESSAYS ON THE
EVOLUTION OF SCIENTIFIC THOUGHT
AND MEDICAL PRACTICE

written in honour of

CHARLES SINGER

Collected and Edited by

E. ASHWORTH UNDERWOOD

VOLUME ONE

GEOFFREY CUMBERLEGE
OXFORD UNIVERSITY PRESS
LONDON NEW YORK TORONTO
1953

about F. J. Cole

Bibliographical reflections of a biologist

Though it is the policy of *Osiris* (as well as *Isis*) not to publish memoirs which have already been published or the republication of which in another form is already foreseen (see *Osiris* II, 406), an exception is now made in favor of the following paper by Dr. FRANCIS JOSEPH COLE, professor of zoology in the University of Reading, because of its methodological interest and value. It was first published in the *Proceedings of the Oxford Bibliographical Society* (169-86, 1938) and we are able to reproduce it here and so do with great pleasure because of the generosity of that Society and of the author.

EDITOR.

I

Many years ago Dr. JOHN SAMPSON remarked to me that scientific men had no concern with Bibliography considered as a profitable subject of Research. Modern science, he said, did not begin until the seventeenth century, from which time onwards the printed book presented but few difficulties which could not be solved in a bookseller's shop. What he meant was that the revival of science came too late to have taken any significant part in the evolution of typography. The higher problems of Bibliography, he claimed, called for experience and much learning, but they were exemplified only in the early printed book. To attempt to apply the elaborate technique of Bibliography to the literature of science, however attractive such a venture might be, was to take that literature too seriously. The early scientific work had no interest *as a book*—its importance consisted in any significance it might have as a contribution to scientific knowledge. Regarded as a specimen of printing, it added nothing new or important to the history of book production, or even to the history of science. But if SAMPSON dismisses us to a lower plane, and if we are to be admitted to the select company of bibliographers only as honorary members, he would not have denied that we have our own trifling difficulties which are by no means devoid of interest, and occasion-

OSIRIS, 8 (1948) 289-315

ally of importance. Admitting this, what *are* the simple bibliographical requirements of the biologist? Here are a few of them.

(1) We must inform ourselves of all the editions of a given work, their dates and locations, and, *what is of far greater importance*, we must record all departures from the original text in those editions. For example, BOYLE's Law was not enunciated in the first edition of 1660, but in the second of 1662. Such a difference is vital to the historian. Many copies of the same edition should be compared for alterations and interpolations by the author during the process of printing. SHERBORN was once severely criticized by an American naturalist for an alleged serious and careless misquotation. Those of us in England who were familiar with SHERBORN's meticulous accuracy felt that there was something wrong here. The explanation was that the page in question in the American copy included a vital alteration introduced as the work was passing through the press, and had the American author been familiar with such possibilities he would have recognized that the passage was a cancel, and that the original state might still exist in other copies. The point was one of priority and, as SHERBORN was quoting from the earlier issue, his version had to stand after all.

(2) Partial and complete plagiarism. It was a common practice in the seventeenth century to dispose of remainders by farming out the unbound sheets, the purchaser being at liberty to print a new title-page bearing his own name, location, and date as *publisher*. These are known as Title-page Editions, and, owing to the similarity of text, typography, and paper, they are always easy to identify. The practice is harmless in itself, although it adds seriously to the labours of the bibliographer, who must personally hunt down and examine all these editions before he can affirm that they *are* identical. It does, however, open the door to the plagiarist. In these days we regard plagiarism as indefensible, and even foolish, because it is certain to be found out, but in the seventeenth century it was often so flagrant and barefaced that it *invited* discovery, and evidently brought no particular odium on the offender. In 1685 the Dutch anatomist BIDLOO published in folio an imposing Atlas of Anatomy. Impressions of the copper plates of this work were acquired by the English anatomist WILLIAM COWPER, who added many new reference

letters to the figures and published them in 1698, with nine other plates also plagiarized, under his own name as *author*. COWPER's work passed through several editions, three of them in Holland itself. In all these editions there is an inconspicuous mention of BIDLOO in the Preface, but his name was removed from both engraved and printed titles, and his portrait was replaced by one of COWPER. This was more than even the seventeenth century could stand, and BIDLOO demanded that COWPER should be cited to appear before the Royal Society as a robber and highwayman (*latro publicis in viis*). The Society declined the invitation, pointing out that they were not disposed to intervene in the disputes of learned men, which were 'very often the Occasion of new light and of larger discoverys.' That COWPER should have seriously and even indignantly defended himself does not say much for the literary standards of the time (1). But such cases present few difficulties to the bibliographer, interesting as they are to the historian. Plagiarisms of rare and little-known works, especially if the culprit boldly claims the work as his own, are more difficult to detect. RUINI, a Senator of Bologna, published a remarkable treatise on the anatomy of the horse in 1598, which has been more extensively pirated than any other work of that period. SNAPE's anatomy of the horse, first published in 1683, is based on RUINI, notwithstanding the fact that the author claimed the honours of a pioneer, for, he says, none had gone before or showed him the way. RUINI's name is not even mentioned, although all SNAPE's copper plates are close copies of RUINI's woodcuts, in spite of his assertion that he has 'by a curious draught or delineation represented to you such observations as are made in true dissections.' One of his plates representing the entire skeleton has, he says, been 'drawn exactly by one that I keep standing in a Press,' but it is difficult to believe that this skeleton in the cupboard could have been as unlike a horse as RUINI's figure which SNAPE has copied. In another of SNAPE's plates the only original feature is the addition of a superfluous dragon-fly to the background, nor can we excuse the subtle dissimulation which warns us 'not to trust too much to these *copies*, as I may call them, without practising upon the original

(1) Cf. Bibliographical note, p. 313.

body itself.' It is worth noting that SNAPE himself was plagiarized, and so *ad infinitum*. A French plagiarist of RUINI was SAUNIER, who had the effrontery to label his plates 'drawn from nature,' and claims in the Preface that they were the work of himself and his son, and were prepared at the cost of much labour and expense. An unusual and doubtful example of piracy introduces the figure of a famous philosopher. It is well known that the palaeontologist, or student of fossil remains, attempts to reconstruct extinct types, and so to endow them with some of the attributes of a living creature. These reconstructions can be built up from sections of a single specimen, but more frequently the parts are pieced together as the result of an examination of a number of specimens. The method is of importance in this branch of science. It is generally believed that the first attempt to reconstruct an extinct animal is to be found in the posthumous *Protogaea* of LEIBNIZ, of which two editions, Latin and German, appeared in 1749. This work was written in 1692, but the abstract published in LEIBNIZ's lifetime in 1693 occupies only one page of print and there are no figures. The drawing in question is supposed to represent a unicorn, and is a complete monstrosity, since it is obviously based on imperfect remains of more than one species. That, however, does not greatly matter. In a first attempt the *method* is the important thing, and the results which follow from its exploitation are bound to improve with experience. Now LEIBNIZ does not say that the figure is his own, but tells us that it was included in the description of some fossil bones sent to him, of which bones it was claimed to be a reconstruction. The sender's name is not given. He adds : 'I thought it not amiss to reproduce this figure.' Incidentally it may be mentioned that the 'horn' of this formidable unicorn was alleged to be about 9 feet long and as thick as a man's leg. This is within the dimensions recorded for the tusk of the mastodon, a specimen of which animal was probably the material basis of the restoration. It was interesting to find recently another version of LEIBNIZ's figure, which appeared in 1704 in VALENTINI's *Museum Museorum*. The figures of LEIBNIZ and VALENTINI are not quite the same, but undoubtedly proceed from a common origin. No such nightmare could have been independently conceived in two different minds. In the LEIBNIZ drawing the spinal column