
SMITHSONIAN INSTITUTION

FREER GALLERY OF ART
OCCASIONAL PAPERS

VOLUME ONE

NUMBER THREE

Studies in Muslim Iconography

I. THE UNICORN

By

RICHARD ETTINGHAUSEN



PUBLICATION 3993

WASHINGTON

1950

FREER GALLERY OF ART OCCASIONAL PAPERS

The Freer Gallery of Art Occasional Papers, to be published from time to time, will present material pertaining to the cultures represented in the Freer Collection, prepared by members of the Gallery staff. Articles dealing with objects in the Freer Collection and involving original research in Near Eastern or Far Eastern language sources by scholars not associated with the Gallery may be considered for publication.

The Freer Gallery of Art Occasional Papers will not be sold by subscription, and the price of each number will be determined with reference to the cost of publication.

SMITHSONIAN INSTITUTION

✓
FREER GALLERY OF ART
OCCASIONAL PAPERS

VOLUME ONE

NUMBER THREE

✓ ✓
Studies in Muslim Iconography

I. THE UNICORN

By

RICHARD ETTINGHAUSEN



PUBLICATION 3993

Freer Gallery of Art
Washington, D. C.

WASHINGTON

1950

The Lord Baltimore Press
BALTIMORE, MD., U. S. A.

398.4
E 8

FOREWORD

During his research the author benefited from information given by many of his friends and colleagues. He is indebted to Prof. L. A. Mayer, Dr. Harold W. Glidden, and Dr. A. R. Nykl for various valuable suggestions; to Prof. Franz Rosenthal, who was always ready to put his wide knowledge of the Islamic world at the writer's disposal and who was also kind enough to read the manuscript before its publication; to Dr. Schuyler Cammann for his many comments on Chinese animal lore; and to Dr. Milton Anastos for information about classical writers and especially for his translations of pertinent texts from the books of Aelian and Timothy of Gaza. D. S. Rice kindly supplied him with the text and translation of an unpublished passage in the *Ṭabā'ī' al-ḥayawān* manuscripts in the India Office Library and the British Museum. Zoological questions (which often must have sounded rather queer) were given patient attention by Dr. Remington Kellogg, Director of the United States National Museum, and Dr. Herbert Friedmann, Curator of the Division of Birds in the same institution. References to other expert advice are made in the text itself.

The procuring of proper illustrations was often difficult, and special pictures had to be taken. The author herewith wishes to thank all owners and curators of miniatures, manuscripts, and art objects for their permission to have their material included in this study. He is also indebted to Leopoldo Torres Balbás, Basil Gray, Ernst Kühnel, Eustache de Lorey, D. S. Rice, J. Sauvaget, Erich F. Schmidt, and J. V. S. Wilkinson for supplying photographs from their collections, many of which would have otherwise been unobtainable. Frau Maria Sarre kindly permitted the reproduction of illustrations in her husband's publications, which was all the more gratifying since Professor Sarre was the first to describe one of the motifs here investigated. Certain material reproduced

in this volume, namely, one plate which is specifically identified by the use of captions appearing thereunder, was taken from the Japanese work *Shōsōin Gyomotsu zuroku*, vol. 1 (July 1929) and vol. 7 (August 1934) published by the Imperial Household Museum, Tokyo. The Japanese interests in the United States copyright in this work (12 volumes, 1929-1940) were vested in 1949, pursuant to law. The use of these plates in the present volume is by permission of the Attorney General of the United States in the public interest under License No. JA-1358.

All illustrative material was expertly processed by B. A. Stubbs, of the Freer Gallery of Art. I am also indebted to Mrs. Bertha M. Usilton, librarian of the Freer Gallery, for checking and arranging the bibliography, and preparing the index.

Finally the author wishes to thank his colleagues at the Freer Gallery for their interest, and particularly the Director, A. G. Wenley, for his continued patience.

The transliteration of Arabic used in this investigation represents a simplified version of the system developed for the *Encyclopaedia of Islām*. Common names such as Muhammad, Islam, Iran, Seljuk, and the like, or adjectives derived from common names like Fatimid, Timurid, or Safavid, and others are rendered in the usual English form.

A.D. dates precede the Hijra years which are given in parentheses. When only one date is given, the Christian Era is understood.

The literature cited in this paper is listed at the end of the book. Each item is preceded by a bold-face numeral which serves as a code number in references.

CONTENTS

	Page
Foreword	iii
List of plates	vii
List of text illustrations	xii
Introduction	1
The iconographic problem	3
The identification of the animal	6
The physical appearance of the karkadann in Muslim texts and illustrations	12
The karkadann attacking other animals	26
The hunt of the karkadann	35
The tamed karkadann	47
Additional features of the karkadann	52
Other unicorns in Muslim literature	59
The lore of the unicorn in the Muslim world compared with that of other civilizations	73
A. The ancient Orient	73
B. The classical world	74
C. Biblical and early Christian writings	92
D. Indian influences	94
E. Chinese influences	101
F. The late medieval world	109
The karkadann as a scientific and artistic problem	143
Literature cited	163
Index	193

LIST OF PLATES

(All plates at end of text.)

Plate

1. Glass vessel, gilded and enameled. Probably made for a Rasūlid sultan of Yemen. Syria, *ca.* 1330-1340. Freer Gallery of Art, No. 33.13.
2. Two details from the glass vessel shown on plate 1. Freer Gallery of Art, No. 33.13.
3. Upper: Details of a silver-inlaid bronze canteen. Syria, first half of the thirteenth century. Freer Gallery of Art, No. 41.10.
Middle: Stone sculpture from a portal: Unicorn (Karkadann) pursuing an elephant. Konya (Anatolia), Seljuk period, middle of the thirteenth century.
Lower: Stone sculpture from a portal: Unicorn (Karkadann) pursuing an antelope. Konya, Seljuk period, middle of the thirteenth century.
4. Detail of an engraved and copper-inlaid bronze bucket. Iran, twelfth century. New York, possession of R. Stora.
5. Left: Detail of an ivory box with the name of Ḥājib ‘Abd al-Malik b. al-Manṣūr. Made by ‘Ubaida and Khair. Spain, 1005 (395). Pamplona, Cathedral.
Right: Ivory box, related to Spanish boxes of *ca.* 970, but possibly of later date. Paris, collection of the Marquis de Ganay.
6. Plaque from the portal of the Madrasa Muqaddamiya, Aleppo, 1168 (564).
7. “Kardunn” from a *Na‘t al-ḥayawān* manuscript. Iraq, middle of the thirteenth century. London, British Museum, OR. 2784.
8. Detail of a page from a *Mu‘nis al-aḥrār* manuscript, now dispersed. Iran, 1341 (741). Cleveland Museum of Art.
9. “Iskandar Battling a Karkadan” from the “Demotte *Shāh-nāmah*,” now dispersed. Iran, *ca.* 1320. Boston, Museum of Fine Arts.
10. “Karkadan” from a *Manāfi‘-i ḥayawān* manuscript. Iran (Marāgha), end of the thirteenth century. New York, The Pierpont Morgan Library, ms. M.500.
11. “Domestic Oxen” from a *Manāfi‘-i ḥayawān* manuscript. Iran (Marāgha), end of the thirteenth century. New York, The Pierpont Morgan Library, ms. M.500.

Plate

12. Lohan on a rhinoceros, detail of the painting "Lohans Moving Through Forests and Sea." Ink on paper. Chinese, Ming period. Freer Gallery of Art, No. 19.174.
13. The karkadann in al-Qazwīnī manuscripts.
 Upper, left: Iran, early fifteenth century. Berlin, Staatliche Museen, Islamische Abteilung.
 Upper, right: Iran, fifteenth century. New York, possession of H. Kevorkian.
 Lower: From the "Sarre manuscript." Iraq, late fourteenth century. Private collection.
14. The karkadann in al-Qazwīnī manuscripts.
 Upper: Iran, 1545 (952). London, collection of A. Chester Beatty, Esq., ms. P. 212.
 Lower: India, 1789 (the date given is that of the thirty-first year of the reign of Shāh 'Ālam). Freer Gallery of Art, No. 07.625.
15. Left: Island scene with a karkadann, from an al-Qazwīnī manuscript. Iran, seventeenth-century adaption of a fifteenth-century copy in a manuscript dated 1460 (865). Princeton University Library (Robert Garrett collection, No. 82 G).
 Right: The lure of the ring dove, from the same manuscript as the left miniature.
16. Upper: "Shutur-gāv-palang" from an al-Qazwīnī manuscript. India, 1789. Freer Gallery of Art, No. 07.625.
 Lower: "Sinād" from the "Sarre al-Qazwīnī manuscript." Iraq, late fourteenth century. Private collection.
17. Right side of a (detached) double title-page from an al-Qazwīnī manuscript. Iran, first half of the fifteenth century. New York, Metropolitan Museum of Art.
18. Upper: The karkadann pursues the elephant. Luster tile. Iran, thirteenth century. Berlin, Staatliche Museen, Islamische Abteilung.
 Middle: Detail of a silver-inlaid bronze plate, showing twice the motif of the karkadann pursuing an elephant. Syria, first half of the thirteenth century. Leningrad, Hermitage Museum.
 Lower: Carpet in a miniature of an al-Ḥarīrī manuscript showing elephant, rhinoceros, and 'anqā' (?). Egypt, 1337 (738). Oxford, Bodleian Library, ms. Marsh 458.
19. Upper: The karkadann pursues an elephant. Detail of the silver-inlaid vessel commonly called Baptistère de St. Louis. Syria, ca. 1300. Paris, Musée du Louvre.

Plate

- Lower: Detail of a luster tile showing karkadann pursuing an elephant. Iran, thirteenth century. Boston, Museum of Fine Arts.
20. Covered glass vessel, gilded and enameled. Syria, first half of the fourteenth century. New York, possession of H. Kevorkian.
21. Mughal animal carpet. India, first half of the seventeenth century. Washington, D. C., National Gallery of Art (Widener collection).
22. The death of the elephant, in a manuscript of the *'Ajā'ib al-makh-lūqāt*. Iran, late sixteenth or seventeenth century. Baltimore, Walters Art Gallery, ms. W.593.
23. Isfandiyār killing two karg monsters, from a *Shāh-nāmah* manuscript written for Prince Bāysunqur, son of Shāh Rukh, dated 1429 (833). Teheran, Gulistān Palace Museum.
24. Upper: Gushtāsp killing a karg, from a *Shāh-nāmah* manuscript, now dispersed. Iran, first half of the fourteenth century.
Lower: Iskandar killing a karg, from the same manuscript as upper miniature.
Washington, D. C., collection of George Hewitt Myers.
25. Bahrām Gūr killing a karg, from a *Shāh-nāmah* manuscript, now dispersed. Iran, first half of the fourteenth century. Freer Gallery of Art, No. 30.10, reverse.
26. Gushtāsp killing a karg, from a *Shāh-nāmah* manuscript. Iran, second half of the fifteenth century. Paris, Bibliothèque Nationale, ms. Supplément persan 1280.
27. Bahrām Gūr killing a karg, from a *Shāh-nāmah* manuscript. Iran, 1497 (902). New York, possession of H. Kevorkian.
28. Isfandiyār killing karg monsters, from a *Shāh-nāmah* manuscript. Iran, 1497 (902). New York, possession of H. Kevorkian.
29. Isfandiyār killing karg monsters, from a *Shāh-nāmah* manuscript. Iran, 1605-1608 (1014-1016). New York, Metropolitan Museum of Art, Cochran ms. No. 3.
30. Isfandiyār killing karg monsters, from a *Shāh-nāmah* manuscript. Iran, 1544 (951). Princeton University Library (Garrett collection, No. 56 G).
31. Left: Fragment of an unglazed pottery vessel. Mesopotamia, thirteenth or possibly late twelfth century. Berlin, Staatliche Museen, Islamische Abteilung.
Right: Fight with a monster. Persepolis, Palace of Darius (*tachara*).

Plate

32. Bābur on a rhinoceros hunt. Mughal India, second half of the sixteenth century. Baltimore, Walters Art Gallery, ms. W. 596.
33. Jahāngīr on a rhinoceros hunt. Mughal India, first quarter of the seventeenth century. Düsseldorf, O. Sohn-Rethel collection.
34. Bilqīs surrounded by the animals of Sulaimān, from a Nizāmī manuscript. Iran (Shirāz), 1513 (919). New York, possession of H. Kevorkian.
35. The host of Sulaimān. Left side of a double frontispiece, the right side of which shows the enthroned Sulaimān and Bilqīs. From a *Shāh-nāmāh* manuscript, now dispersed. Iran, 1497-1504 (902-910). Princeton, N. J., collection of Dr. E. Kahler.
36. Lailā visiting Majnūn. Mughal India, ca. 1600. New York, possession of Nasli Heeramanek.
37. The animal kingdom. Mughal India, early seventeenth century. Freer Gallery of Art, No. 45.29.
38. The island of Wāqwāq from an al-Qazwinī manuscript, now dispersed. Iran, sixteenth century. Boston, Museum of Fine Arts (formerly Goloubew collection).
39. Left: Leather girdle with plaques of rhinoceros horn and silver buckle of a second girdle of the same type.
Right: Pendant ornaments in form of small containers (gōsu) of rhinoceros horn.
China, T'ang period, before A.D. 756, Nara, Shōsōin.
40. Upper: Ḥarish in form of snakes, from an al-Qazwinī manuscript. Iran, seventeenth century. Princeton University Library (Garrett collection, No. 82 G).
Lower: The capture of the ḥarish, from a *Manāfi'-i ḥayavān* manuscript. Iran (Marāgha), end of the thirteenth century. New York, The Pierpont Morgan Library, ms. M.500.
41. The ḥarish in al-Qazwinī manuscripts.
Upper: From the "Sarre manuscript." Iraq, late fourteenth century. Private collection.
Middle, left: Iran, early fifteenth century. Berlin, Staatliche Museen, Islamische Abteilung.
Middle, right: Iran, fifteenth century. New York, possession of H. Kevorkian.
Lower: Iran, 1545 (952). London, collection of A. Chester Beatty, Esq., ms. P. 212.
42. Upper: "Shādhahyār," from the "Sarre al-Qazwinī manuscript." Iraq, late fourteenth century. Private collection.

Plate

- Middle: "Sinād," from an al-Qazwīnī manuscript. Iran, seventeenth century. Princeton University Library (Garrett collection, No. 82 G).
- Lower, left: "Shādhahvār," from an al-Qazwīnī manuscript. Iran, fifteenth century. New York, possession of H. Kevorkian.
- Lower, right: "Shādhahvār," from an al-Qazwīnī manuscript. Iran, early fifteenth century. Berlin, Staatliche Museen, Islamische Abteilung.
43. The lure of the shādhahvār's horn, in al-Qazwīnī manuscripts. Upper: Iran, seventeenth century. Princeton University Library (Garrett collection, No. 82 G). Lower: Iran, 1545 (952). London, collection of A. Chester Beatty, Esq., ms. P. 212.
44. The mi'rāj in al-Qazwīnī manuscripts. Upper: Iran, early fifteenth century. Berlin, Staatliche Museen, Islamische Abteilung. Lower: From the "Sarre manuscript." Iraq, late fourteenth century. Private collection.
45. Drawing with a Chinese dragon (lung), a lion, and a Chinese unicorn (ch'i-lin). Turkey, sixteenth century. Freer Gallery of Art, No. 48.17.
46. "Yaḥmūr," from a *Manāfi'-i ḥayavān* manuscript, now dispersed. Iran, ca. 1400. Freer Gallery of Art, No. 38.2.
47. Upper: Detail of lower horn shown in the middle picture, revealing the engraved naskhī inscription on the silver mounting. Middle: "Unicorn horns." The upper consists of fossil bones in a fifteenth-century mounting; the lower is a narwhal tusk whose outer surface has been scraped off for medicinal purposes. The two end mountings of gilded silver date from the thirteenth century, while the central mountings of bronze and the affixed chain are from the fifteenth century. Venice, Treasury of San Marco (since the fifteenth century). Lower: Knife signed by Mihr 'Ali with handle of walrus ivory. Iran, sixteenth to seventeenth century. Baltimore, Walters Art Gallery.
48. Upper: "Hai-ma," detail on bronze mirror. China, T'ang period (618-907). Freer Gallery of Art, No. 44.5. Lower: "Asb-i ābī" from a *Manāfi'-i ḥayavān* manuscript. Iran (Marāgha), end of the thirteenth century. New York, The Pierpont Morgan Library, ms. M.500.

LIST OF TEXT ILLUSTRATIONS

Figure	Page
1. Seal impression. Divine hero killing a winged bull. Mesopotamia, <i>ca.</i> 1200 B.C. Formerly collection of Prof. Ernst Herzfeld	44
2. Indian seal found in Tell Asmar. Middle of the third millennium B.C.	83
3. Sharav (śarabha). Detail (drawing) from an embroidered Indo-Portuguese bedspread. Goa, seventeenth century. Brooklyn Museum	98
4. One-horned leonine monster from a Chinese bronze mirror. T'ang period (618-907). Freer Gallery of Art, No. 29.17. (Drawn by Mrs. Eleanor M. Jordan.)	105
5. Chinese mirror. T'ang period (618-907)	109

STUDIES IN MUSLIM ICONOGRAPHY

I. THE UNICORN

BY RICHARD ETTINGHAUSEN

*Associate in Near Eastern Art
Freer Gallery of Art*

[WITH 48 PLATES]

INTRODUCTION

It is generally acknowledged that Islamic art is an art of decoration; yet we have to admit that so far hardly any Muslim sources have been tapped which explain the meaning and mental associations of these decorative schemes. We do not know, for instance, what a Muslim artist had in mind when he painted an arabesque, a peacock, a hare, or the more fantastic animals such as those which are usually called griffons and harpies. Even the names of many designs are not known to Western scholars. There is usually also no explanation to be found as to why certain motifs became popular at certain times and then disappeared.

The following study tries to establish the various iconographic forms and the historical setting of the "unicorn" motif. It also intends to reconstruct the connotations most likely to be found in the mind of a medieval Muslim confronted with a picture of the animal.

The unicorn is not a frequent theme, though it occurs more often than one was hitherto inclined to believe. It is also true that there are other figurative designs which are more important. The varied iconographic uses found in a limited number of representations provided, however, exceptionally favorable conditions, first, for the identification of the motif, and then for the interpretation of the various types. Finally, the many connections of the motif with India, China, and the classical and medieval worlds made it particularly attractive

for a more extensive investigation. As a result not only has the unicorn as such become more significant, but also it has been possible to reconstruct some of the conditions and mental processes which created the peculiar forms of the animal.

In all cases our witnesses were Muslim writers of the ninth to the seventeenth centuries, ancient Asiatic and European authors and, of course, actual representations of the animal in its various forms found in Islamic countries and dating from the tenth to the eighteenth centuries. The author readily admits that he shares the lot of all students of the lore of the unicorn, namely, that even after a diligent search, there still remains a certain amount of mystery. This applies especially to the prehistory and genesis of the motif and to its odd ramifications which, in many cases, could be presented only as hypotheses. There is always the possibility that some untapped source might throw further light on this fantastic animal. Yet, it is hoped that the main thoughts of the medieval mind on this subject can now be grasped. A few of the illustrations are admittedly of late date or of inferior artistic quality, but they are the only traceable expressions of a particular belief and are thus valuable as historical documents. Happily the majority of the illustrations offered reveal the usual beauty and finesse that we associate with Islamic art.

THE ICONOGRAPHIC PROBLEM

Among the fantastic animals which decorate objects and buildings of the Islamic Middle Ages, one occasionally finds a quadruped with a long horn on its forehead. An enameled Syrian glass vessel of the fourteenth century in the Freer Gallery of Art provides characteristic examples (pls. 1 and 2).¹ Along its outer rim, in the interstices between decorative roundels, eight fantastic animals are shown against an arabesque background. Two are "griffins," two are "sphinxes," one is a winged lion, and three are winged "unicorns" with feline bodies—one with a long straight horn and the two others with a shorter curved one. Two earlier examples of the monster are found in a less conspicuous place on a thirteenth-century inlaid canteen, also from Syria, in the same museum (pl. 3, upper).² Here the winged "unicorns," which cannot be defined from a zoological point of view, are to be found together with many other fabulous and ordinary animals, and human beings as well, all set within a highly decorative inscription on the side walls of the vessel. If there are any doubts whether the animals are single-horned, or whether they are meant to have two horns which only cover each other in profile view, such doubts can be put to rest by the fact that other animals in the same frieze are actually shown with two horns.

Since the two objects in the Freer Gallery are both from Syria, it should be pointed out at once that the motif is not restricted to this particular country. Even a cursory survey shows that it is also to be found in other regions. An engraved and copper-inlaid bronze bucket of the twelfth century, from Iran, in the possession of R. Stora, of New York, shows in its central register between decorative quatrefoils a pair of the animals portrayed in a heraldic style and posture (pl. 4).

¹ No. 33.13. Cf., 160, vol. 1, pp. 404-405; vol. 2, pl. 179, No. 9.

² No. 41.10. Cf., 83, fig. 3.

Here head and body are basically equine, although many bodily features derive from other animals. Yet the long straight horn puts the winged creature in the same category as the Syrian examples. And just as in the case of the glass vessel, the unicorns are grouped together in the same frieze with other fantastic animals, viz, two griffins and four winged lions.³

From the opposite end of the Muslim world come a number of carved Hispano-Moresque ivory boxes which again display the fabulous beast (pl. 5, left).⁴ In nearly all cases the winged animal with its single horn showing helical grooves is zoologically difficult to explain. It always faces another specimen of the species and is set in a decorative scheme which contains similarly stylized pairs of griffons. They are the earliest representations of the unicorn in Muslim art so far traced.

When we now turn to a fourth region, Anatolia, and look this time for the use of the design within an architectural framework, we can refer to unicorns mentioned by Friedrich Sarre, who was one of the earliest, if not the first, to have observed the motif. He described two examples found among the decorative stone sculptures of Konya which apparently came from an arched doorway (pl. 3, middle and lower).⁵ These thirteenth-century Seljuk reliefs portray a different conception inasmuch as they do not represent the animals as isolated motifs as on the glass vessel, nor as pairs as on the Persian bucket and the Spanish boxes, nor yet as a motif within an over-all pattern as in the case of the Syrian metal canteen. In both examples from Konya the winged feline "unicorn" is part of a group; it is seen pursuing another animal, in one case an antelope and in the other an elephant.

Another example of the use of the motif as part of an architectural decoration and in still another iconographic setting is to be found on a plaque from the portal of the Madrasa Muqaddamiya in Aleppo, which dates from 1168 (564)

³ 117, vol. 6, pl. 1291, B.

⁴ 100, vol. 1, pls. 28, 33, 42, 48, 50, 56, and 59.

⁵ 225, pp. 10-11, figs. 10 and 12; 227, pp. 53-54 and pl. 17.

(pl. 6).⁶ Two of its arabesque forms which are part of the symmetrical "tree" arrangement terminate in what seem to be antelope heads which carry a straight tapering and helically grooved horn on their foreheads. The horns are obviously meant to be single ones, because the artist showed in his treatment of the ears on other heads that he was able to give a profile view in proper perspective. There is, therefore, little doubt that he would have been able to show a second horn had he wanted to do so. At this stage of the investigation it is more difficult to answer another question, namely, whether the helical grooves of the horn are just a fanciful surface decoration or are meant to be a realistic rendering of an actual horn. This is a question which will have to be taken up later on.

All the cited examples showing the whole animal are winged "unicorns." Since in many other respects they differ from each other, however, the following questions arise: are these animals different unicorns, or are they variants of one and the same animal, and what should we call them? The traditional Western term "unicorn," descriptive as it is, does not give us any clue as to what the medieval Muslim named the animal and what he had in mind when he created such a monster or what he thought when he saw it. The term "unicorn" is, in a way, even misleading, since for a person steeped in the traditions of Western civilization the word has many connotations which have been nurtured by classical, Biblical, early Christian, and medieval beliefs about this animal. The motif has to be studied and understood from the point of view of the medieval Muslim. Only then can it be properly interpreted.

⁶ I owe the knowledge of this plaque and the photograph of it to the kindness of M. Jean Sauvaget (235, vol. 1, p. 123, footnote 399). Écochard thinks that this medallion belongs to the most beautiful Arab decoration of the twelfth century (91, p. 84, fig. 2, and pl. 6, fig. 1).

THE IDENTIFICATION OF THE ANIMAL

If one wants to establish the associations which were formed in the Muslim mind in connection with this fantastic beast, one has first to establish its Arabic and Persian names. Only after this initial step will it be possible to ransack Muslim literature for the necessary information. This will also, in due course, settle the question whether we have here in the several illustrations referred to, and in others to be adduced later on, one and the same or different animals.

Happily a number of representations of a winged quadruped with a single horn have come down to us, accompanied by texts giving specific names. It will suffice to name three for a proper identification. The earliest so far found is in a zoological manuscript compiled from the works of Aristotle and of 'Ubaid Allāh b. Jibrīl b. Bukhtishū' (Bokhtyeshū'), the *Na't al-ḥayawān wa-manāfi'uhu* in the British Museum, probably written and painted in Baghdad in the first half of the thirteenth century.¹ In the section on wild quadrupeds one finds an animal which, although it does not have the feline character of the examples on the Freer glass bowl and the Konya reliefs, or the more equine character of those on the Stora bucket, nevertheless reveals the basic and distinguishing features of the unicorn, the horn on the forehead and the wings (pl. 7). In this manuscript this strange antelopelike animal is called *کردن* *kardunn*, a variant of the more common form *کردن* *karkadann*, or *کردن* *karkaddan*, which is the usual term in Arabic for rhinoceros.² Another "unicorn"—

¹ OR. 2784, see 56, pp. 531-532, No. 778. For a bibliography of publications on the miniatures in this manuscript see 126, p. 14, No. 33, and 63, p. 153, No. 33. See also 62, pp. 34-35, and figs. 34-36.

² There are many more names for the animal. First there are the variants of the usual name, viz. *کردن* *karkand* or *karakand*, fem. *کردندة* *karkanda* (99, p. 109, footnote; Ibrāhīm b. Waṣīf-Shāh, in 98, vol. 1, p. 160, footnote 1; and 77, vol. 2, p. 327), and *کردآن* *karkadān* (5, fol. 14b, see pl. 10, Persian caption; and al-Idrīsī in 98, vol. 1, p. 180; *کزکزان* *kazkazān*, in the Cairo

this time with a feline body—is to be found on a page of the Persian Anthology entitled *Mu'nis al-ahrār fī daqā'iq al-ash'ār*, dated 1341 (741), in the Cleveland Museum of Art.³

edition of *Alf laila wa-laila*, see 23, notes to vol. 3, p. 130, is obviously a textual garble). To this group belong also the usual Persian designations: کَرکَدَن karkadan, کَرگَدَن kargadan, and کَرگ کَرکَدَن karg. کَرکَدَن, that is, without *tash-dīd* over the *nūn*, is found also in the Arabic text of the "Sarre al-Qazwīnī" manuscript. Then there are other names, some translations or loan words from other languages and some probably used only in specific regions. Thus al-Jāhīz and others quoting him speak of الحِمَار الهِنْدِي al-ḥimār al-hindī, "the Indian ass," hereby using a term of Aristotle (145, vol. 7, p. 40; 146, vol. 7, p. 123; 6, fol. 134b; 7, fol. 88b; 201, vol. 7, p. 315). The term الْقَرْنِي الْاِثْفِ al-qarnī al-anf, "the horny on the nose" (6, fol. 134b; 7, fol. 88b) is found only in Marvazī, an author who quotes more classical information than any other Muslim writer on the subject; it is, therefore, obviously an Arabic rendition of the Greek *ῥινόκερως*. البِشَانُ الْمَعْلَمُ al-bishān (al-mu'lam) (marked or spotted) bishān (and various other misread versions of this term) come from the Sanskrit (see p. 94, footnote 91). گَنْدِه gānda (45, p. 228), has the same origin. خَرْتُوْت khartūt occurs in al-Akfānī (277, p. 354); while the form خَرْتِيْت or خَرطِيْت khartūt or khartīt is nowadays used in Egypt and the Sudan (see p. 130). Al-Bīrūnī and Marvazī state also that the African Negroes use the term اِنْبِيْلَا impilā. This Marvazī explains as بَقَر الْجَامُوْس "buffalo cow" (6, fol. 135b). One wonders about a possible connection with the name of a certain African antelope, the impala, which became confused with the rhinoceros. This antelope is called mpala and nipala by the Barotse and Ngamiland natives, 'mpāra by the Ovadīrico, and umpara by the Makuba; the Angolan or black-faced impala is called ompāla or ombāra by the Ovambo (243, vol. 2, pp. 550 and 557).

There are also certain names which do not seem to occur in the classical literature of Islam, viz. اَبُو قَرْنِ abū qarn (father of the horn) (53, vol. 12, p. 607), اُمُّ قَرْنِ umm qarn (mother of the horn), and اَعْنَزَة 'anaza—all used in the Sudan (174, p. 203). Other names are زَبْعَرِيْح zāb'arī, مَرْمِيْس mirmīs, and هَرْمِيْس hirmīs. The form وَحِيْد الْقَرْنِ waḥīd al-qarn (unicorn), is obviously derived from Greek *μονόκερως* (37, p. 20; 174, p. 203).

Finally there are certain names which are occasionally given to the rhinoceros without actually designating the same animal. They are حَرِيْش ḥarīsh, and سِنَاد sinād. (A short survey giving most of the names is in 174, p. 203.)

Throughout this investigation the form *karkadann* will be used with the exception of those cases in which a specific form in an Oriental text has to be transliterated.

³ This miniature is still unpublished, but the manuscript is well known (126, p. 19, No. 48; 63, p. 155, No. 48).

In a ribbonlike composition four animals are shown, one in front of the other (pl. 8). The caption in the left-hand corner of the preceding line describes them as کرس vulture, سیمرغ *sīmurgh* (the fabulous bird), پیل elephant, and کرکدن karkadan. Our third example is in a miniature of the "Demotte *Shāh-nāmah*" of about 1320 which shows a scene usually entitled "Iskandar Fights the Ḥabash (i.e., Ethiopian) monster" (pl. 9).⁴ This designation is correct; but while it stresses the country where the animal occurs, the Persian caption within the miniature رزم اسکندر با کرکدن, "The Fight of Iskandar with the Karkadan," states more explicitly what kind of animal Alexander the Great is slaying. All three quoted examples show differences in the body structure of the beast, although each has the long single horn on the forehead and the wings emanating from the sides of the body. It seems therefore certain that the various winged creatures with one horn are representations of the karkadann or rhinoceros quite irrespective of whether the represented animal has the body of a lion, horse, antelope or any other quadruped.

Now that the winged "unicorn" has been established as being the karkadann, we can look for this animal in the illustrated scientific manuscripts such as al-Qazwīnī's *Ajā'ib al-makhlūqāt* or the various works connected with Ibn Bukhtīshū.⁵ They will naturally provide us with additional

⁴ 126, pp. 23-24, No. 64; 63, pp. 158-160, No. 64. The quoted caption is after 54, p. 106, No. 33.

⁵ The texts dealing with the karkadann in the *Na't al-hayawān wa-manāfi'uhu* in the British Museum, OR. 2784, the *Manāfi' al-hayawān* in the Bibliothèque Nationale, Arabe 2782, and the *Ṭabā'i' al-hayawān wa-khawāṣṣuhu* in the Princeton University Library, No. 203B (Garrett ms. Ar. 1065) are, disregarding certain minor variations, identical. According to the Paris manuscript these texts are extracts from a larger work entitled کتاب الخواص مجرب المنافع *Kitāb al-khawāṣṣ mujarrib al-manāfi'* (203, p. 501, No. 2782). In general, the descriptions of the animals are said to be taken from a work called نعت الحيوان *Na't al-hayawān*, which is attributed to Aristotle, while the discussions of their medicinal value come from the منافع الحيوان *Manāfi' al-hayawān* of Ibn Bukhtīshū. Both were put together by an anonymous compiler (56, p. 531). A three-line postscript in 2, fol. 198a states, however, that the karkadann does not occur in the *Kitāb al-na't* and that it is mentioned only

examples of this animal, since these manuscripts have been illustrated for many centuries. The earliest karkadann in a scientific manuscript found so far is the one in the British Museum referred to above (pl. 7). The representation in the Persian *Manāfi'* manuscript of The Pierpont Morgan Library is only a few decades later and was painted in Marāgha in northwest Iran at the very end of the thirteenth century (pl. 10).⁶ The most striking feature of this animal when compared with the representations so far discussed is not so much its bovine appearance, but rather the fact that it lacks the wings. Nevertheless, it is called a karkadan in the caption and illustrates a chapter enumerating all the traditional features of the animal. We can make the same observation for nearly all the other illustrations of the karkadann in scientific manuscripts from this period on. It therefore becomes obvious that the wings—in contrast to the horn—are not an essential feature of the karkadann. But we shall have more to say about the wings later on.

Miniatures illustrating the al-Qazwīnī text are to be found for instance in the "Sarre manuscript" of the second half of the fourteenth century (pl. 13, lower),⁷ a derivative copy of this manuscript in the A. Chester Beatty collection in London (probably of the fifteenth century),⁸ two other fifteenth-century manuscripts—the earlier one in the Berlin Museum (pl. 13, upper left),⁹ and the other from later in the century in the Kevorkian collection in New York (pl. 13, upper right)¹⁰—a

in the work of Ibn Bukhtīshū'. The Arabic text in the London, Paris, and Princeton manuscripts is totally different from the Persian *Manāfi'-i hayawān* (Pierpont Morgan Library, ms. M.500), which obviously goes back to another Arabic model from which it was translated about 1295 (695). In this study the two texts are referred to as Ibn Bukhtīshū' and *Manāfi'-i hayawān* (or, for short, *Manāfi'*).

⁶ 126, p. 22, No. 57; 63, pp. 156-157, No. 57. Laufer was the first to identify the animal by reading the Persian caption. Anet before him had called it a "horned gnu" (165, pp. 88-89).

⁷ 230, p. 38, No. 295.

⁸ Ms. P.127, unpublished.

⁹ 157, p. 69, fol. 272a (unpublished miniature). Kühnel dates the manuscript in the late fourteenth century which, I think, may be slightly too early.

¹⁰ Unpublished.

manuscript dated 1545 (952) in the Beatty collection (pl. 14, upper),¹¹ another of 1570 (978) in the Harvard College Library,¹² then what seems to be a seventeenth-century adaptation of a fifteenth-century manuscript in the Princeton University Library (pl. 15),¹³ a Turkish translation of the text, written in 1709 (1121) in the Walters Art Gallery,¹⁴ and finally, an Indian copy of 1789 (corresponding to the thirty-first year of the reign of Shāh 'Ālam) in the Greer Gallery of Art (pl. 14, lower).¹⁵ Most of these seem to be different from each other. Only a few show, at first glance, that they follow the same iconographic tradition; for instance, the British Museum and the Kevorkian examples (pl. 7 and pl. 13, upper right) show an antelopelike animal, but only the unicorn in the older manuscript is winged. If further proof were necessary to show the lack of uniformity in the conception of the karkadann, it could be demonstrated by the different appearances of the same animal in a single manuscript. The al-Qazwīnī in the Princeton University Library shows the animal by itself, and then again in its eastern habitat together with other creatures (pl. 15, right and left). No uninitiated person would ever think that the artist meant to illustrate one and the same animal; nor is this a unique case of the dual personality of the karkadann, because the al-Qazwīnī manuscript in the Harvard College Library shows the same phenomenon. However, these divergencies do not seem to have perturbed the painters or the reading public.

How can this iconographic variety be explained?

The first step in finding an answer to this question is to consult the medieval texts which give the various conceptions of the body structure of a karkadann. They also help us to

¹¹ 43, pp. 139-140, No. 176, pls. 96-97; 115, p. 60, No. 19.

¹² Unpublished.

¹³ 106, p. 31, No. 65, states that this manuscript was copied in 1460 (865) by 'Abd Allāh b. Ali Bey Damāvandī. Since the miniatures seem to be later copies of fifteenth-century originals, the manuscript was either copied in toto in the seventeenth (or even eighteenth) century or the miniatures are later additions to the fifteenth-century text.

¹⁴ Ms. W.659, unpublished.

¹⁵ No. 07.625, unpublished.

understand why the animal was represented in Muslim art at all. The following quoted and paraphrased references are culled from the published and unpublished writings of a large number of writers of the ninth to seventeenth centuries, comprising littérateurs, historians, travelers, cosmographers, pharmacologists, poets, merchants, and hunters.¹⁶ Since it is the aim of this paper to explain a figural motif in Muslim art and not to write a monograph on the rhinoceros, only the more important passages which explain the outer form and the meaning of this motif have been used while other information is usually disregarded even though it may have literary or folkloristic significance. For similar reasons discussions of an etymological nature have also been left out. It is certain that the list of authors referred to could be further enlarged, yet there seems little doubt that the most common conceptions of the "unicorn" within the Muslim world have been established here and that they suffice to explain the paramount features of the motif.

¹⁶ Following is a list of the most important authors and anonymous books most frequently quoted in this paper. If the year of completion of a text referred to is known, it is listed; otherwise the year during which the author died is given, with the Hijra year in parentheses: Ibn Khordādhbeh, *ca.* 846 (232); *Akhhbār al-Šin wa'l-Hind* (formerly attributed to Sulaimān, the merchant), 851 (237); al-Jāhiz, died 869 (255); Ibn Faḍlān, *ca.* 922 (310); al-Mas'ūdī, 956 (345); *Hudūd al-'Ālam*, 982 (372); al-Nadīm, 987 (377); Abū Haiyān al-Tawhīdī, died after 1010 (400); al-Bīrūnī, died 1048 (440); 'Uбайд Allāh ibn Jibril ibn Bukhtīshū', died after 1058 (450); Ibn al-Balkhī, beginning twelfth century (seventh century); Marvazī, *ca.* 1120 (617); Abū Ḥāmid al-Gharnāṭī, 1169 (565); al-Qazwīnī, died 1283 (682); *Manāfi'-i ḥayawān*, before 1295 (695); al-Dimashqī, died 1327 (727); al-Nuwairī died 1332 (732); Ḥamd Allāh al-Mustawfī al-Qazwīnī, 1339 (740); Ibn Battūṭa, before 1356 (757); al-Damīrī, 1371 (773); Ibn al-Wardī, *ca.* 1446 (850); Bābur, died 1530 (937); Abu 'l-Faḍl 'Allāmī, died 1602 (1011); and the *Alf laila wa-laila*.

If a passage on the rhinoceros occurs only in one place in the Arabic or Persian source, it is quoted only the first time it occurs in the following text.

THE PHYSICAL APPEARANCE OF THE KARKADANN IN MUSLIM TEXTS AND ILLUSTRATIONS

Of all medieval authors al-Birūnī alone in his book on India gives a fairly accurate description of the rhinoceros: "It is of the build of a buffalo, has a black, scaly skin, a dewlap hanging down under the chin. It has three yellow hooves on each foot, the biggest one forward, the others on both sides. The tail is not long. The eyes lie low, farther down the cheek than is the case with all other animals. On the top of the nose there is a single horn which is bent upwards . . ." ¹

The correct position of the horn and the unique observation about the hoofs indicate that this description is based on good observation. Al-Birūnī was not, however, the only Muslim writer who had a chance to watch the animal at close range. Ibn Baṭṭūṭa saw a rhinoceros in its Indian habitat on four different occasions.² What struck the Moroccan traveler in particular and induced him to speak of it in two places was the excessive size of the coarse head. He believed it to be several times larger than that of the elephant, although he

¹ 45, pp. 229-252; 44, vol. 1, pp. 203-204. Marvazī has another version of al-Birūnī's account which is more than twice as long and thus even more specific (6, fol. 135a; 7, fol. 89a-b). Since certain passages are not quite clear, we are quoting it here only in the footnote: "It is of the build of the buffalo, but taller and short in the leg. The skin is smooth, not hairy, but scaly, made of scales raised from the epidermis and the chest (?) with dewlaps on both cheeks. The haunches (of the animal) are big and the head flat-nosed and receding. The horn is on the tip of the nose, conical in shape, and bent backward toward the head. It is longer than a span. In the center of the upper lip, under the horn, it has something like the additional "finger" on an elephant's trunk. The lower jaw is like that of the bull; it has two blunt canines inside the mouth. The nose resembles most closely the noses of beasts of burden. The ears protrude on both sides, like the ears of the donkey. Its eyes are almond-shaped (??) and set lower than is usual. Its tail is short, thick at the root then widening toward the end. Testes and penis are like those of the bull. Its hoofs are fleshy and resemble the feet of elephants; each has three toenails, white with a yellow tinge; the biggest in front, then two in a half-circle to the right and left."

² 133, vol. 3, pp. 100-101, and 356.

describes the rhinoceros correctly as being the smaller of the two animals. In this instance it is possible to trace the source of the misconception to which Ibn Baṭṭūṭa himself refers, i.e., to a popular saying "Karkadann—head without body," (الكركدن رأس بلا بدن). The reports of this famous traveler thus show that even repeated encounters with the animal did not necessarily produce a description based on observation. Preconceived ideas prevented the eye from seeing reality.

In comparison with al-Birūnī nearly all other authors had only a vague idea of the karkadann. This lack of substance led, of course, more and more to the invention of imaginary traits. Al-Jāḥiẓ in the ninth century is still in the realm of reality when he classes it with the largest animals such as the elephant and the buffalo;³ but at the time of Abū Ḥāmid al-Gharnāṭī in the twelfth century, the rhinoceros has become about 100 cubits long.⁴

The karkadann is usually defined by comparing it with other animals. A typical description—in this case based on accounts of the Volga Bulgars—is given about 922 by Ibn Faḍlān: "The animal is smaller than the camel and bigger than the bull. Its head is that of a camel, its tail that of a bull and its body that of a mule. Its feet are like the hoofs of the bull. On the middle of its head it has a single, thick and round horn which becomes thinner toward the tip . . ." ⁵ When one examines the various comparisons, frequent analogies with certain animals become apparent. The most common statement is that the karkadann resembles a buffalo or a bovine animal, although it is in most cases believed to be bigger, once even larger than several buffaloes put together.⁶ Al-Damīrī alone at one point gives the size as being smaller than that of a buffalo. The *Manāfi'-i ḥayavān* mentions, too, that

³ 145, vol. 7, p. 29.

⁴ 99, Arabic text p. 109, translation p. 266. This measurement is repeated by al-Damīrī, who speaks of "one hundred cubits and even more than that" (77, vol. 2, p. 327).

⁵ 134, Arabic text p. 33, translation p. 76.

⁶ 5, fol. 15a, line 1, Abu 'l-Faḍl 'Allāmī states that the rhinoceros is twice the size of a buffalo (24, vol. 3, p. 120), while Bābur gives the figure as approximately three times the size (32, vol. 2, p. 489).

the tail and hoofs of the karkadann are similar to those of the buffalo.⁷ The *'Ajā'ib al-makhlūqāt* manuscript in the Walters Art Gallery⁸ likewise maintains that not only the parts of the body just referred to, but also the horn, are those of a bull. According to the text of al-Qazwīnī edited by Wüstenfeld,⁹ it has the constitution of a bull, only more powerful, while Mustawfī thinks that it has the form of a cow.¹⁰ From these recurring comparative descriptions, it seems natural that many representations show a bovine animal resembling a buffalo or ox. Examples of this iconographic type are to be found in the Morgan *Manāfi'* and the al-Qazwīnī manuscripts of the Sarre and Beatty collections and of the Princeton University and Harvard College Libraries (pls. 10; 13, lower; and 15, right). The Morgan *Manāfi'* manuscript, like many later zoological manuscripts, presents a welcome opportunity for comparing the miniatures of the karkadann and the domestic ox (اوگ) which, as usual in Persian miniatures, is represented as a zebu with its characteristic hump and large dewlap (pl. 11). If one disregards such features as the curved horn on the forehead, the different form of the muzzle and the zebra-like stripes, the karkadann appears as a bigger and fiercer cousin of the domestic cow. The reason for the difference between the two will become obvious later on when it will be shown that there are also other factors besides the descriptive Muslim texts which have to be considered when one wants to explain the special character of an iconographic type.

Of special interest is a miniature in the Beatty al-Qazwīnī manuscript of 1545 (pl. 14, upper). In spite of the bovine look, especially of its head and the hump on the back, the karkadann also has certain elephantine features. It may be thought that this is due to the ineptitude of the artist in por-

⁷ 5, fol. 15, line 8.

⁸ 1, fol. 188. The title of this work is the same as that of the famous work by al-Qazwīnī, but the text is quite different from the edition of Wüstenfeld. The manuscript was written in the late sixteenth or the seventeenth century for one Shams al-dīn Muhammad b. Maḥmūd b. Aḥmad al-Salmānī al-Ṭūsī.

⁹ 217, vol. 1, p. 402.

¹⁰ 191, Persian text p. 35, translation p. 25.

traying a rhinoceros, yet the medieval texts reveal certain clues as to why the animal was given this form.¹¹ While Ibn Khordādhbeh states only that the animal is smaller than an elephant and larger than a buffalo,¹² other authors go beyond a mere comparison. Al-Qazwīnī, whose text the miniature illustrates, says definitely that the karkadann has the body of an elephant, and according to al-Damīrī it is a cross between a horse and an elephant.¹³ Further relationship between the karkadann and elephant is brought about by the myth of the jointless legs,¹⁴ a feature sometimes associated with the elephant, other times with the karkadann.¹⁵ Still another connection between the two animals is provided by the accounts of the strange gestation of the female karkadann. As far as we know, it was al-Jāhīz who introduced the story into Muslim literature, though not without some misgivings as to its veracity.¹⁶ According to him, shortly before the time of birth the karkadann foetus sticks out its head from inside its

¹¹ Another manuscript that shows the animal with elephantine features, such as elephant legs and tail, is the late al-Qazwīnī manuscript of 1789 in the Freer Gallery of Art (10, fol. 465a); here the rhinoceros also wears a saddlecloth as does the tame riding elephant (pl. 14, lower; see also p. 48, footnote 6 of this study).

¹² 98, vol. 1, p. 25. This statement is, for instance, found also in al-Idrīsī (98, vol. 1, p. 180).

¹³ This is in line with the medieval Muslim concept that certain animals were actually hybrids of well-known creatures. "Man allying himself with the panther, the hyena, and other beasts has begotten the monkey, the *nasnās*, and other creatures which resemble him. And thus it is that the mingling of pigs and buffaloes has produced the elephant, of dogs and goats, the wild boar . . ." (65, p. 34). Al-Jāhīz and al-Qazwīnī tell us that the giraffe is believed to be the hybrid of a wild she-camel, a wild cow, and a male hyena (146, vol. 1, pp. 142-143, 217, vol. 1, p. 383), or of the camel and the panther, according to al-Mas'ūdī (184, vol. 3, p. 3).

¹⁴ The *Akhbār al-Ṣīn wa'l-Hind* (17, p. 14; see also 18, vol. 1, p. 29; vol. 2, p. 31) states: ". . . the karkadann has no joints, neither at the knees, nor at the feet, since it is just one piece of flesh from the foot to the armpit." Al-Mas'ūdī has another angle on the subject: ". . . most of its bones seem to be grown together without joints in the legs, so that it cannot kneel or sleep lying down, but has to lean between trees in the middle of the jungle when it wants to sleep" (184, vol. 1, pp. 385-386).

¹⁵ See the discussion of this relationship on pp. 99-101 of this study.

¹⁶ 145, vol. 7, pp. 40-41; see also pp. 143 f. of this study. The story is also given by Marvazī, al-Gharnāṭī (99, p. 101, translation p. 267), al-Damīrī (twice), and al-Ibshīhī (99, p. 267, n. 1).

mother's womb and eats branches of trees. When it is satisfied, it pulls its head back into its usual place. In spite of certain doubts raised against it,¹⁷ this belief continued throughout the Middle Ages. There are, however, certain authors like al-Qazwīnī and al-Damīrī who transfer the story of the karkadann foetus to another animal called *sinād* (سناد)¹⁸ which, to quote al-Qazwīnī, "is of the same description as the elephant, only smaller in body." This elephant-like *sinād* seems to have given further impetus to the mental associations between karkadann and elephant. No miniatures have so far been found which show the karkadann with its enterprising foetus, but there is a miniature of the *sinād* in the al-Qazwīnī manuscript which formerly belonged to Professor Sarre, and others much like it are in the collections of the Berlin Museum and of Mr. Kevorkian (pl. 16, lower). All show the dam with its young one partly outside the womb and looking for supplementary food, and in each case the *sinād* looks exactly like an elephant. There is, however, proof that the Muslim mind retained a connection between the *sinād* and the karkadann. A crude Turkish al-Qazwīnī manuscript of the year 1709 (1121) in the Walters Art Gallery shows, as illustration to the chapter on the *sinād*, an elephant with its hungry foetus well visible in the back.¹⁹ The mother animal shows a curved horn on its forehead, although the al-Qazwīnī text does not mention this feature; there seems, therefore, little doubt that it was influenced by the concept of the horn of the karkadann. All these weird associations of the karkadann with the elephant give a clue as to why a Muslim artist who had never seen a rhinoceros could have been induced to give it elephantine features.

References to a resemblance of the karkadann to the horse are rare in earlier texts, but the belief can be traced through-

¹⁷ 184, vol. 1, pp. 387-388. See also pp. 62 f. and 144 of this study.

¹⁸ This is the vocalization of the "Sarre manuscript" of the al-Qazwīnī text. The same spelling is also given in 191, translation p. 18, and al-Damīrī (78, vol. 2, part 1, p. 81). The Turkish al-Qazwīnī manuscript of 1709 (1121) of the Walters Art Gallery (9, fol. 104a) has سَنَاد *sannād*.

¹⁹ 9, fol. 104a.

out Muslim literature. Marvazī compares its size to that of a horse, while the *'Ajā'ib al-makhlūqāt* manuscript in the Walters Art Gallery mentions that the karkadann has an equine neck.²⁰ Al-Damirī speaks of the animal as a hybrid of elephant and horse, an idea which goes back at least to the first half of the twelfth century, since such a pedigree plays a decisive role in al-Zamakhsharī's discussion about the lawfulness of the karkadann's meat.²¹ The most pertinent statement comes, however, from the Mughal emperor Bābur, a man who had seen many rhinoceroses in his life; yet according to him "the rhinoceros resembles the horse more than it does any other animal," a theory which he backs up with a number of anatomical features which are said to be common to both animals.²² Abu 'l-Faḍl 'Allāmī, another Indian writer, makes the imaginative remark that the rhinoceros "much resembles a horse in armor"; however, it seems that these two Indian authors are only rationalizing a popular myth.²³ As in the case of other comparisons this belief in a resemblance to the horse had its iconographic repercussions and we can thus account for some of the horselike features in certain representations (pls. 18, upper; 19; and 20).

The affinity of the karkadann to the lion, or at least to parts of its body, can be explained by some passages in the *Shāh-nāmah* which speak of the lion claws of the karg کَرگ (which is one of the Persian words for rhinoceros).²⁴ Of a later date is the statement of the *'Ajā'ib al-makhlūqāt* in the Walters Art Gallery that the karkadann has the head and feet of a lion. This characterization fits the pictures on the enamel glass bowl in the Freer Gallery (pls. 1 and 2) and of the monster killed by Iskandar in the Demotte *Shāh-nāmah* (pl. 9).²⁵ Claws of a lion are also attributed by al-Jawharī

²⁰ I, fol. 188a.

²¹ Quoted in 77, vol. 2, p. 327, line 24.

²² 32, vol. 2, p. 490.

²³ 24, vol. 3, p. 120.

²⁴ 102, vol. 4, pp. 314-315, line 423; 103, vol. 4, p. 339.

²⁵ Another example of a lion-bodied unicorn is to be found among the stone sculptures of Kubatchi in Daghestan. One of these twelfth- to thirteenth-century reliefs shows two heraldically rendered lion-unicorns standing on their hind

to the ḥarīsh (ḥ·rysh حريش),²⁶ an animal which this author, Ibn Bukhtishū', and al-Damīrī identify with the karkadann. (Other writers such as al-Tawḥīdī,²⁷ al-Qazwīnī, al-Mustawfī, and the *Manāfi'* differentiate, however, between the karkadann and the ḥarīsh, which they regard as "a small animal the size of a kid." This is obviously another tradition which will have to be dealt with in the discussion of the ḥarīsh later on in this paper.)

Still another iconographic type is the karkadann in the shape of an antelope or stag²⁸ such as we find in the British Museum Ibn Bukhtishū' and the Kevorkian al-Qazwīnī manuscripts (pls. 7 and 13, upper right). Its origin is rather complex. First it can be said that the shape suggests itself to the imaginative mind on account of the analogy with either antelopes, the usual horned animals, or with stags, the bearers of antlers. This is corroborated by two passages in the *Shāhnāmah* in which Firdawsī speaks of a terrorizing monster, obviously a rhinoceros, which has a horn like the antler of a stag.²⁹ Another lead is the text of Ibn Bukhtishū' which declares the karkadann and the kidlike ḥarīsh to be identical. How this kidlike creature was then changed into an antelope can be explained only after more material has been presented in this paper (see pp. 96 f. of this study). But it seems obvious

legs; the straight horns cross each other (36, pp. 95 and 113, pl. 68). This Caucasian relief is not regarded as Muslim work, but it displays strong Muslim influence.

²⁶ The passage from the *Ṣiḥāh* is quoted in 77, vol. 1, p. 285; 78, vol. 1, p. 525.

²⁷ Quoted in 77, vol. 1, p. 285; 78, vol. 1, p. 525.

²⁸ Even for a zoologist it is often difficult to decide whether certain animals in Muslim art are antelopes or stags, and pictures are of no avail in determining whether the animal drops its antlers annually as the stag does, or keeps its horns permanently like the bovine antelope. Since the latter are much more common than stags in Muslim regions, we usually speak of antelopes in this investigation in spite of Firdawsī's poetic comparison of the horn of the rhinoceros with the antler of a stag.

²⁹ 102, vol. 4, pp. 312-313, line 399; 103, vol. 4, p. 338; and 102, vol. 4, pp. 494-495, line 1605; 103, vol. 5, p. 122. In both cases the horn سرو, سرون (sarūn, surū) is said to be like that of the گوزنان gavaznān, which Wolff (280, p. 738) translates as "Hirsche."

that the confusion with the ḥarīsh first found in Ibn Bukhtīshū's text was a decisive factor and it is therefore not surprising that the first instance of an antelopelike karkadann occurs in a manuscript of this author. Once the antelope type was created by Firdawsī, Ibn Bukhtīshū, and the additional outside influence about which we have to speak later on, it was then transferred to al-Qazwīnī manuscripts, such as the one in the Kevorkian collection, although this particular author does not confuse the karkadann with the imaginary ḥarīsh.

A unique iconographic variety, and a very strange one at that, is the animal in the Berlin al-Qazwīnī manuscript which, in spite of two horns and four excrescences on its back, is captioned as karkadann (pl. 13, upper left). The pertinent texts, whether they are in al-Qazwīnī himself or in other authors, fail to provide the clue for this particular shape. It can however be explained as a substitute for another animal with which it was confused since it shared certain features.

In his book on India, al-Bīrūnī tells us of a strange two-horned monster, larger than a rhinoceros and of the shape of a buffalo, called sharav (شرو).³⁰ It has four feet and in addi-

³⁰ 45, pp. 228 and 251; 44, vol. 1, p. 203. Al-Bīrūnī's passage is quoted by 'Awfī, who died in the second quarter of the thirteenth century (93, vol. 2, pp. 203-204; and 198, pp. 37 and 257). Al-Bīrūnī and 'Awfī in turn are quoted by al-Mustawfī (191, p. 43, translation, pp. 30-31) where for reasons which we shall discuss on pp. 33 f. the animal is called rukh رخ. This shows that the Indian lore about the animal is to be found in Muslim literature from the eleventh till at least the middle of the fourteenth century, which explains its occurrence in an early fifteenth-century manuscript.

There seems to be no consistent rule as to how the name شرو should be pronounced, since it may never have been more than a bookish name in al-Bīrūnī and his followers. Reinaud rendered it as "scharau." This form can also be read sharav which is closer to Sanskrit śarabha and which Reinaud recognized as the source for the Arabic word (45, p. 251). Sachau's transliteration of sharava seems—as far as the last vowel is concerned—hardly possible in Arabic. Muḥammad Nizāmu 'd-dīn used the forms sharw and shérú, while Elliot gives sharū. Although it would be more correct to use shrw through this study, I decided on sharav for the sake of readability and because it is closest to the Sanskrit. According to the Sanskrit dictionary the śarabha is a kind of deer, or, in later times, a fabulous animal supposed to have eight legs and to inhabit snowy mountains; it is stronger than the lion and the elephant (188, p. 1057, col. B). This eight-legged monster occurs in the *Mahābhārata* (127, p. 18).

tion, on its back, something like four feet directed upward. The four excrescences on its back and the two horns of the animal in the Berlin manuscript demonstrate that this karkadann is actually a sharav. What has led to this substitution will become obvious when more of the lore of the karkadann has been investigated.

All reports pay special attention to the horn of the karkadann. Nearly all of them go back to confused hearsay or the wrong interpretation of actual horns. Sometimes the accounts take the medieval form of quoting an old authority. Al-Jāḥiẓ, for instance, refers to Aristotle who "assumed that the animal had one horn in the middle of its forehead."³¹ Another early account, that of the *Akḥbār al-Ṣīn wa 'l-Hind* reports too that the animal's single horn was on its forehead. Ibn Bukhtishū', Asadī, Marvazī, and the *Manāfi'* again speak of a single horn on the forehead of the animal,³² while other authors avoid giving specific information on this point. As we have pointed out above (p. 12), al-Birūnī was the only medieval writer to describe its correct position.

Dimensions, form, and character of the horn also come up for some discussion. Al-Jāḥiẓ thought that it was harder than the tusk of the elephant, thicker than a cubit, and its length corresponding to its thickness.³³ Ibn Bukhtishū' gives the dimensions as 1 cubit long and 2 closed-hands thick. The *Manāfi'* says that it is 1 cubit long and adds that it is stronger than the tusk of the elephant, more pointed and harder, all of which makes the blow very effective. There is another vivid statement in al-Idrisī, who tells us that the long horn is so thick that one cannot encircle it with two hands.³⁴ In some

³¹ 145, vol. 7, pp. 40 and 42 (here without reference to Aristotle). He adds also as a further authoritative support: "On this fact (that the karkadann has one horn in the middle of its forehead) the Indians, the old and the young ones, agree."

³² There is an extinct Siberian rhinoceros that had a single horn on its forehead (170, p. 26), but it seems most unlikely that this fossil animal inspired the myth.

³³ 145, vol. 7, p. 38.

³⁴ 98, vol. 2, p. 181. This is an exaggeration of the earlier statement by Ibn Khordādhbeh that the horn was two palms thick (98, vol. 1, p. 29).

editions of the *Arabian Nights* one can see popular imagination at work because in certain manuscripts the copyist was not satisfied with the usual 1 cubit and the measurement is therefore enlarged ten times.³⁵ Al-Damīri does not give the exact measurements but concludes that on account of the weight of the horn, the karkadann is not able to raise its head. A rather unusual—at first sight even fantastic—feature is first mentioned by al-Qazwīnī: “. . . on its horn is a branch or protuberance (شعبة *shu'ba*) whose curve runs counter to the horn and this protuberance possesses special properties. The sign of its genuineness is that in it one sees the figure of a horseman. One finds this protuberance only in the possession of the kings of India.” Al-Mustawfī, too, speaks of this branch or protuberance which, according to him, is one cubit (كبر) long and has knots (عقود *'uqūd*).³⁶ Al-Damīri repeats the text of al-Qazwīnī nearly word for word and he places the branch on the tip of the horn. The possible meaning of this curious development of the horn deserves special discussion which will have to be reserved for a later section.

Only a few writers make any reference to the curve in the horn. Al-Birūnī is the first to observe it, being followed by the *Manāfi'*. Al-Qazwīnī even defines the character of the curve.³⁷ It is strange that Ibn Baṭṭūṭa, otherwise such an astute observer, does not mention this characteristic feature, just as he was unable to realize the peculiar position of the horn. Yet he must have seen it at close range when, in two instances, the severed head of the animal was brought back by hunters. His only observation is that the karkadann “has between the eyes a single horn which is about three cubits long and about one span thick.”³⁸ This shows how difficult it was

³⁵ See comment of 23, vol. 3, p. 386, footnote 36. The Calcutta edition translated by Littmann speaks of a horn of 10 cubits (21, vol. 4, p. 127).

³⁶ Al-Qazwīnī mentions in a story the knot of the horn عقدة قرن الكركدن *'uqdat qarn al-karkadann*, without specifically stating from what part of the horn it comes.

³⁷ “In it is a curve which is convex towards its face and concave towards its back.”

³⁸ 133, vol. 3, p. 100.

to get a true picture of the animal and how much time had to elapse before a realistic representation appeared.

The two-horned varieties of the karkadann, the one from Africa and the other from Sumatra, are only occasionally mentioned.³⁹ Al-Gharnāṭī, with his predilection for the wonderful,⁴⁰ goes so far as to speak of a three-horned karkadann which, according to him, has "one horn between its eyes and two above the ears."⁴¹

The rare reference to a curve in the horn is apparently one of the explanations why only a few illustrations show it. The outstanding example is the miniature in the Morgan *Manāfi'* where the horn is placed on the forehead of the animal and bent forward (pl. 10). There is an obvious relationship between this painting and the accompanying text, which states that the horn is on the forehead, crooked, and near the eye. This representation is quite different from that of the Kevorkian manuscript (pl. 13, upper right) which provides the animal with a long, straight horn in spite of the curvature mentioned in the text and which is at least slightly indicated in the Sarre manuscript (pl. 13, lower). The elephantine karkadann featured in the Beatty al-Qazwīnī manuscript (pl. 14, upper) is the only one to show the feature referred to as the branch or protuberance which, following the more explicit text of al-Damīrī, is said to be on the tip of the horn. The little excrescences on the side are probably the knots of the horn of which al-Qazwīnī and al-Mustawfī speak.

Only in the early sixteenth century did artists become aware of the fact that the horn was actually placed on the nose of

³⁹ Ibn al-Faqīh writing *ca.* 903 (290) (165, p. 90, footnote 1). Al-Bīrūnī and al-Nuwairī mention the two-horned African species and al-Dimashqī that of Sumatra and Java (85, p. 210).

⁴⁰ Al-Gharnāṭī "zeigt sich für das Wunderbare fast ausschliesslich empfänglich" (190, p. 71; see also 152, p. 68).

⁴¹ This report is repeated by al-Damīrī without naming the source. Hubback (128, p. 3) states: "I have seen two heads with what were almost third horns." He refers to the Asiatic two-horned or Sumatran rhinoceros occurring in British Malaya, Borneo, Sumatra, Burma, Siam, and Indo-China. There are also records of three-horned black rhinoceroses in Africa (25, p. 302, footnote; 269, p. 468; 243, p. 423).

the karkadann. However, even after this knowledge had been gained, the animal, as such, was still often misunderstood. Thus a miniature in the al-Qazwīnī of the Princeton University Library, giving a scene on an island in the China Sea where the karkadann is said to live, shows an animal which looks more like a calf although it has a horn on its nose (pl. 15, left). The same manuscript shows a different picture of the karkadann in the chapter dealing with the animal (pl. 15, right). Here a curved white horn is correctly placed on the nose of the bovine beast which retains, however, the traditional long, straight horn on the forehead. It even shows the spiral grooves which indicate that it is the tusk of the narwhal. It is known that such teeth reached the Near East and—as we shall see later on—that they had a certain influence on the representations of the rhinoceros horn. It seems therefore unnecessary to assume that the Persian painter imitated a picture of a Western unicorn. Had he done so, the karkadann would also have had an equine form.

The Princeton miniature also illustrates the one and only romantic feature of the karkadann. If one looks more carefully at the miniature, one notices that the head of the animal is neither unconcernedly lowered nor defiantly raised; it rather expresses rapt and intent listening. According to al-Qazwīnī, the karkadann loves the ring dove (fākhita فاختة) and stands under the tree in which the bird is nesting to enjoy its cooing. The reclining animal is therefore shown listening to the sounds of the small birds in the tree.⁴² Al-Qazwīnī states, too, that

⁴² This feature is obviously a romantic interpretation of a real observation. It is based on the existence of the winged friends of the rhinoceros which feed on its parasites and, at the same time, warn it of approaching danger. This phenomenon has been mentioned in descriptions of the African species in 53, vol. 12, p. 617; 162, pp. 88-89; and 263, p. 240. It is also well illustrated by a group of square-lipped rhinoceroses from the Belgian Congo with accompanying rhino-birds, a variety of ox-pecker, on display in the U.S. National Museum, Washington D. C. Dr. Herbert Friedmann, curator of the division of birds of this museum, has been kind enough to give me an opinion about this relationship of the two animals, especially in Asia: There are a number of kinds of birds that frequently perch on the backs of rhinoceroses, buffaloes, and other large animals, partly to feed on the insect parasites on the animals and partly on the insects scared up by the animals while grazing.

when the bird alights on the horn, the karkadann does not move its head, so as to avoid frightening it away. So far, no miniatures have been found which show this more intimate relationship of rhinoceros and dove.

In none of the texts examined was it possible to find any reference to wings. This feature is to be found mostly on the Spanish ivory boxes and then later in the thirteenth- and fourteenth-century representations of the animal forming a decoration on objects or buildings and in a few *Shāh-nāmah* miniatures. With the exception of the illustration in the thirteenth-century British Museum manuscript of *Na't al-ḥayawān* (pl. 7) and the decorative title page of the al-Qazwīnī manuscript in the Metropolitan Museum (pl. 17) the scientific manuscripts disregard it.⁴³ It is, however, easy to explain the discrepancy between texts and many representations. The texts show that the karkadann was thought to be an exceptionally strong, fierce, and rare animal with qualities which placed it in the monster class. It was not only an exotic animal, but as al-Jāḥiẓ indicated, thought by many to be an imaginary one. It is therefore natural that artistic imagination should give it the same feature which was customarily attributed to representations of sphinxes and griffins.⁴⁴ Furthermore, in the period when the winged representations of the karkadann appear in large numbers in the ornamentation of the decorative arts, even zoological books speak of quadrupeds and human beings with wings.⁴⁵ There is thus a

The common bird of this type in Asia is the cattle egret, a rather small white heron. This association is of mutual benefit to the bird and the large animal. The bird gets its food in this way, and the animal is warned of approaching danger by the action of the bird.

⁴³ Thus the Arabic *Manāfi' al-ḥayawān* in the Bibliothèque Nationale, Arabe 2782, written in 1300 (700), shows an animal without wings as an illustration for its chapter on the karkadann, and the same can be said about the Persian *Manāfi'-i ḥayawān* in the Morgan Library, M.500, which dates from the end of the thirteenth century.

⁴⁴ For sphinxes see 29, pp. 117-122, pl. 55. This study is quoted with reservation since its theory needs critical comment. For griffons see the Hispano-Moresque ivory boxes referred to in footnote 4 of page 4.

⁴⁵ Al-Qazwīnī tells us, e.g., that there is a variety of cat with batlike wings on the Island of Java (217, vol. 1, p. 107; 218, p. 219). He also quotes a

natural tendency on the part of the decorative artist to add wings to animals—even to such well-known ones as lions and hares⁴⁶—so as to add some fabulous and fantastic quality. Wings are therefore not a surprising feature in nonscientific representations of the karkadann.

story of al-Bīrūnī according to which a governor of Asbijāb sent a fox with feathered wings to the Sāmānid Nūḥ b. Maṣṣūr (217, vol. 1, p. 451; 216, p. 40). In his discussion of strange beings, al-Qazwīnī speaks of three different island peoples having human forms and wings (217, vol. 1, pp. 448-450; 216, pp. 30, 32, and 36). These flying men are illustrated in certain al-Qazwīnī manuscripts as, for instance, in the one formerly in the Sarre collection where a green-skinned, black-bearded man is pictured with large red wings and a white man with blue wings.

⁴⁶ For the winged lion see the glass vessel in the Freer Gallery, No. 33.13 (see above, p. 3) and the Stora bucket (117, vol. 6, pl. 1291B). A thirteenth-century gold buckle in the Berlin Museum shows a winged rabbit (226, col. 67; 167, p. 18, No. 193X).

THE KARKADANN ATTACKING OTHER ANIMALS

The two stone sculptures from Konya (pl. 3, middle and lower) no longer treat the karkadann by itself, and they belong, therefore, to another iconographic group. Professor Sarre already realized that these reliefs were not unique specimens and could point to a thirteenth-century Persian luster tile as another example of this group (pl. 18, upper). Further examination of medieval art objects indicates that the motif of the karkadann attacking another animal was fairly popular in the thirteenth and fourteenth centuries.

An obvious place to look for further examples is the animal friezes used on objects of the thirteenth and fourteenth centuries, especially on metalwork. A winged, zoologically undefinable karkadann running behind an elephant thus occurs twice on the large inlaid platter of the first half of the thirteenth century from Syria found in Kāshghar and now in the Hermitage Museum (pl. 18, middle).¹ The same combination of animals is to be found in the upper animal frieze of the large Syrian basin known as the "Baptistère de Saint Louis" of *ca.* 1300 (700) in the Musée du Louvre (pl. 19, upper).² Here it is even possible to establish certain facts about the "unicorn"; it belongs to the equine group and carries on its forehead a long straight horn with horizontal striations.³ Further examples, this time from Iran and in the

¹ The whole plate is illustrated in 233, vol. 2, pl. 153A.

² The whole basin is illustrated in 186, vol. 1, pl. 22; and 117, vol. 6, pl. 1339. I owe the photograph of this detail to the kindness of D. S. Rice.

³ Other metal objects of the thirteenth and fourteenth centuries in whose decorative scheme a karkadann pursues an elephant are: (a) basin of the late thirteenth century (181, pl. 20A; and 264, pl. 10, fig. 2 [the elephant is unfortunately not very distinct in the illustrations]); (b) tray with the name of the Rasūlid Sultan al-Malik al-Muẓaffar Yūsuf (died 1295/694), Cairo, Musée Arabe (67, pl. 47); (c) brazier made for the Rasūlid Sultan al-Malik al-Muẓaffar Yūsuf, Metropolitan Museum (84, fig. 1). Here two such scenes are represented in the animal frieze. This brazier and the tray for the same sultan of Yemen (quoted as "b") were most probably made in Egypt; (d) tray, late thirteenth century, formerly collection of M. Edmond Guérin (185, pl. 19);

ceramic medium, are provided by two nearly identical luster tiles in the Boston Museum of Fine Arts and the Metropolitan Museum. Both show a winged equine karkadann (pl. 19, lower).⁴ These examples indicate that the iconographic combination of unicorn and elephant is not uncommon and it can be assumed that many more specimens will be found. There is, however, one variant which will probably remain rare if not unique. This is shown on a carpet painted in one of the miniatures of the *Maqāmāt* manuscript, dated 1337 (738) in the Bodleian Library (pl. 18, lower).⁵ In this instance the elephant is attacked by another gray animal of nearly equal size, but with different ears, a peculiar forehead, and without a trunk. It has two horns on its nose, and it uses the longer one in front as the weapon to pierce the rump of the elephant. There seems hardly any doubt that in this case the karkadann is meant to be the two-horned African rhinoceros. The artist's choice of this species for his carpet can easily be understood when one realizes that this manuscript was executed in Mameluke Egypt and that the text of the nearly contemporary Egyptian writer al-Nuwairi (died 1332) proves that people in fourteenth-century Egypt knew about the two-horned rhinoceros.⁶

A different type of hunted animal is represented in the lowest register of the inlaid Mosul candlesticks from the middle of the thirteenth century in the Metropolitan Museum. It shows in two places not an elephantine monster, but a deer as the animal pursued by a karkadann, one resembling a horse,

(e) tray, Egypt, thirteenth or fourteenth century, Metropolitan Museum No. 91.1.604, unpublished. In the outer frieze a winged equine unicorn pursues the elephant, while the inner animal frieze shows a more bearlike unicorn as the attacker; (f) candlestick, Egypt, fourteenth century (214, vol. 3, pl. 169); (g) plate, Syria, fourteenth century, Eustache de Lorey collection (79, pp. 56-57, No. 193, illustrated).

⁴ The Boston piece is here illustrated. The still unpublished Metropolitan Museum tile has the number 40.181.10.

⁵ The whole miniature is illustrated in 29, pl. 12c; and 125, fig. 9. Holter established the Mameluke origin of the paintings in this manuscript (126, p. 29, No. 77; 125, pp. 1-14).

⁶ 201, vol. 9, p. 315.

and the other more like an antelope.⁷ Such a deviation from the more common iconography occurs also among the enameled glasses of the fourteenth century, witness the covered vessel of Mr. Kevorkian, in New York (pl. 20). On its main band a winged onagerlike unicorn attacks with its long horn a winged creature which is part antelope and part rabbit. This scene is a unit in a decorative frieze that includes other fantastic animals such as griffins and sphinxes. This iconographic type occurs also in a carpet design as late as the seventeenth century as indicated by a Mughal rug in the Widener collection of the National Gallery in Washington. Here it is, however, a realistically rendered rhinoceros that pursues the deer (pl. 21).⁸ These are typical examples of many similar cases.

Sometimes an artist combines the two basic iconographic types of this group and represents in a single animal frieze several unicorns which attack both elephants and other animals. Such a piece is, for instance, the large tray made for the Rasūlid Sultan al-Malik al-Mu'ayyad Hizabr al-dunyā wa'l-dīn Dā'ūd (1296-1321/696-721) which displays in its framing frieze three unicorns which attack an elephant, a lion, and a feline beast.⁹

It might be assumed that the motif of the attacking karkadann is just another variation of the typical Seljuk and post-Seljuk design of animals chasing each other. However this may be in the case of other animals, the attacking karkadann illustrates a feature that is not merely a chance creation of

⁷ Unfortunately the scenes are not on the side of the candlestick illustrated in 81, fig. 87.

⁸ Illustrated in color in 80, pl. 36. It might be suggested that this carpet also shows a karkadann-elephant fight. Along the lower edge a winged quadruped is seen pursuing an elephant. The monster is so close to certain representations of the karkadann that one can assume it to be identical with this animal although it is shown without a horn. The lack of such a vital distinguishing feature can be explained by the late date of the carpet, its manufacture at a court where folklore had little appeal, and the hodgepodge character of the piece. The animal which we have tentatively identified as a karkadann occurs again, right behind the realistically rendered rhinoceros, so that we would have here two manifestations of the same animal.

⁹ 84, fig. 2, which is unfortunately not very distinct. The piece is of Egyptian workmanship.

the artist and thus without significance, but actually the pictorial expression of a characteristic trait associated with the karkadann.

The background of this particular myth is the proverbial fierceness and strength of the animal of which even the earliest writers speak.¹⁰ No wonder one reads that no animal can withstand it.¹¹ They all fear it and flee from it, especially since the karkadann is quickly angered and never fails in attack.¹² "When the karkadann is in a certain territory, no other animal will graze anywhere in that territory unless there is between it and the karkadann a distance of 100 parasangs (about 375 miles) in all directions, because they are afraid of the karkadann, acknowledge its superiority, and flee from it."¹³ It kills the lion,¹⁴ but the most convincing proof of the animal's strength and fierceness is the fact that it is the arch-foe of the giant among animals, i.e., the elephant. This unhappy creature tries to escape it but nevertheless falls victim to its horn. Al-Jāhīz gives the following version: "They believe that the karkadann often gores the elephant and lifts it upon its single horn,"¹⁵ although he does not quite believe this tale because, to him, it sounds more like idle talk. Nevertheless, this account occurs again and again and is varied only in details. Thus, al-Qazwīnī tells us that "when the karkadann sees an elephant, he approaches it from behind, strikes its belly with its horn, stands on its hind legs and lifts the elephant until it is impaled on its horn." Hence Firdawsī applies to the karg the epithet "elephant-vanquisher."¹⁶

Practically all representations show the chase of a deer,

¹⁰ Al-Jāhīz states that these two qualities are proverbial with the people (145, vol. 7, p. 42), and the *Akhhbār al-Šīn wa 'l-Hind* claims that no animal equals it in strength, an opinion repeated by al-Mas'ūdī (184, vol. 1, p. 385).

¹¹ 217, vol. 1, p. 402.

¹² 217, vol. 1, p. 402; also al-Mustawfī.

¹³ 145, vol. 7, p. 40. This opinion is also held by al-Qazwīnī and al-Damīrī.

¹⁴ 165, p. 94, footnote 2, referring to Ibn al-Faḡīh. Firdawsī also speaks of the شیر اوژن *karg-i shīr-awzhan*, "the lion-quelling rhinoceros" (102, vol. 4, p. 318, line 478; see also p. 494, line 1605).

¹⁵ 145, vol. 7, p. 42.

¹⁶ پیل گیر *pīl-gīr* (102, vol. 5, p. 202, line 1213).

antelope, or elephant with the karkadann right behind its victim. The painter of the *'Ajā'ib al-makhlūqāt* manuscript in the Walters Art Gallery, however, illustrated the final phase of the fierce fight when the hapless elephant was impaled on the horn of the karkadann (pl. 22).

Al-Qazwīnī gives also a specific account of what happens to the karkadann once it has vanquished the elephant; “. . . when the karkadann is caught, it wants to free itself from the elephant but is unable to do so. Then it falls on the ground and both the rhinoceros and the elephant die.”¹⁷ Al-Mustawfī uses a good reason, though based on a wrong premise, why the horn of the karkadann cannot be withdrawn from the elephant's body after its bulky corpse has been lifted up on the horn: the “protuberance,” the curve of which runs counter to that of the horn, naturally makes it impossible to extract the deadly weapon.

In contrast to the authors so far quoted, according to whom the interlocking bodies of the two giant animals accounted for the death of the karkadann, other writers had different conceptions of what would happen once the elephant was impaled. Thus al-Jāhīz says mysteriously that the karkadann feels the presence of the dead elephant on its horn only when it decomposes.¹⁸ Later authors have taken up this suggestion and like al-Dimashqī and al-Mustawfī elaborated on it. The last-named author, for instance, says that “the elephant's fat gets into the eyes of the karkadann and blinds it and both die.” The second voyage of Sindbad the sailor in the *Arabian Nights* also follows this version; however, after having gruesomely told that the karkadann becomes blind from the fat of the elephant which has melted in the heat of the sun, the story continues, introducing a third animal: “. . . then the karkadann lies down upon the shore and the rukh comes and

¹⁷ This story is only slightly varied by the *Manāfi'-i hayavān* which has the karkadann standing on its hind legs, raising up its front legs when it strikes at the shoulder of the elephant. In this account, too, the karkadann cannot pull out its horn and remains stuck to its giant prey until both perish (5, fol. 15A).

¹⁸ 145, vol. 7, p. 42.

carries it off in its talons to its young ones and feeds them with it and with that which is upon its horn.”¹⁹

A third theory explaining the death of the giant animals is given by al-Nuwairī for whom neither the decomposed substance of the elephant nor the inability of the rhinoceros to extract its horn from the victim’s belly are apparently valid enough reasons to account for the death of both animals. He states that the horn of the karkadann is poisonous and thus kills the elephant, and since the blood of the elephant is likewise poison, the rhinoceros, too, is doomed.²⁰

To these accounts of the elephant and the karkadann some further comment should be added. First, the time has now come to return once more to the representation of the sharav which the artist had substituted for the karkadann in the Berlin al-Qazwīnī manuscript (pp. 19 f. and pl. 13, upper left). A further examination of al-Bīrūnī’s account shows that the sharav, too, “attacks the elephant and cleaves it in two.”²¹ But it is not only this feature common to both Indian animals which lead to their being exchanged for each other. Al-Bīrūnī concludes his report with the following statement: “According to popular tales it sometimes rams an animal with its horn, raises it or part of it toward its back so that it comes to ride between its ‘upper feet.’ There it becomes a putrid mass of worms which work their way into the back of the animal. In consequence, it finally perishes.” Since these details of the untimely death of the sharav through the decaying animal impaled on its back are more specific than those given in the earliest sources for the karkadann, they may possibly be the prototype for it and may have been transferred from the one animal to the other. In any case, it seems not surprising that this sharing of certain features and assimilation of others

¹⁹ Littmann assumes that the stories of Sindbad the sailor were probably put together in Baghdad in the eleventh or twelfth century. The main source is said to be the accounts of the *Wonders of India* by the Persian sea captain Buzurg b. Shahriyār of the first half of the tenth century (21, vol. 6, pp. 747-748).

²⁰ 201, vol. 7, p. 316.

²¹ 45, pp. 22 and 25; 44, vol. 1, p. 203.

led, eventually, to the substitution of the sharav for the karkadann in the Berlin manuscript.

Our second comment is aimed at the account of the *Arabian Nights* which brings together karkadann, elephant, and the rukh. Other texts dealing with the 'anqā' or simurgh, the equivalents of the rukh,²² throw further light on the relationship of these animals. According to al-Qazwīnī the 'anqā' lives on some islands in the ocean on which many animals live, amongst them, the karkadann. The 'anqā' hunts only the elephant, large fish, and giant snakes, and leaves the other animals because they have submitted to it.²³ This preference of the mythical bird for the elephant has some influence on the iconography of Persian paintings.²⁴ It explains, for instance, the title page of a fifteenth-century al-Qazwīnī manuscript in the Metropolitan Museum. Below the roundel with the title of the book is a little scene which shows how a winged karkadann warily watches an 'anqā' that is attacking its own prey, the elephant (pl. 17). Since, according to al-Qazwīnī, the karkadann is one of the animals which became subject to the 'anqā', it has to desist from attacking its usual prey. It is obviously this mental association of the fabulous bird with the elephant and the karkadann which accounts for the combination of the three animals in the *Mu'nis al-aḥrār* miniature of 1341 (741) in the Cleveland Museum (pl. 8) and most probably also for the design on the carpet in the *Maqāmāt* of 1337 (738) in the Bodleian Library (pl. 18, lower).²⁵

²² See, for instance, the verse of the *Shāh-nāmah* about the simurgh stating that "with its claws it beareth off the elephant at sight" (102, vol. 4, pp. 508-509, line 1783; 103, vol. 5, p. 132).

²³ 217, vol. 1, p. 420. The *Manāfi-i hayāvān* makes not only the elephant, buffalo, and ox the victim of the simurgh, but also the karkadann (5, fol. 55b).

²⁴ The copy of an alleged Persian drawing of the bird carrying two elephants in its talons and one in its beak in 22, vol. 3, p. 90, and republished in 210, vol. 2, p. 415, is rather naturalistic and therefore of fairly recent date, or at least a recent adaptation of an older version. In its present appearance it has hardly any Persian or Muslim character.

²⁵ The bird on this carpet looks somewhat like an ostrich. Since the 'anqā' is said to be the largest of the birds, it is not surprising to find that it is reproduced in the shape of the largest living bird. This interpretation of an Egyptian painter—if we are right in assuming that he represented an 'anqā'—

Karkadann and rukh are, as we have seen, the most powerful land animal and the most powerful bird to hunt the elephant. In fact, their relationship is so close that they were often confused, one for the other. This ambiguity of identification is revealed in different sources and extends even to the names themselves, as shown by the entries for *kargadan* in the dictionaries of Johnson and Steingass which give the following translation for the Persian word: "The rhinoceros; a huge kind of bird which pursues an elephant ten years old."²⁶ Unfortunately these two authorities do not quote their sources and it is, therefore, not possible to investigate the basis for this information. There is, however, a text which demonstrates that the two animals were, indeed, identified with each other. Al-Jāḥiẓ tells us that he disagrees with people who identify the karkadann with the 'anqā': ". . . they believe that the karkadann and the 'anqā' mughrib are alike, although they are used to seeing the designs of the 'anqā' pictured on the carpets of the kings."²⁷ What al-Jāḥiẓ apparently had in mind was that the rugs showed a bird and not a quadruped with a single horn on its forehead and the two animals were therefore quite different. The erroneous identification was natural, since the 'anqā' was admittedly an imaginary animal and the karkadann, too, was, as al-Jāḥiẓ tells us, sometimes thought to belong to the same category.²⁸ The confusion of the two terms, probably nurtured by the fact that both animals in question hunt the elephant, seems to have continued long

differs from an account in the *History* of Aḥmad b. 'Abd Allāh b. Aḥmad al-Farghānī (died 1007 [398]), as told by Ibn Khallikān and then quoted by al-Damīrī. According to this source the Fatimid Caliph al-'Azīz had in his collection of strange animals an 'anqā' from Upper Egypt, which "was of the length of a heron but bigger than it in body. It had a beard, and there was a hood on its head; there were several colours and points of resemblance to many birds in it" (77, vol. 2, p. 196, lines 2-6; 78, vol. 2, part 1, p. 405). This report shows at least that in Egyptian eyes the 'anqā' resembled certain unnamed but well-known birds, a fact which opened many possibilities for the painter.

²⁶ 149, p. 1005; 250, p. 1024; Vullers (268, vol. 2, p. 820) gives only the meaning rhinoceros.

²⁷ 145, vol. 7, p. 29. This, by the way, is perhaps the earliest Muslim reference to an animal carpet.

²⁸ 145, vol. 7, p. 29.

after the period of al-Jāhiz. This might explain the fact that al-Mustawfi calls the sharav (which is related to and thus substituted for the karkadann) by the name of rukh.²⁹

It was apparently known that the land monster and the giant bird had a common name, but instead of karkadann (kargadan), the usual Persian term for the terrestrial animal, al-Mustawfi erroneously selected the name of the bird rukh as the designation for both creatures. Verbal confusion just as well as popular imagination has thus affected animal lore.³⁰

²⁹ He (191, pp. 43-44, translation pp. 30-31) uses the bird's name although he gives al-Bīrūnī and 'Awfi as his source, both of whom have sharav.

³⁰ A verbal association centering around the word *karg* may have influenced the painter of the Cleveland miniature (pl. 8) in his choice of a fourth animal for his series. It is a vulture, Persian کرگس *kargas*, literally "fowl eater"; the first syllable of this word might have formed the mental connection with *karg-karkadann* which together with the elephant and the *simurgh* form the content of the miniature.

THE HUNT OF THE KARKADANN

The third iconographic type is represented by scenes in which the unicorn is itself attacked by man. If one takes the Arab authors at their face value such a happening seems well-nigh impossible in view of the ferociousness of the karkadann. Al-Damīrī is quite specific in this respect and states that "it is very hostile to man; when it smells him or hears his voice it pursues him, and after having reached him kills him without eating anything of the corpse." This motif is not as frequent in the accounts of the rhinoceros as, for instance, those of the death struggle with the elephant, but it is nevertheless found in several important texts. However, according to the character of the hunter's tale on which they are based the stories vary a great deal. Ibn Faḍlān, for instance, quotes the account of the Volga Bulgars of how the rhinoceros uses its horn to lift a rider from his horse and to throw him repeatedly into the air always catching him again with its horn until the wretched victim is killed. On the other hand this writer assures us that the beast never attacks the horse of the rider.¹ According to al-Nuwairī an equal enmity to man is shown by the two-horned African variety of the animal, although the mode of attack is said to be different. Once the hunter has been noticed by the rhinoceros he is forced to rescue himself by a quick flight up a tree, a stratagem which in many cases does not help, since the monster breaks the tree by assault and kills the man. Only when the man urinates on the ear of the animal is he able to put his attacker to flight. On the other hand, the horn is not always regarded as the murderous weapon of the animal, for Aḥmad Ṭūsī reports that the hunt of the rhinoceros is difficult because its voice is deadly.²

¹ 134, Arabic p. 34, translation p. 76.

² 134, p. 78 (footnote 1 of the preceding page). Actually the squealing or quacking noise made by a rhinoceros when he gets human scent and is alarmed has been compared to something between the bark of a dog and the quack of a duck (128, p. 11); the same observer speaks of the "squeaking noise"

Fanciful as some of these accounts are they nevertheless demonstrate the great awe in which the animal was held and the difficulties encountered in hunting it. As a matter of fact, these statements were based on experience and observation and they are therefore fundamentally true. Yet in spite of all hazards—real and imaginary—man successfully attacked the rhinoceros and killed it; however, the task was so formidable that it formed a theme in legends and later on was even thought to be worthy of historical record. Both these types of reports have been glorified by painters.

The scenes in which a legendary hero kills the "unicorn" are mainly represented in the *Shāh-nāmāh* illustrations. Although such pictures are not too common,³ several of them have been discovered in the course of this investigation. There must be many more which have not yet been published or are not even recorded.

The first hero in the *Shāh-nāmāh* to perform this deed of prowess is Gushtāsp while exiled in the land of Rūm. When Mirin, a Rūman noble, asks for the hand of the second daughter of Caesar, he is told that he would be accepted only after having killed the monster. Being unequal to performing the task, Mirin enlists the help of Gushtāsp who, on foot, vanquishes the beast on his behalf without revealing the secret.⁴ Gushtāsp's son Isfandiyār kills two such animals as the first of the seven feats he has to perform on the way to the Iron Fortress where his sisters are kept prisoners.⁵ When Iskandar is in the land of Ḥabash (Ethiopia) he encounters a whole pack of the African variety of the animal and slays their

of the undisturbed animal (128, p. 12), and he mentions also the "tremendous snorts, more like an engine blowing off steam than anything else" (128, pp. 6 and 11). In both cases he is referring to the Asiatic two-horned rhinoceros observed in British Malaya, the behavior of which is not different, however, from that of the Indian and African species. Blanford (48, p. 474) speaks of "a peculiar grunt" as the only sound produced by the great Indian rhinoceros.

³ None is illustrated in the study devoted to the miniatures of twenty *Shāh-nāmāh* manuscripts in the Leningrad libraries (108, pls. 1-50).

⁴ The story is told in 102, vol. 4, pp. 304 ff.; and the killing of the animal on pp. 311 ff.; 103, vol. 4, pp. 333 ff. and 337 ff. respectively.

⁵ 102, vol. 4, pp. 490 ff.; 103, vol. 5, pp. 119 ff.

leader.⁶ The fourth hero to combat the animal successfully is the mighty hunter Bahrām Gūr, who performs this feat while he is disguised as the ambassador of the Shah of Iran to the court of Shangul of India.⁷ How popular belief evaluated the immensity of the task of killing a rhinoceros is shown by the fact that it is put on the same level as the killing of a dragon which in the case of all four *Shāh-nāmah* heroes follows as a subsequent exploit.

When one looks over the miniatures illustrating these fights with the monster, the differences in the representations of the same animal again become obvious. They include some of the types discussed on earlier pages, but also a new and unexpected species, a wolflike beast, which is characteristic of the *Shāh-nāmah*. The cause of this profusion of types cannot be blamed on the unbridled imagination of the artists who might, quite erroneously, be suspected of having represented the animals according to their fancy. It is the double meaning of the basic term and the verbal ambiguities of the description which lead to uncertainty and thus to mental confusion. While the poet could be vague and suggestive, the painter had to find a solution which was often ingenious, though the zoological reconstruction from literary tidbits is usually at great variance with nature, and, of course, also with representations in other manuscripts.

In Firdawsī's text the animal is called کَرک which, owing to the lack of diacritical marks in early manuscripts, when applied to a quadruped can be read as gurg (wolf) or karg (rhinoceros). The first, being a common word, suggests itself more readily. To make the issue even more confusing the text is nowhere precise enough to enable the reader to choose between the two. In the stories of Gushtāsp and Isfandiyār the word is rhymed with *suturg* (large) and *buzurg* (big), thus pointing to gurg (wolf), and in the accounts of Iskandar and Bahrām Gūr with *targ* (helmet), *tagarg* (hailstone), and *marg* (death) indicating the form karg.⁸ In the poem, Gusht-

⁶ 102, vol. 5, p. 200; 103, vol. 6, p. 149.

⁷ 102, vol. 6, pp. 36 ff.; 103, vol. 7, pp. 121 ff.

⁸ Wolff (280, p. 704) points to these different rhyming words in his discus-

āsp himself is made to express his astonishment that foolish men should have given the name of gurg to a monster which he regards as a dragon.⁹ No wonder that the illustrators of the *Shāh-nāmah* have mistaken the wolf for the rhinoceros.¹⁰ The verbal ambiguity is cleared up, however, when the character of the animal is analyzed and, in all four cases, is found to be of the same general type: It is a huge dark-colored monster, like an elephant, of ferocious nature; and it charges its foes furiously so that all animals and even brave men avoid or flee it. Characteristically, elephants are no exception to the rule. It terrorizes the whole countryside and victory over it is a matter of royal acclaim and honor. What makes it definite that the animal is the rhinoceros—even when its Persian name is, on account of the rhyme, to be read gurg—is the fact that it has but one horn, sometimes described as being dark or even black.¹¹ The only misleading conception of the poet is to compare this horn with that of the stag.¹² It is this poetical expression that induces the artist in some cases to depict the animal in antelopelike fashion. But even the ambiguities which pointed either to a wolf or a stag were not the only ones to harass the painter since Firdawsī speaks also

sion of گرگ B, which, according to him, should for various reasons be read karg.

⁹ 102, vol. 4, p. 308, line 362, and p. 310, line 386.

¹⁰ The same applies also to translations like those of Mohl (who always speaks of "loup") and the Warners; in the case of the animal killed by Bahrām Gūr, Messrs. Warner realize, however, that the word "ought perhaps be read as karg, rhinoceros" on account of the rhyme (103, vol. 7, p. 121, footnote 1). Nöldeke definitely states that the animal killed by Bahrām Gūr is a karg, rhinoceros, not a gurg, wolf (200, p. 47).

In view of the ambiguity of the Persian text, the rendering of کرک as "loup" or "wolf" in the most widely used translations and finally the wolflike representations of the animal in Persian miniatures, it is not surprising to find that Western captions of *Shāh-nāmah* illustrations nearly always speak of a "wolf."

¹¹ Another proof that the animal was understood as rhinoceros is the caption of the Demotte *Shāh-nāmah* miniature (pl. 9) which does not use the ambiguous term کرک but کر کردن.

¹² See p. 18, footnote 29.

of the claws of a lion and two tusks like those of an elephant or boar.¹³

When an artist was faced with the dilemma of illustrating such a strange beast, one way out of the difficulty was to follow the text as literally as possible and combine all the main features in portraying the animal. This happened in the Isfandiyār scene in the manuscript of 1429-1430 (833) in the Gulistān Palace in Teheran (pl. 23).¹⁴ Here the artist shows two large wolves with long tusks, leonine paws, and a single antlerlike horn on the head of the male animal. Whatever one might think of these two creatures from a zoological point of view, which indeed does not matter here, as an artist and illustrator the painter accomplishes his task with imagination and spirit.

The gurg or lupine type in *Shāh-nāmāh* illustrations can be traced back as far as the fourteenth century in two paintings showing the exploit of Bahrām Gūr. One is from the Demotte manuscript in the collection of the late Mrs. John D. Rockefeller¹⁵ and the other from a small-sized Mongol manuscript now in the Freer Gallery (pl. 25).¹⁶ The choice of this animal-type for scenes with this particular king is revealing, because the text calls the beast killed by him not a gurg, but a karg. Quite obviously both terms mean the same beast.

In some instances, the descriptive text cannot be found to justify certain details in an illustration; however, such references will appear elsewhere in the epic in accounts of other heroes battling with the rhinoceros. Thus Firdawsī does not speak of the tusks of a boar which the artist of the Rocke-

¹³ These tusks دندان دراز are such a vital feature that Gushtāsp takes them with him after he has slain the animal (102, vol. 4, p. 312, line 407; 103, vol. 4, p. 338).

¹⁴ About the manuscript see 43, pp. 69-71, pls. 43-50; 154, vol. 3, pp. 1851-1852, vol. 5, pls. 869-874. The miniature (first published in 43, p. 71, No. 49, and illustrated on pl. 47B), the two paintings in the Demotte *Shāh-nāmāh*, and one of the miniatures in the Myers collection (pl. 24, lower), are—to my knowledge—the only *Shāh-nāmāh* scenes showing the fight with the کرگ so far published.

¹⁵ 54, p. 111, No. 53 and fig. 26; 194, fig. 10.

¹⁶ No. 30.10A, unpublished.

feller miniature depicts; they are mentioned only in the case of the gurg killed by Gushtāsp.¹⁷ All this indicates that the animals encountered by the four heroes—be they gurg or karg—were understood to be the same animal and their respective features were thus interchangeable to the artist. In other respects, however, the painters of the two miniatures took the text more literally. In the Rockefeller miniature the awe-inspiring carcass with its very long, slightly curved horn, is indeed of “bulk so vast” that the picture makes one believe that “lions fled the woods before it.” The painter of the Freer miniature, on the other hand, is interested only in a simple and direct presentation of facts and not in the emotional aspect of the scene, and his “wolf,” distinguished by size and wings, does not arouse the hideous horror of the other painting.

In other instances the artist ignores the lupine aspect of the beast and presents it in the shape of an antelope with a huge single horn on its forehead. The earliest example so far found is in the *Shāh-nāmah* of the first half of the fourteenth century in the collection of George Hewitt Myers, Washington, D. C. (pl. 24, lower). Here Iskandar is shown killing the Ethiopian karg in the form of a stag whose monstrous character is underlined by flames above the front legs. Another fine example is a miniature from a manuscript of the second half of the fifteenth century, in the Bibliothèque Nationale, Paris, in which Gushtāsp is shown killing the animal (pl. 26). Here again text and painting do not seem to match, since the text speaks of a gurg while the painting shows an animal which is certainly not a wolf. By now we realize, however, that this discrepancy is not a real issue.

The problem was often solved within a manuscript by having illustrations of two battle scenes, each with a different type of animal, and thus the confusion in nomenclature was overcome. In the small-sized *Shāh-nāmah* in the Myers collection, Gushtāsp is depicted as the slayer of a lion-unicorn while Iskandar kills a stag (pl. 24). Both animals have a large

¹⁷ The animals killed by Isfandiyār are said to have elephant's tusks (102, vol. 4, p. 494, line 1606).

single horn on their forehead and, following a convention of certain Chinese legendary monsters, they also display large flames which emanate from above their front legs. At about the same time the Demotte *Shāh-nāmah* has Iskandar fighting a leonine monster (pl. 9) while Bahrām Gūr kills a wolf; here the only feature common to both is the long single horn on their foreheads. However, even this all-important trait is not always shown. For example, Isfandiyār is battling four ordinary—that is to say hornless—wolves (instead of the two mentioned in the text) in a *Shāh-nāmah* written in 1497 (902) in the Kevorkian collection (pl. 28) while Bahrām Gūr kills a single-horned antelope in another miniature of the same manuscript (pl. 27). When one compares the animal in this painting with that of the Rockefeller miniature which also shows Bahrām Gūr in his fight, the two types of karg make it obvious at once that there is no iconographic consistency that matches each hero with a specific animal. Other miniatures give further proof of this. In the *Shāh-nāmah* dated 1605-1608 (1014-1016) in the Metropolitan Museum, Isfandiyār is seen killing two deer with the horns of a rhinoceros on their noses (pl. 29),¹⁸ although in the Kevorkian miniature the same hero is fighting four wolves (pl. 28). However, a *Shāh-nāmah* of 1544 (951) in the Princeton University Library has at least this in common with the above-mentioned manuscript in the Metropolitan Museum, that in both cases we have an ordinary wolf slain by Gushtāsp while the antelope with the rhinoceros horn killed by Isfandiyār in the Metropolitan Museum manuscript corresponds to a real rhinoceros in the Princeton codex (pl. 30).¹⁹ All one can say from the relatively few examples so far tracked down is that when two combat scenes are shown in one manuscript one represents a wolf and the other a one-horned animal, usually an antelope. Since the text of the *Shāh-nāmah* speaks definitely of a gurg in the fights of Gushtāsp and Isfandiyār, a certain preference for the wolf-

¹⁸ 193, pp. 20-27. The miniatures showing a fight against the karg, No. 55 (Gushtāsp) on fol. 316a and No. 58 (Isfandiyār) on fol. 344a, are not illustrated in the catalog.

¹⁹ 106, p. 1, No. 1 (56 G).

like beast might possibly exist in the miniatures showing these two heroes. After the early sixteenth century the one-horned animal reveals features of the rhinoceros, be it only in the correct position of the horn or in the whole body structure. How the different animal types are distributed among the manuscripts so far described is demonstrated by chart A.²⁰

The comparative frequency of the various *karg* scenes can best be judged by taking a large collection of *Shāh-nāmah* manuscripts as a basis of investigation. Fortunately we have the descriptive catalog of the manuscripts in the Leningrad libraries available for such a survey.²¹ These libraries own 21 illuminated manuscripts dating from 1333 to the nineteenth century and have in a single manuscript as few as seven and as many as 192 miniatures. One can therefore assume that they provide a fairly representative cross section of the *Shāh-nāmah* iconography. Of these 21 manuscripts three showed a single combat scene with a *karg* per volume and four have two scenes. The distribution of the subject becomes clear from chart B.

Combining the data provided by both chart A and chart B, one can state that no single manuscript seems to have more than two scenes. One can further assume that scenes with Gushtāsp and Isfandiyār are probably more common than those showing Bahrām Gūr. The miniatures with Iskandar are rare. Finally one can say that the more miniatures a manuscript has the greater the likelihood is that one or two of the four scenes are represented, since the scenes were found in manuscripts with a miniature range of 29-192; only one manuscript in this group had less than 50 miniatures. On the other hand, manuscripts in which the scene is missing contain only from 7 to 64 miniatures and only three of these contain over 50.

²⁰ This chart is only approximately correct, since not all paintings in the now cut-up manuscripts are known; I have also not been able to examine the manuscript in the Bibliothèque Nationale which may contain another *karg* miniature.

²¹ 109, pp. 1-122. I am indebted to Dr. Sidney Glazer of the Library of Congress for having kindly translated for me the pertinent passages of the Russian text.

The fight with the monster, our third iconographic type, is not restricted to illustrations of the *Shāh-nāmah*. It is also to be found in the decoration of an implement of daily use from outside Persia, namely, a richly decorated unglazed water jar from Mosul. In two slightly varying scenes the hero kills a winged unicorn of the equine type, though with the front legs of a carnivore, the hind legs of a bird of prey, and a tail ending in a dragon's head (pl. 31, left).²² It is hard

CHART A.—*The distribution of animal types in eight Shāh-nāmah manuscripts*

Heroes	Denotte ms.; ca 1320	G. H. Myers; 1st half of 14th cent.	Freer Gall.; 1st half of 14th cent.	Gulistan Palace; 1429	Bibliothèque Nationale; 15th cent.	Kevorkian; 1497	Princeton Univ. Libr.; 1544	Metrop. Museum; 1005-08
Gushtāsp		lion			antelope		wolf	wolf
Isfandiyār				wolf		wolf	rhinoceros	antelope
Iskandar	lion?	stag						
Bahrām Gūr	wolf		wolf			antelope		

CHART B.—*The frequency and distribution of karg miniatures in Leningrad Shāh-nāmah manuscripts*

Heroes	Cat. No. 4 1445 (849); 29 miniat.	Cat. No. 6 Middle 15th cent.; 74 miniat.	Cat. No. 15 1598-99 (1007); 59 miniat.	Cat. No. 17 1630 (1039); 75 miniat.	Cat. No. 18 1642-50 (1052-61); 192 miniat.	Cat. No. 25 1726 (1138); 143 miniat.	Cat. No. 27 1855 (1271); 48 miniat.
Gushtāsp		X	X	X	X	X	
Isfandiyār		X	X		X		X
Iskandar							
Bahrām Gūr	X					X	

to say which legendary person is represented. Three of the heroes described in the *Shāh-nāmah* are purely Persian;²³ only the fourth, Iskandar, the Dhu 'l-Qarnain of the Koran, would be known in an Arab country. But there is another, better approach to the problem. Professor Sarre compared the motif on the jar with the Persepolis relief showing a king fighting a "unicorn" (pl. 31, right). He was right in assuming a revival of an ancient motif. However, instead of regarding a

²² 229, columns 8-11; 231, p. 228, pls. 105-106. In one scene the killer seizes the horn of the animal; in the other, one of its front legs.

²³ Gushtāsp, Isfandiyār, and Bahrām Gūr.

piece of architectural sculpture from outside Mesopotamia as the possible prototype, it might be better to look for an object from Mesopotamia itself, preferably an object of the minor arts. Scenes with a genius or king fighting a winged equine beast with a single horn on its forehead, as found on seals, give a good idea of what might have served as an indigenous model (fig. 1).²⁴ When one assumes such a survival of an age-old iconographic theme, one should also consider a local interpretation for the scene. One is led to this conclusion by the description of Persepolis in Ibn al-Balkhi's twelfth-century account of Fars. When discussing the same series of reliefs



FIG. 1.—Seal impression. Divine hero killing a winged bull. Mesopotamia, ca. 1200 B.C. Formerly collection of Prof. Ernst Herzfeld. (After 123, pt. 2, fig. 135a.)

to which Professor Sarre had been referring in his discussion of the Mosul jar, the medieval Persian writer did not identify the hunter in the sculpture with one of the four heroes of the *Shāh-nāmah*, familiar though they must have been to him; he called him Jamshīd, because the ruins of the palaces were locally connected with this mythical Persian king.²⁵ On the other hand, Ibn al-Balkhi's identification of the Persepolis animal as a karkadann makes it fairly certain that the monster

²⁴ 123, teil 2, fig. 135A. Compare especially the winged equine body, the seizing of the beast's forelegs which are raised, and the short garment of the slayer. Cf. also figures 148, 151, 216, 218, and 223 for partial aspects of the iconographic type. See also 270, p. 201, No. 580; 272, vol. 2, Nos. 323, 343, and 348; 267, pp. 232-233, No. 1 and fig. 1.

²⁵ 132, p. 127; 131, p. 27.

on the Mosul jar was given the same name (see also pp. 67 f.).

The killing of rhinoceroses in historical times is recorded at a fairly early date.²⁶ In 922 (310) the Bulgars told Ibn Faḍlān how bowmen armed with poisoned arrows climb up a high tree above the resting place of the animal and kill it from this safe hide-out.²⁷ About the same time a Muslim ambassador to the Chinese court gives the emperor a similar account of the way in which the rhinoceros is hunted.²⁸ As we shall see later on, the horn of the rhinoceros was a valuable commodity exported by Muslim traders to the Far East, and it seems reasonable to suppose that many of these were taken from hunted animals.

Reports of rhinoceros hunts have come down to us from at least the late fourteenth century on.²⁹ According to the *Zafar-nāmah*, Timūr once killed several animals with sword and spear on the frontier of Kashmir and the scene is therefore

²⁶ One of these reports sounds somewhat fantastic, but its theme is of literary significance. Marvazī tells us that "one way of hunting the rhinoceros is for a man to shelter himself behind a huge tree which the animal cannot uproot or break, then to shout at it and rouse it; it will charge at the tree, striking it with the horn which sticks in the tree. The animal is then unable to extract the horn and people kept in readiness come out and kill it" (6, fol. 136a; 7, fol. 90a). This ruse is also employed in Grimms' *Fairy Tales* in the story of "Das tapfere Schneiderlein" (114, vol. 1, p. 115) in which the Brothers Grimm followed the earlier version of Martin Montanus (died after 1566) (112, p. 144). Shakespeare, too, states that "unicorns may be betrayed with trees" (Julius Caesar, act II, scene 1). In the letter of Prester John it is the lion that uses this method to kill the unicorn (242, pp. 241-242), and it is also referred to in Spenser's *Faerie Queene* (64, p. 426). Although it seems rather unlikely that a rhinoceros was deliberately hunted in this manner, incidents of such a nature have occurred. To quote one example: "A rhino once charged a tree up which a man had climbed to escape the beast's onslaught. The rhino's horn buried itself eight inches deep into the trunk and split the tree four inches up and down of the point of impact. The horn was so deeply imbedded that before the rhino could tug itself free it was shot by a companion of the man it had charged" (161, p. 80).

²⁷ 134, Arabic p. 34, translation p. 76.

²⁸ 71, p. 118. This is confirmed by modern writers with regard to the hunting of the animal in the interior of Africa along the river Batha (53, vol. 12, p. 618).

²⁹ The *Ta'rikh-i Mubārak-Shāhī* (quoted in 282, p. 762) states: "In the month of Zi-l-Ka'da of the same year (ca. 1387) he (Prince Muhammad Khan) went to the mountains of Sirmor (west of the Jumna) and spent two months in hunting the rhinoceros and the elk."

occasionally represented in manuscripts of the text such as in the copy of 1523 (929) in the British Museum.³⁰ It was quite natural that the Mughal emperors went rhinoceros hunting. Bābur relates in his memoirs how he went to a karg-khānah or rhinoceros haunt on the Sawātī in 1519 and set fire to the brush to drive out the animals. A calf which had been badly scorched by the fire and found half dead on the ground was finally killed. The emperor concludes his account by stating that "everyone took a share of the spoil," apparently as a trophy of the chase.³¹ This scene with the burning jungle in the background and the cut-up, blood-stained carcass of the rhinoceros calf in the center is illustrated in a miniature from a now dispersed *Bābur-nāmah* of the Akbar period in the Walters Art Gallery (pl. 32).³² There seems to be an even earlier echo of the kind of rhinoceros hunt which Bābur described, because one reads in the *Manāfi*: ". . . the karkadann resorts to reedy places where it is fierce, but timorous and not daring when it is out; it fears the flame of fire." Another fine miniature of a Mughal emperor in pursuit of a rhinoceros is in the O. Sohn-Rethel collection in Düsseldorf (pl. 33).³³ It shows a hunting elephant tackling a rhinoceros with its trunk, while Jahāngīr, on the second elephant, gets his gun ready for the kill. Although the two rhinoceroses in this miniature are not accurately drawn there is no legendary content left in this or in any other Mughal miniature, nor is there any doubt about the identity of the beast as had been the case in most of the *Shāh-nāmah* illustrations.

³⁰ For the text see 282, p. 762; for the miniature, 115, pl. 29B; another miniature showing the same subject is to be found in the *Zafar-nāmah* of 1533 (939) in the India Office Library (43, pl. 91A).

³¹ 282, p. 762; 32, vol. 1, p. 378.

³² No. 10.596, fol. 21b, unpublished.

³³ Kühnel connects this miniature with a passage in the emperor's memoirs according to which he killed the rhinoceros while riding on an elephant. He hit it with a single bullet near the ear (156, p. 419). Jahāngīr states that "it has often happened . . . that powerful men—good shots with the bow—have shot twenty or thirty arrows at them and not killed" (144, vol. 2, p. 270). Kühnel is right in pointing out that the hunted animal is probably not a wolf (*gurg*) as Rogers and Beveridge, the English translators of the memoirs say, but a rhinoceros (*karg*).

THE TAMED KARKADANN

Our fourth iconographic type consists of the karkadann in conjunction with other animals and always in a subdued state. The earliest picture of this type known to me is from a double frontispiece of the Mongol period formerly in the Yıldız Library of Istanbul.¹ On the right page is an enthroned ruler surrounded by his courtiers. The opposite page shows in the upper register a triumphal or tributary procession with various animals, among them an elephant followed by a pacified, winged karkadann; the lower register shows the royal horse with a groom, falconers, and other royal servants. While the identity of the ruler on these two detached pages cannot be established with the data so far published,² other miniatures do not present difficulties in this respect.

One large group of paintings shows the enthroned Sulaimān, the biblical Solomon, surrounded by the animals and demons under his command; sometimes he is in the company of Bilqīs, the Queen of Sheba, or she is seen on her trip to him surrounded by many of the king's animals. While the frontispiece of a Nizāmī manuscript of 1513 (919) includes as a traveling companion of Bilqīs a karkadann which looks like a hybrid of giraffe and deer (pl. 34),³ a winged equine karkadann is to be seen in a court scene of Sulaimān and Bilqīs surrounded by animals on the double frontispiece of a *Shāh-nāmāh* dated 1497-1504 (902-910), formerly in the Schulz collection (pl. 35).⁴ In the sixteenth-century examples of

¹ 233, vol. 1, pl. 8.

² It could be either the king for whom the manuscript was executed, or the one for whom the text was originally composed.

³ In the possession of H. Kevorkian, New York. The manuscript was written by Murshid al-dīn Muhammad in Shirāz. The right part of the frontispiece showing Sulaimān is not preserved.

⁴ 239, vol. 2, pl. 62. The left portion is now in the collection of Dr. E. Kahler, Princeton, N. J. The miniature shows the elephant not only associated with the karkadann but also with its other great enemy, the snake (cf. 5, fol. 12b: ". . . his, i.e., the elephant's, bitter enmity is for the snake"; see also 191, p. 33,

the "Enthroned Sulaimān" the rhinoceros is usually represented as a bovine animal with a small curved horn placed approximately in the correct position on its nose.⁵ The tamed, even domesticated nature of the animal is exemplified in a miniature of the Vever collection in which the rhinoceros is shown not only standing calmly with all the other creatures, but with strings of bells around its neck and a saddlecloth on its back,⁶ and is thus placed in a category with the tame elephant. In keeping with the general character of the Indian art of the period, some Mughal miniatures of Sulaimān with his hosts present the rhinoceros in a more realistic fashion.⁷

Noah was another Biblical figure who, in the ark, came in contact with the rhinoceros. Since in Persian miniatures the ark is usually rendered in a summary fashion, no painting has so far come to light which shows the animal. A pair of peaceful rhinoceroses is, however, to be found in the rear of the lowest deck of an ark in a Mughal miniature of the late sixteenth century which was recently acquired by the Freer Gallery of Art.⁸

A fourth variety of the iconographic type is represented by miniatures illustrating the story of Niẓāmī's *Iskandar-nāmah* in which Plato hypnotizes animals with the help of a wonder organ.⁹ So far no Persian miniature of this subject has come to my attention, but there is at least one fine Mughal painting

translation p. 23. Elephant-devouring serpents on Java are mentioned in Ibn Khordādhbeh (98, vol. 1, p. 26). For classical and later Western representation of the battle between the elephant and the serpent see 119, pp. 159-160.)

⁵ 49, pl. 75; 180, vol. 1, pl. 15.

⁶ 180, vol. 2, pl. 90. A saddlecloth is also found on the bovine karkadann lifting the elephant on its horn which is the Walters Art Gallery ms. W.593 (pl. 22), and in the Freer al-Qazwīnī manuscript (pl. 14, lower). This is perhaps due to the influence of the iconographic type of the tamed karkadann popular in the sixteenth century; another possible explanation would be that the saddlecloth was put on rhinoceroses used in India for staged fights with elephants (see below, p. 88). This second explanation seems, however, not very likely.

⁷ Cf. a miniature of the Akbar period in the possession of N. M. Heeramanek, New York.

⁸ No. 48.8. The miniature is reproduced, 73, p. 24.

⁹ 33, pp. 78-80.

of the Akbar period in which the rhinoceros, like all the other represented animals, is hypnotized by the soothing strains of the organ played by the Greek philosopher.¹⁰

In all these miniatures the karkadann is tamed through the influence of an overpowering personality and no longer shows any animosity toward the surrounding animals. However, even in this iconographic type the traditions associated with the usual karkadann are so strong that it is sometimes shown in close proximity to the elephant.

With these examples in mind every student of Persian iconography is naturally inclined to think of miniatures showing the love-crazed poet Majnūn surrounded by antelopes, deer, rabbits, lions, and tigers. Here strict personal authority is of course not responsible for the subduing of ferocious beasts—it is compassion which leads tame and wild animals alike to console a forlorn and unhappy man. The subject was popular for Nizāmī illustrations in Persia as well as in seventeenth- and eighteenth-century India, and since the Indian artist delighted in giving a large and varied number of animals, it is reasonable to inquire whether or not the rhinoceros might be found in the peaceful company around the poet. So far only two examples of this type have turned up. The first, in the possession of Nasli Heeramanek, of New York, is probably from the late Akbar period (about 1600) and shows a vast assembly of animals which in this case surround Majnūn and Lailā who has come to see her lover at last. Among the host of visitors one notices two rhinoceroses which, though not accurately rendered, are easily identified (pl. 36). The other miniature, now in the collection of Chérif Sabry Pasha, seems to be from the eighteenth century. Here the scene is much reduced and only a lion and a rhinoceros are portrayed with the famous lover.¹¹ It is worth while noting that this, a fairly recent example, coming as it does from the country of origin of the rhinoceros, still shows the animal in the tradi-

¹⁰ 182, vol. 2, pl. 181. The painter of this Nizāmī manuscript in the Dyson Perrins collection is Madhū Khānahzād.

¹¹ 224, pp. 151-152, No. 116 and pl. 49.

tional bovine shape, although with a horn now properly placed on its nose.

There are finally two further groups of representations of the rhinoceros which are variants of the type so far described. In these pictures the karkadann is surrounded by other animals which it leaves in peace though no superior power is present to keep it in check. One small group is peculiarly Indian and shows "the Animal Kingdom" or at least some outstanding examples of the native Indian fauna. The Freer Gallery of Art owns a delicately drawn miniature of the early seventeenth century,¹² which presents in a skillful composition a large array of animals among which two fairly realistic rhinoceroses are to be found (pl. 37). Less ambitious in scope and artistic intention is a miniature of about 1700 in the Islamic Department of the Berlin Museum where a much smaller number of quadrupeds, including a rhinoceros, is arranged in a decorative manner.¹³

A combination of animal heads which, at times, includes that of a single-horned creature, is the main feature of the "talking tree" or of the tree on the Island of Wāqwāq. Thus a miniature of the Wāqwāq Island from an al-Qazwīnī manuscript in the Boston Museum of Fine Arts shows, on a tree, amongst the strange "fruits" which make the wāqwāq sound, the head of the karkadann; in spite of its bovine shape, it is characterized as a rhinoceros by the curved horn on its nose (pl. 38).¹⁴ A miniature in a late fifteenth-century *Shāh-nāmāh* in the Bodleian Library illustrates the "talking tree" which tells Iskandar of his approaching death; in this case the head of the unicorn is shaped like a dragon and shows, in its Far Eastern aspect, no relationship to any of the standard types known in the Muslim world.¹⁵

This legendary tree is usually thought to be reflected in

¹² No. 45.29. Size: 233 x 119 mm., unpublished.

¹³ 39, pl. 19.

¹⁴ 52, pp. 22-23, No. 24a, pl. 13a.

¹⁵ 29, pl. 38. A similar animal head is found on the tree of the Island of Wāqwāq in an al-Qazwīnī manuscript of 1545 (952) of the A. Chester Beatty collection (29, pl. 37a).

conventionalized scroll or tree designs with animal heads, such as are to be found as decorations on a number of medieval and postmedieval objects.¹⁶ Without wanting to enter here into a discussion as to whether these compositions are actually connected with the "talking tree," it still seems appropriate to refer at this point to the one example so far found which includes unicorns: the plaque from the Madrasa Muqaddamiya in Aleppo (pl. 6). As in the case of all other designs the animal heads are at the end of the scrolls which cover the surface and which, in this case, are arranged in strict symmetry, thus creating the impression of a tree.

¹⁶ 159, pp. 26 ff.; 12, pp. 69-72.

ADDITIONAL FEATURES OF THE KARKADANN

A fuller understanding not only of the physical form and the various iconographic settings of the karkadann, but also of the ideas and legends associated with it, calls for elaboration of our account of the animal. After all, Marvazī said in the early twelfth century: "People say many things about this animal," and this makes it imperative to investigate its lore further.

According to al-Jāhīz, the karkadann belongs to a numerically small species, since the dam has but few offspring and her period of gestation is as long as that of the elephant.¹ The karkadann was even thought to be the least abundant animal.² The *Manāfi'* substantiates this by asserting that the short-lived dam has only one offspring during her lifetime. The male, however, seems to have a better life expectancy—at least in the opinion of al-Qazwīnī who gives him a life span of 700 years. Since, according to the same author, no weapon has any effect on it and no animal can withstand it, violent death comes to the male animal only as a sequel to its fights with the elephant.

In strange contrast to the alleged rarity of the karkadann is the great amount of information supplied by Muslim authors which even includes the age when it reaches sexual maturity.³ Its scarcity is, however, a good reason for the high prices which some of the products derived from it brought on the market. Its most precious part is the horn. Al-Jāhīz is the

¹ 145, vol. 7, p. 40. Al-Jāhīz, as recorded by al-Mas'ūdī (184, vol. 1, p. 387), thinks that the period of gestation of the karkadann is 7 years, al-Qazwīnī and al-Ibshīhī (99, p. 267, footnote 1) mention 3, and al-Gharnāṭī, 4 years. Modern zoologists speak of 17 to 18 months (53, vol. 12, p. 615; 48, p. 474). The gestation period of the African and Indian elephant is estimated by various authorities to last between 18 and 23 months (243, vol. 1, p. 373).

² Marvazī quoting al-Jāhīz (6, fol. 134b; 7, fol. 88b). See also 217, vol. 1, p. 402, and 5, fol. 14b.

³ This information is provided by al-Qazwīnī who sets the date after 50 years of age.

first Muslim writer to refer to certain of its innate qualities by stating that it is harder and nobler than the tusks of the elephant.⁴ Since the horn of the rhinoceros is actually only agglutinated hair, it cannot, of course, be maintained that it is harder than ivory, but this assertion points at once to the exaggerated attributes of this part of the body. The *Akhhbār al-Šin wa'l-Hind* is the first of a long line of sources to inform us that the Chinese used it for making highly valued girdles. The quality of the horn depended on the pattern, which was said to appear as a light figure of a man, peacock, fish, or other animal on a dark background and which comes out when the horn is polished.⁵ Most authors from Ibn Khordādhbeh on agree that the figures are to be found in the inside of the horn after it has been split.⁶ Al-Mas'ūdī gives perhaps the most extensive account of these girdles. According to him the horn is usually white and shows black figures, although sometimes the designs stand out in white against a black background.⁷ "With the help of leather straps girdles are made of these horns on the model of gold and silver ornaments. The emperors and grandes of China value this adornment above everything else so that they pay as much as two and

⁴ 145, vol. 7, p. 38.

⁵ According to Ibrāhīm b. Waṣīf-Shāh (98, vol. 1, p. 160). The date of this author is given differently. Ferrand, following Seybold (98, vol. 1, p. 137), assumes that he wrote about A.D. 1000 and in any case before 1031 (422). Brockelmann stated formerly (57, vol. 1, p. 335) that he lived toward the end of the thirteenth (seventh) century, while later on he attributed his work to a period before 1209 (606) (57, suppl. vol. 1, p. 574).

⁶ 136, p. 47; 98, vol. 1, p. 29. The authors who speak of figures in the split horn include Ibn Faḍlān, al-Idrīsī, al-Gharnāṭī, Ibn Bukhtishū', and al-Damīri. Passages in al-Mas'ūdī and in the *Arabian Nights* seem to reflect the same belief. In one place al-Damīri quotes the Spaniard Abū 'Umar ibn 'Abd al-Barr (died in 1071 [463]) that the figures come out after the horn has been cut off.

⁷ 184, vol. 1, pp. 386-387. His list of figures on the horn includes the rhinoceros itself, and he mentions also "other animals of its region." Al-Nadīm's informant told him that the most frequent designs were those of flies and of fish (192, vol. 1, p. 349). Aḥmad Ṭūsī mentions also a lion (134, p. 77, footnote). Al-Gharnāṭī adds to the repertory a gazelle, different kinds of birds and trees, besides other "wonderful things" not specifically named. Al-Damīri follows him as usual.

even four thousand *dīnārs*. The clasps are of gold and the whole is of extraordinary beauty and solidity. Sometimes one applies different inlays of precious stones with long golden nails." Al-Damīrī adds a further detail when he says that thin flat pieces of the horn are applied to the girdle.

The statements of the Arab authors are fully borne out by the Chinese writers, who inform us about the use of the horn in the official attire of the T'ang period.⁸ In addition, there are fortunately still extant several fragments of Chinese leather girdles with applications of thin plaques of rhinoceros horn, now preserved in the Shōsōin in Nara, which are only slightly earlier than the report in the *Akḥbār al-Šīn wa'l-Hind* (pl. 39, left).⁹ None of these T'ang girdles has inlays of precious stones, but a silver clasp from one of them has come down to us.¹⁰

In view of the large demand for the horn in China, it is not surprising to find that its price was as high as 3,000 to 4,000 *mithqāls* or *dīnārs* of gold,¹¹ and that Marvazī calls it the most valuable export article to the Far East.¹² The price depended on the quality of the pattern and on the popularity of the material at a given time. Thus already in the middle

⁸ 165, p. 142, footnote 4. Laufer questions the use of the horn in "official" girdles of the T'ang dynasty, an opinion first held by Bushell, and states that they were restricted to the use of princesses. Dr. Schuyler Cammann was kind enough to check this for me. He supplied the following information: "The T'ang History (*Hsin T'ang shu*) discussing the everyday dress or informal attire of officials says: '. . . first and second rank officials' belt plaques used gold, officials above the sixth rank (third to sixth) used rhinoceros horn, officials above the ninth rank (seventh to ninth) used silver, and common people used iron.' Meanwhile a reference in the T'ang dynastic statutes (*T'ang hui yao*) under the date of 710 A.D. says that for Imperial audiences and state banquets, first and second rank officials are permitted to wear (dress accessories of) jade or *t'ung* (*-t'ien*) rhinoceros horn, while the third rank is permitted to wear carved rhinoceros horn or striped rhinoceros, or jade, etc. These references make it very clear that the rhinoceros horn was used as a precious substance on a par with gold and jade."

⁹ 147, vol. 1, pl. 20, and vol. 7, pl. 33, after which our plate is made. Detailed descriptions are given in Japanese and English.

¹⁰ After 147, vol. 1, pl. 20.

¹¹ According to Ibn Khordādhbeh, Marvazī (6, fol. 135b), al-Damīrī quoting Abū 'Umar b. 'Abd al-Barr, Ibn al-Wardī (98, vol. 2, p. 412), etc.

¹² 183, Arabic p. 5, translation p. 17.

of the ninth century A.D. Ibn Khordādhbeh tells us that the price varied from 300 to 4,000 dinārs. Al-Nadīm is the only writer who gives an explanation for a drop in the market price since he had the good fortune to have as informant a monk from Najrān, who in 987 (377) had returned from a visit to China and could give him a first-hand report about his experiences. This man told him that the price per ounce of horn had fallen from 5 minas of gold to 1 ounce of gold and even less. This drop was caused by a royal decree which abolished the custom of appearing with girdles of rhinoceros horn and required instead girdles of gold and similar costly material.¹³ Hence, following the law of supply and demand, the much-decreased demand had suddenly caused a depression in the valuable commodity.

There are some other exotic uses of the horn mentioned by Arab authors. According to the tenth-century *Iḥudūd al-‘Ālam* the chiefs of the Wāqwāq province of China “wear extremely precious necklaces of rhinoceros horn,”¹⁴ and Ibn Bukhtishū’ tells us that the kings of China hang it on themselves against evil things. The Shōsōin again provides an example in the form of several small containers used as pendant ornaments, made from rhinoceros horn—one horn-shaped and the other consisting of two square boxes. They are combined with small amber and crystal balls (pl. 39, right).¹⁵ The same collection also contains a small fish-shaped

¹³ 192, vol. 1, p. 349, vol. 2, p. 184; 98, vol. 1, p. 130. Ferrand interpreted al-Nadīm’s passage as referring to tribute in the form of rhinoceros horn, but the use of girdles with applied pieces of horn in Chinese court attire (see above, footnote 8) indicates that the text refers apparently to the latter. This is also the way in which the German editors of the Arabic text translated the passage (192, vol. 2, p. 184).

In view of the prices quoted by the medieval authors it is worth while noting that in 1935 the value of the horn on the Calcutta market was about half its weight in gold. A single horn retrieved from the poachers fetched 150 pounds and still higher prices have been known (241, p. 1229).

¹⁴ 129, p. 84. This is corroborated by al-Qazwīnī (217, vol. 2, p. 30, line 15) who states that the inhabitants of Sandābil (Kan-chou in the Kan-su Province) adorn themselves with “elephant and rhinoceros bone.” De Goeje already thought that this might be the horn of the rhinoceros, mounted in gold and worn as an amulet (178, p. 87).

¹⁵ 147, vol. 7, pl. 51; see also pl. 58a and 58b for other horn containers likewise square or horn-shaped. These containers are called *gōsu* in Japanese.

pendant of rhinoceros horn.¹⁶ Another usage for the horn was to apply it to thrones in thin pieces. Al-Gharnāṭī, followed by al-Damīrī, does not specifically say where such thrones were made, but from the fact that he tells us about this custom in connection with the Chinese girdles, the inference is that it is used in the Far East. A more commonplace service rendered by the horn is first referred to by al-Bīrūnī, who tells us that it furnishes the material for the handles of knives. This use is mentioned by several other authors, even in modern times, and it must have been quite popular and widespread. Only one medieval source gives a more specific description of a particular feature of these handles. After having stated that the horn of one of the African species is white but for a black streak from the tip to the center of the base, Marvazī adds: "Skill is needed in sawing it so that each handle contains a black circle." Let us hope that we shall be fortunate enough one day to find a medieval Muslim knife or sword with a rhinoceros handle as described by the twelfth-century Persian author.

The *Akhbār al-Ṣīn wa'l-Hind* is the only source to give some information about the commercial transactions to procure the horns: ". . . they are bought in the State of Dharma¹⁷ with cowrie shells which are the currency of this land." Marvazī tells us of a man in Balkh who had imported the horn of the African species. The same author mentions also the export of the horn to China. Some come definitely from a certain region in India, but in another place he states that the port of export to China was Basra, which seems to point to the African horn.

The hide of the rhinoceros, too, is commercially used. According to al-Damīrī it is worked into coats of mail against which weapons have no effect. Al-Mustawfī, moreover, mentions that leather belts which sell for 3,000 to 4,000 dinars are made "from the handsome cuirass of leather which it (the

¹⁶ 147, vol. 10, pl. 561. Modern Chinese regard the horn as a potent aphrodisiac (118, pp. 377, 386, 387 and 395).

¹⁷ Apparently Bengal and Bihar (183, pp. 147-148; 17, pp. 52-53 and map 2).

karkadann) has around its middle." Since the quoted high price is the same as that for the celebrated Chinese belts made with horn plaques, it may be surmised that al-Mustawfī who alone mentions the leather variety, confused the two types.¹⁸ Various parts of the body served also as remedies or talismans. Thus its gall is used for fumigations to dispel evil smells,¹⁹ the left eye against the shaking fever²⁰ and the stings of scorpions,²¹ while the right eye is a talisman against pains, jinns, and demons.²² The most effective part of the body is the horn and especially its legendary protuberance. It is a remedy against colic and labor pains, epilepsy, paralysis, and spasmodic contractions of muscles.²³ It helps against the evil eye, unties knots, makes hot water cold, and prevents a horse from stumbling.²⁴ Al-Qazwīnī demonstrated its powerful magic by telling a story according to which particles of the horn (or rather of its "knot") mixed with dust were scattered on a band of robbers, thereby preventing them from rising from their camp to plunder a caravan. The same author, followed by al-Mustawfī, mentions also that "When it is near poisoned food or drink, it nullifies (literally, breaks the strength of) poison." A variation of this notion is found in Ibn al-Wardī who speaks of knife handles made of the horn which in the presence of poisoned food become moist and agitated. While it is thus certain that the karkadann had magic properties, no religious connotation seems to have been connected with it.²⁵ The pious Muslim was only concerned whether it

¹⁸ Another possible explanation for the high price of the leather belts mentioned by al-Mustawfī would be that the Chinese girdles were made of rhinoceros hide. This assumption is disproved, however, by a girdle in the Shōsōin which is made of moleskin (147, vol. 1, notes to pl. 20).

¹⁹ Ibn Bukhtishū'.

²⁰ Al-Qazwīnī, al-Damīrī.

²¹ Al-Damīrī.

²² Al-Qazwīnī, al-Damīrī.

²³ Al-Qazwīnī, al-Mustawfī, al-Damīrī.

²⁴ Al-Damīrī.

²⁵ Such religious connotations are sometimes found in the descriptions of animals. For instance, al-Mustawfī says of the silkworm: "This worm is a mighty example of the manifestation of the power of the Artificer with whom none may be compared, the Creator of 'Be, and it was,' who from the slime

was permissible to eat its meat or not.²⁶ The interpretation of dreams in which the animal occurred pointed also to its purely secular character, since according to al-Damirī the karkadann is supposed to represent a powerful, tyrannical king or to indicate war and trickery. This seems like final proof that the karkadann represents an evil force.

If one were to summarize all the main thoughts which could have been in the minds of persons who saw the picture of such an animal, one could state: The karkadann is a very rare, large, and powerful animal of India and other distant countries. It is of evil and ferocious nature and quickly angered. It does not allow any other animal in its neighborhood and pursues and kills even the mightiest of them all, the elephant. Only kings of great magic power like Sulaimān could subdue it, and only heroes and mighty hunters were able to kill it. The outstanding part of its body is the horn on its forehead with which it kills the animals. Various designs are visible in this horn which in China is used for highly prized ornaments. It serves likewise as a powerful remedy and talisman. Thus the karkadann stands for fierceness, evil physical force, and magic power.

of such an insignificant worm produces such elegant garments . . ." (191, p. 59, translation p. 41); or of the peacock: "In every one of its feathers are present red, yellow, green, gold, blue, and other colors such that the hand of the painter cannot portray a picture of the like. And glory be to Him! How great is His majesty, and how wide His power, and how perspicuous His proof!" (191, p. 109, translation p. 77).

²⁶The author of the *Akhhbār al-Ṣīn wa'l-Hind* ate the flesh and al-Mas'ūdī speaks of it as permissible food since it is a kind of buffalo (184, vol. 1, p. 386). Al-Damirī quotes al-Zamakhsharī's opinion in this respect: "The evident factor which speaks for its lawfulness is that the animal eats trees and is a ruminant. Its being an enemy of man does not preclude it from being eaten because the hyena treats man as an enemy and it is eaten. But if it were proved that it is born from the horse and the elephant, it would be forbidden. And this is remote." Modern hunters have reported that the meat of the rhinoceros is quite palatable (258, p. 147).

OTHER UNICORNS IN MUSLIM LITERATURE

During the preceding discussion of the karkadann we have at various times had occasion to refer to animals which either became fused with the karkadann or split off from it and turned into new species. We therefore have to say something more about these other creatures.

Al-Jawharī,¹ Ibn Bukhtīshū', and al-Damīrī state in their discussion of the karkadann that the Arabs call it ḥarīsh (actually ḥ·rysh)² or, vice versa, that the ḥarīsh is the karkadann.

¹ Quoted by 191, pp. 40-41, translation p. 29; 77, vol. 1, p. 285; 78, vol. 1, p. 525 (s.v. الحريش); see also 77, vol. 2, p. 327, line 9.

² حريش with or without the article is the spelling in most manuscripts and published texts. Kraus (153, vol. 2, p. 67, footnote 15), Stephenson in his translation of al-Mustawfī (191, p. 28) and Jayakar in his translation of al-Damīrī (78, vol. 1, p. 525) transliterate it as ḥarīsh, and this is also the form in 9, fol. 89b, where full vocalization is given. That the correct form of the name was doubtful in the Middle Ages is indicated by the many variants. The Ibn Bukhtīshū' manuscript in the Bibliothèque Nationale has al-ḥarīsh, while the Morgan *Manāfi'* writes jurīsh (with a vowel for the first consonant, but with no diacritical points for the letter yā); the two al-Qazwīnī manuscripts in the Beatty collection, those of Mr. Kevorkian, the Berlin Museum, and of the Freer Gallery (dated 1789) have j·rysh which is also the spelling of the Wüstenfeld edition of the Arabic text (217, vol. 1, p. 392). An al-Qazwīnī manuscript dated 1570 (978) in the Harvard College Library and another dated 1664 (1075) belonging to H. Kevorkian have قوس qws.

As has already been pointed out by Laufer (165, p. 124, footnote 1) ḥarīsh may be connected with the following statement by Cosmas Indicopleustes on the rhinoceros: "The Ethiopians in their own dialect call the rhinoceros *arou* or *harisi* aspirating the alpha of the latter word, and adding risi. By *arou* they designate the beast as such and by *arisi* ploughing, giving him this name from the shape about the nostrils, and also from the use to which his hide is turned." (76, p. 358).

The Babylonian Talmud (*Hullin* 59b) knows of a unicorn called קרשׁ which is described as "the hart of the forest 'Ilai" (69). The Aramic name might explain the enigmatic قوس as a garbled form of قرس which like קרשׁ (69) would then be the last part of the Greek words *ῥινόκερως* and *μονόκερως*. Ibn Bukhtīshū' (3, fol. 28A) states that the Syriac-speaking people call the karkadann-ḥarīsh ريمā rīmā, which reproduces the Syriac rayma corresponding to the Hebrew *re'ēm*. The Princeton University Library manuscript does not

Actually they are two quite distinct animals, although both are unicorns. The first writer to speak about the ḥarīsh as a separate animal is apparently al-Tawḥīdī who says: "It is a certain small animal of the size of a kid or lamb and very quiet, but it has such strength of body and swiftness of motion as to baffle a hunter. It has in the middle of its head a solid and straight horn with which it strikes all animals. Nothing can subdue it. It is necessary to use a stratagem for seizing it, namely to expose to its view a young virgin or a young girl. When it sees her, it jumps into her arms as though intending to suck her milk, which is a natural mark of affection ingrained in its nature. When it jumps into her arms it sucks her breast, though there is no milk in them, with such a gusto that it is overpowered by intoxication like the intoxication from wine. While it is in that state the hunter comes and ties it up firmly with a rope being itself motionless on account of this dodge."³ The *Manāfi*⁴ overcomes the difficulty inherent in the preceding account in which the ḥarīsh is sucking the milkless breasts of a virgin. It introduces instead of the virgin a beautiful girl from a brothel (دختر خانه) who tempts the animal with her breasts. The animal sucks them for about an hour and then falls asleep from the milk.

have rīmā but basrīmā. F. Rosenthal kindly suggested to me that the bā is probably a mistaken preposition taken over from some Syriac context, while the sīn is just a misinterpretation of an overlong space between the bā and the rā in the Arabic script.

The Arabic translation of the *Physiologus* refers to the name of the animal which has all the characteristic features of the ḥarīsh as دایا (یقال لها) daiyā (دیتا). As F. Rosenthal suggests, this may be merely a corruption of ریما.

³ The passage is quoted by al-Damīrī (77, vol. 1, p. 285; 78, vol. 1, p. 525). F. Rosenthal informs me that it is taken from al-Tawḥīdī (255, vol. 1, p. 184) as was also recognized by Kraus (153, vol. 2 p. 67, footnote 15). Aḥmad Ṭūsī likewise tells the story of the hunt with the help of a virgin. The animal in this case is, however, the karkadann (134, p. 77, footnote 1). Zeki Validi Togan translates دوشیزه کینزکی in the account of the stratagem as "Säugling weiblichen Geschlechts," but, judging from the parallel texts, it probably means "a virgin girl." Aḥmad Ṭūsī gives a variant of the account by stating that when the rhinoceros smells the girl, it faints and so do all the other karkadann in the steppe.

⁴ 5, fol. 54a.

The story ends with the exclamation "Allah knows best," thus expressing a certain incredulity about the story. It is probably for this reason that al-Qazwīnī leaves out the story of the temptress; he contributes, however, to the lore of the animal when he states that it is found in the swamps of Sīstān and the land of the Bulgars⁵ and he finishes up with giving the medicinal properties of its body, thus exchanging the folkloristic tale for a scientific myth.⁶ The story of the girl and the ḥarīsh is given by Ibn Bukhtīshū'⁷ and also by 'Awfī (as quoted by al-Mustawfī) who calls the animal *qaṭ'ā* (قطعا).⁸ 'Awfī's passage and also the *Manāfi'* dissent from the usual belief in the single horn by stating that the animal has two horns on its forehead.⁹ It is for this reason that we see a small kidlike animal with two horns sucking the breasts of a young woman in the miniature illustrating the chapter of the ḥarīsh in the Morgan *Manāfi'* manuscript (pl. 40, lower). No other representation of the peculiar hunt of the ḥarīsh has so far turned up. The usual iconographic type of the animal is the isolated figure of a goat- or antelope-like creature with one horn on its forehead such as those found in the fifteenth- and sixteenth-century al-Qazwīnī manuscripts in the Kevorkian and Beatty collections (pl. 41, middle right and lower). A more monsterlike ḥarīsh is included in the Berlin

⁵ 217, vol. 1, p. 392. Jacob (141, pp. 166-167) identifies the fleet-footed animal with the saiga antelope of southern Russia the adult specimens of which cannot be overtaken by horses or greyhounds.

⁶ "When a man suffering from quinsy drinks its blood with hot water, his obstruction will come up at once. Its meat cooked with the centaury plant, when eaten by a man suffering from colic, will cure him at once. When his ankle-bone is burnt and its ashes with its fat are placed on the bleeding(?) artery, the pain stops . . ." This medical lore is repeated by al-Mustawfī (191, p. 41, translation p. 29) and al-Damīrī.

⁷ Under the heading الكركدن.

⁸ 191, pp. 48-49, translation pp. 33-34. The vocalization of the animal's name is uncertain.

⁹ In the table of contents of 'Awfī's *Jawāmi' al-Ḥikāyāt*, by Muḥammad Nizāmu' d-dīn (198, p. 257), a goatlike animal is mentioned which is hunted with the help of a girl whose breast it sucks. It is obviously the same animal, but in contradiction to the information given by al-Mustawfī the text says that it has a single horn.

manuscript (pl. 41, middle left), where it is shown walking on its hind legs; this follows the al-Qazwīnī text which states that the animal does most of its running on two feet. In the Sarre manuscript the *ḥarīsh* resembles the painting of the wolf (pl. 41, upper).¹⁰ If this is not a mere coincidence, the choice of the bodily form may have been conditioned by the wolf monsters in the *Shāh-nāmah*. Another, more clearly defined influence from a different iconographic source is to be found in the al-Qazwīnī manuscript of the Princeton University Library. Here the miniature of two snakes, one climbing up a tree and devouring young birds and the other coming out of a rock, in no way follows the text about the *harish* it purports to illustrate (pl. 40, upper). This can, however, be explained by one of al-Jawharī's two identifications of the animal which are quoted in al-Damirī's text. While the second describes the *ḥarīsh* as a *karkadann* with the claws of a lion, the first regards it as "a certain speckled species of serpent." The painter of the Princeton manuscript, or rather the originator of the iconographic type which he copied, must have preferred this dissenting opinion of al-Jawharī and the illustration to go with it. In any event, we have here—just as in the case of the *sharav* of the Berlin al-Qazwīnī manuscript which claimed to be a *karkadann*—the substitution of a different animal from another text for the usual iconographic type.¹¹

Another animal which becomes separated from the *karkadann* to lead an existence of its own is the *sinād*. As we have pointed out before (pp. 15 f.), it shares with the *karkadann* the peculiar feature that the young one puts its head out of its mother's womb before it is born to find outside nourishment (pl. 16, lower). Al-Jāḥiẓ in his account of the *karkadann* is the first to report this yarn on Indian authority,¹² while

¹⁰ Disregarding the horn, the *ḥarīsh* and the wolf in the "Sarre al-Qazwīnī manuscript" differ mainly in color, the *ḥarīsh* being reddish brown, while the wolf is dark gray.

¹¹ The Turkish al-Qazwīnī manuscript in the Walters Art Gallery dated 1709 (1121) likewise shows the influence of another text. The *ḥarīsh* is shown as a two-horned goat, which indicates that the iconography goes back to such versions as the *Mānāfi'-i ḥayavān* or the *Nuzhat al-Qulūb* of al-Mustawfi.

¹² 145, vol. 7, pp. 40-41.

al-Birūnī—as quoted in al-Qazwīnī's chapter on the *sinād*—applies it to an unnamed Indian animal.¹³ Al-Birūnī tells us, too, that the birth takes place only after the young one is strong enough to run away from its mother because the very rough tongue of the dam would separate the flesh from the bones of the calf when licked after the birth.¹⁴ This story is then repeated by al-Qazwīnī, al-Mustawfī,¹⁵ and al-Damīrī¹⁶ in their chapters on the *sinād*. Marvazī, however, mentions the licking episode also in the case of the *karkadann* after he has expressed his doubts about a story in which he alleges that the *karkadann* devours its offspring. But he states that the licking scene is true and adds that the tongue of the mother is sharper than a file.¹⁷ Al-Gharnāṭī even speaks of a big thorn on the tongue.¹⁸ The prenatal activity of the foetus and the peculiar character of the tongue are therefore associated both with the *karkadann* and the *sinād*.¹⁹ Although al-Qazwīnī and his followers, al-Mustawfī and al-Damīrī, stated that the *sinād* is shaped like an elephant (see p. 16 and pl. 16, lower), the knowledge that its peculiarities are also those of the *karkadann* induced the illustrator of the Princeton al-Qazwīnī manuscript to give to the *sinād* the traditional features of the *karkadann* (pl. 42, center). First of all, this particular *sinād* is not elephantine, but has the bovine shape usually given to the *karkadann*. On the nose

¹³ 217, vol. 1, p. 396.

¹⁴ Al-Jāhīz tells only that the *karkadann* can run fast after its birth and is thus able to fend for itself; there is in this connection no reference to the danger of its being licked by its mother.

¹⁵ 191, p. 26, translation p. 18.

¹⁶ 77, vol. 2, p. 41; 78, vol. 2, part 1, pp. 81-82.

¹⁷ 6, fol. 134b; 7, fol. 88b.

¹⁸ This account is copied by al-Damīrī. Al-Gharnāṭī (again followed by al-Damīrī) informs us also that the kings of China torture people by having them licked by the *karkadann*, which separates the flesh from the bone.

¹⁹ The belief that the young rhinoceros runs away from its mother right after its birth is just the opposite of the actual condition. The calf of the white rhinoceros accompanies its dam until it is practically full-grown, that is, until the birth of the next calf (243, vol. 1, p. 434; 162, p. 88). Hunters have reported that the calf remains with its dead mother up to 2 days (25, p. 306). Photographs of a female rhinoceros followed by her calf have been repeatedly published (38, pp. 143 and 147; 97, p. 174).

of the dam are placed the horn of a rhinoceros as in the Princeton karkadann miniature (pl. 15, right) and the additional long, straight horn on the forehead (but without the grooves of the narwhal tusk); and finally, since some authors point out that the horn, teeth, and hoofs of the karkadann grow while the embryo is in the mother's womb,²⁰ these parts of the body were likewise given to the young sinād. The scene itself shows the mother reclining on the ground after having given birth and the young calf running away with great speed. A similar spectacle has so far not been found in the iconography of the karkadann, although the literary sources would make it theoretically possible.

Another type of unicorn is called شاذه‌وار *shādhahvār*²¹ or آرس, *āras*²² which, according to al-Qazwīnī is to be found in the remotest regions of Rūm.²³ On its single horn are said to be 42 hollow branches. They form a kind of Aeolian flute because the wind produces cheerful or plaintive sounds when

²⁰ Stated in the *Manāfi'-i ḥayavān* and by al-Ibshīhī and al-Damīrī. This has been confirmed by contemporary zoologists as far as hoofs are concerned (53, vol. 12, p. 616), but the newly born animal has no teeth and there is only a smooth, rounded hard boss for the base of the horn (59, p. 433).

²¹ This is the spelling in the "Sarre al-Qazwīnī manuscript." شاذه‌وار *shādhahvār*, as given in the Wüstenfeld edition (217, vol. 1, p. 398), is also to be found in the fifteenth-century al-Qazwīnī manuscript of the Berlin Museum, and the two Beatty manuscripts. However, the al-Damīrī text has شاه‌وار (77, vol. 2, p. 48) and Jayakar transcribes it therefore as *shād-hawār* (78, vol. 2, p. 97). The form ساده‌وار *sādahvār* is to be found in the Kevorkian manuscript (fifteenth century) and the Princeton University manuscript.

²² The name occurs first in the early tenth century in the works attributed to Jābir b. Ḥaiyān, the alchemist (153, vol. 2, p. 67). Kraus transliterates it as *āras* and assumes it to be derived from Greek ὄρυξ *oryx*, which according to Aristotle was single-horned (27, book 2, chapter 1, p. 499^b, line 19). The Wüstenfeld edition of al-Qazwīnī has آرس 'rs (217, vol. 1, p. 398). The fifteenth-century al-Qazwīnī manuscript of Mr. Kevorkian has ارش 'rsh. We follow the transliteration of Kraus.

Without wanting to stress the point (since it may be a mere coincidence) it can be pointed out that the name of the Angolan or black-faced impala antelope in Bushman is a:ras (243, vol. 2, p. 557).

An early treatise on the properties of the horn of the *āras* attributed to Jābir b. Ḥaiyān is, unfortunately, lost (153, vol. 1, p. 154, No. 1994).

²³ 217, vol. 1, p. 398.

passing through them. These are so pleasant that other animals are attracted by it. This yarn is first found in the writings attributed to Jābir b. Ḥaiyān about 900 A.D.²⁴ Al-Damīri increases the number of ramifications on the horn from 42 to 72 and al-Mustawfī makes the animal into a fierce carnivore which chooses its prey amongst the animals which gather around it.²⁵ Al-Mustawfī may not have invented this fiendish trait of the *shādhahvār*, since he could have transferred it from the *sirānis* which has 12 orifices in its snout and produces a flutelike sound when drawing in its breath. In this case, too, animals gather around the monster eagerly listening to its sound before they are captured and eaten.²⁶ As noticed before, the transfer of a curious feature from one fabulous animal to another is quite common in animal lore.

The earliest illustration of this "unicorn" that has come to my knowledge is in the "Sarre al-Qazwīnī manuscript." It represents an antelopelike animal with a tremendous horn from which jut out 14 short branches projecting in alternate directions (pl. 42, upper). Just as al-Damīri increases the number of ramifications of the horn given earlier by al-Qazwīnī, so does the painter who copied the "Sarre manuscript" and produced the volume which is now in the Beatty collection. In his miniature the horn has grown so long that

²⁴ These writings state also that Plato was supposed to have captured the āras, a feature not reported in the Greek sources (153, vol. 2, p. 68).

²⁵ 191, pp. 44-45, translation p. 31. Here the text of the *'Ajā'ib al-makhlūqāt* is, however, interpreted to mean that the animal has 2 horns, each carrying 21 hollow branches.

²⁶ 191, p. 44, translation p. 31, which gives the erroneous form *سيوانس* *sīwānis*. The correct spelling can be inferred from the fact that the story is taken over from al-Qazwīnī (217, vol. 1, pp. 397-398) where the animal is called *سيرانس* *sīrānis*. Furthermore, G. Jacob (141, p. 167) has shown that the *sīrānis* is the Greek siren; he also followed G. Hoffmann in pointing to the connection between *sīrānis* and the *sīrānās* in the Syriac *Physiologus* (see 207, p. 51, No. 38, footnote 1). The *sīrānās* is described as a sea animal with seven openings in its mouth into which it places the seven toes of its feet when it wants to sing. Then all the other animals gather to listen. A long beak with many holes from which different notes emanate is also to be found in the lore of the *ققتس* *qaqns*, "phoenix" (191, p. 119, translation p. 86), an Indian bird whose name comes from Greek *κύκνος* "swan" (F. Rosenthal).

at 17 points short branches come out in opposite directions. The horn of the animals in the al-Qazwīnī manuscripts in the collection of Mr. Kevorkian and the Harvard College Library show no branches, only a great many holes (pl. 42, lower left). The Berlin copy of the same text shows an animal in whose horn neither branches nor holes are indicated, thus demonstrating in one more instance how in this manuscript the iconographic exactitude has become weakened (pl. 42, lower right).²⁷ The first painting to show the *shādhahvār* surrounded by intently listening animals is in the al-Qazwīnī manuscript of 1545 (952) in the Beatty collection (pl. 43, lower). In this case the antelopelike animal carries an enormous horn, now curved, which has both hollow branches and holes. The Princeton al-Qazwīnī manuscript illustrates the same scene, but gives up the traditional antelopelike appearance of the *shādhahvār*; instead one finds a fantastic leonine animal derived from the Chinese *hsieh-chai* (pl. 42, upper).²⁸

A fifth quadruped unicorn mentioned by Muslim writers²⁹ is much smaller than the others so far mentioned, being a yellow hare with a single black horn on its head. Its name is *المعراج* al-*mi'rāj*. According to al-Qazwīnī it was given to Iskandar by the inhabitants of the Sea-Serpent Island (Jazīrat al-Tinnīn) in the Indian Ocean after he had killed the serpent. In spite of its small size even the *mi'rāj* has, apart from its single horn, an important feature in common with the *karkadann*, namely, that every wild animal runs away from it when it sees it. Ferociousness seems altogether the foremost feature shared by all the Muslim unicorns. The "Sarre al-Qazwīnī manuscript" contains a miniature of the animal which closely follows the details given in the text (pl. 44, lower). In contrast to it the often not-too-specific Berlin manuscript shows

²⁷ It will be recalled that it was this manuscript which substituted the *sharav* for the *karkadann*.

²⁸ The *hsieh-chai* is a white lionlike monster with a single horn. It should be distinguished from the *ch'i-lin* and the *pai-tsê* (68, p. 108 and figs. 4 a-c).

²⁹ 217, vol. 1, p. 113, lines 9-11; 218, p. 230 (who calls the animal al-*"mi'rāj"*); 77, vol. 2, p. 392. The vocalization of the first syllable is uncertain.

a hybrid animal which looks more like a fierce hound than a hare (pl. 44, upper).³⁰

The "minor unicorns" described in this chapter have so far been found only in purely scientific texts. Since their folkloristic and literary interest was apparently limited, they did not pass on into the larger stage of belles-lettres and they never gained wider popular appeal. The unicorns in Muslim art can therefore be assumed to represent, in practically all cases, the various versions of the karkadann. The validity of this last assertion will, of course, become much more obvious if it can be shown that a medieval Muslim readily identified a representation of a unicorn as that of a karkadann. Fortunately we can adduce such proof. When in the beginning of the twelfth century Ibn al-Balkhī gives, in his treatise on Fars, an account of the remains of the palace of Persepolis known as the "Throne of Jamshīd" (Takht-i Jamshīd), he speaks also of the various well-known reliefs showing a king (or mythical hero) fighting wild beasts.³¹ This author describes an encounter with one of these animals, a horned monster combining the features of lion, scorpion, and griffin (pl. 31, right) in the following way: "Jamshīd is represented . . . taking a karkadann by the horn while in his hand he holds a hunting knife which he has plunged into its belly."³² Al-

³⁰ One further unicorn, the bulān بُلَان which is restricted to Turkestan has probably no iconographic significance, since it is unlikely that it was ever illustrated. According to the eleventh-century Maḥmūd al-Kāshgharī this animal lives in the country of the Kipchak. At the tip of its horn is said to be a deep hole in which snow and rain accumulate. When the male animal is thirsty the female kneels down and lets him drink, and he does the same for his mate (173, vol. 1, p. 346, lines 11-14; 58, p. 120).

³¹ In earlier investigations Sarre and Herzfeld called the animal-killer a king (232, pp. 134 ff.; 228, p. 13, pls. 16 and 17). More recently Professor Herzfeld has taken exception to this and has called the figure the ancient mythical hero Krsāsapa (122, p. 257).

³² 132, p. 127; 131, p. 27. Ibn al-Balkhī speaks in his account of a lion, a wild ass (گور) and a karkadann, all killed by Jamshīd. Three such royal animal fights occur in the Palace of Darius, the *tachara*, where a lion, a bull (the "wild ass" of Ibn al-Balkhī), and a lion-scorpion-griffon with a long single horn, obviously the karkadann, are killed by the king. (232, p. 134; 228, pl. 16.) For various reasons these three reliefs seem to fit the description of Ibn al-Balkhī better than the four of the Palace of Hundred Columns which includes also

though this particular animal has not the slightest resemblance to a rhinoceros and is even totally different from the usual representations of a karkadann as we have analyzed them in earlier pages of this investigation, the fact that it is a quadruped monster with what appears to Ibn al-Balkhī to be a single horn on the forehead is proof enough to suggest a karkadann. Judging from this experience one can assume that Ibn al-Balkhī would have likewise identified other unicorns on medieval Muslim objects or buildings as representations of the karkadann.

At this point, when our survey of the authentic Muslim unicorns has come to an end, some comments are appropriate on what one might call the "apocryphal" unicorns. There are first those which do not seem to occur as regular illustrations to the classic Muslim texts. The outstanding examples of this category are of Far Eastern inspiration. The most common type is derived from the Chinese ch'i-lin, a composite beast with a dragon's head, the body of a stag often covered with scales, and a bushy tail; they are to be found in the decorative arts of the Timurid and Safavid periods, particularly in the illuminations, bookbindings, and carpets. It is not impossible that they are sometimes meant to represent the karkadann, especially as the iconographic setting in a frontispiece of an al-Qazwīnī manuscript (pl. 17) allows such an interpretation. The fact remains, however, that none of the Timurid or Safavid copies of the *'Ajā'ib al-makhlūqāt* so far found use the ch'i-lin as illustrations for the chapters on the karkadann or for any of the other unicorns. Since the Persian late sixteenth- or seventeenth-century *Cosmography of the Walters Art Gallery*³³ uses a ch'i-lin-like animal in the water to represent the "sea ox" or "water bull," it would appear that the Chinese creature does not seem to have a fixed counterpart in Islamic zoology.

Nevertheless the ch'i-lin was, together with other Chinese

a scene with a lion-bird-griffon (232, pp. 135-138; 228 pl. 17). Plate 31, right, illustrates the relief in the south doorway of the west wall in Darius's palace. I owe the photograph to the kindness of Dr. Erich F. Schmidt.

³³ I, fol. 181b.

monsters, rather common in the Islamic repertory. In certain instances one can even see why the artist chose it for a specific setting. To quote two examples: the scene, frequently found in sixteenth-century art, of a lion attacking a bull or stag, derives from the motif of a lion killing a bull which may be found in the staircase reliefs of Persepolis.³⁴ In the Achaemenian representations the victim is given in strict profile so that only one horn shows. This feature must have struck the imagination of a Turkish artist specializing in black and white line drawings. Since he employed this technique in imitation of Chinese ink paintings and used as the left part of his composition a Chinese dragon (lung) it was only natural that he substituted a Chinese unicorn for what looks like a unicorn in the traditional Persian design (pl. 45).³⁵ This change was possible because this artist was mainly interested in beauty of line and of design as such, and not in literal rendition of a subject.

Our second example is the fight between the ch'i-lin and the fêng-huang (phoenix), occurring in more or less stylized form in the art of Persian books of the sixteenth century³⁶ and on some Caucasian dragon rugs of the following century.³⁷ In trying to explain this scene one could point to the *Manāfi-i hayavān* which states that the karkadann is one of the victims of the giant bird sîmurgh.³⁸ This text is, however, rare and the myth is so uncommon that it can hardly be taken as the source for the motif of a bird descending on a unicorn. Neither does Chinese art help us to find the proper interpretation. There the fêng-huang and ch'i-lin are not regarded as mutually antagonistic and they are only rarely placed together in a design. Furthermore, the earliest example—a dish of the K'ang Hsi period (1662-1722)³⁹—in which I found the bird swooping down on the fabulous quadruped is later than the

³⁴ 228, pl. 21.

³⁵ Freer Gallery of Art, No. 48.17.

³⁶ 16, fig. 11.

³⁷ 265, vol. 2, pl. 3; 257, No. 4, fig. 2.

³⁸ 5, fol. 55b.

³⁹ 124, pl. 44, fig. 3. The two animals appear already on the opposite sides of a blue and white vase of about 1400, but no obvious connection between the two seems to exist (158, pl. 27).

earliest known Persian examples. It seems therefore not very likely (though not impossible) that the prototype of the Muslim *scene* is Chinese, although the animals themselves are of Far Eastern origin. There is, however, another explanation possible. In the art of Iran and her bordering countries during the fifteenth and sixteenth centuries fabulous animals of Chinese derivation were often placed in landscapes or in a decorative setting. The lung and the fêng-huang are the most common of these, and they are usually shown as being engaged in combat.⁴⁰ The ch'i-lin is also rather frequently found. The easiest explanation would be to assume that the dragon was replaced by the ch'i-lin, which to a Persian artist was just another fierce-looking monster. There are, however, certain settings of the Chinese animals that admit also another explanation. Sometimes the ch'i-lin is placed in the space between the fêng-huang darting down on the rearing dragon.⁴¹ To certain artists copying such a design the nature of the main motif was not known, or it did not seem significant enough to preserve it. Thus, at times, an artist chose only a section of the scene with the result that now the fêng-huang combatted the ch'i-lin. Be that as it may, the new combination is first found in the Persian art of the sixteenth century, but since a bookbinding of about A.D. 1430 shows a fêng-huang battling a winged griffon,⁴² a fêng-huang fighting a ch'i-lin might also be possible in this century. There seems little doubt that the Caucasian carpet weavers borrowed the chinoiserie motif from a Persian model; these rugs show many such inspirations and the weavers were in any case more interested in color and pattern than in realistic and meaningful scenes. All this leads one to assume that the combination of the two Chinese animals is accidental and the scene devoid of a special meaning.

A second group of unicorns are actually spurious; they look like unicorns but are really two-horned animals. Their picture should in most cases be interpreted as showing the horns in

⁴⁰ I intend to deal with this motif in another paper.

⁴¹ 212, vol. 6, pl. 1128.

⁴² 16, fig. 9.

strict profile so that they cover each other and appear as one.

A case in question is the early fourteenth-century miniature of a yaḥmūr in the Freer Gallery of Art which originally belonged to a now scattered *Manāfi'-i ḥayavān* manuscript (pl. 46).⁴³ Here the horn is clearly set on the brow of the head and thus looks like a single horn. Another miniature portraying two cervine animals from the same manuscript, in the Minneapolis Institute of Art, shows clearly that the artist could draw two antlers or horns in proper perspective if he wanted to do so.⁴⁴ There is nothing in the nature of the yaḥmūr which would oblige the artist to depict it with a single horn. The modern dictionaries designate it as a wild ass or onager, without an allusion to horn or horns.⁴⁵ The text of the *Manāfi'* itself, although it does not describe the physical aspect of the animal, states at least that "its nature does not differ from that of the deer آهو." And finally the late thirteenth-century *Manāfi'* manuscript in the Morgan Library portrays the yaḥmūr with two horns. There is therefore no reason to count the yaḥmūr as another unicorn. Whether the artist of the Freer miniature regarded it either as a unicorn or was under the influence of the unicorn iconography and thus represented it as such, or whether he only wanted to represent it in strict profile, all these are unanswered questions and will probably remain so. Still the case of the yaḥmūr is significant because it proves that an animal does not have to be a unicorn even if it looks like one.

Another instance is a little scene on a carved Fatimid ivory box in the Berlin Museum.⁴⁶ Here a lion is seen attacking an antelope which is shown with only one horn on its brow. The iconographic setting makes it impossible to regard this animal as a unicorn, as was suggested in recent publications.⁴⁷ It can-

⁴³ No. 38.2.

⁴⁴ 245, figure on p. 45. The miniature represents the "mountain ox and cow" گاو کوهی which sheds its antlers every year.

⁴⁵ There is perhaps a confusion with the two-horned yāmūr یامور which al-Qazwīnī compares with the wild ox (217, vol. 1, p. 405).

⁴⁶ On the left side of the cover in 155, vol. 3, pl. 254.

⁴⁷ 64, p. 430; 55, p. 276.

not be the mighty karkadann, which overpowers all animals; and as to the kidlike ḥarish, which seems to be the most likely identification, we find that Ibn Bukhtishū' states: ". . . it is stronger and runs faster than the lion." The ivory box shows, therefore, a two-horned antelope in strict profile.

This poses now the question whether we have not been too rash in regarding the noncaptioned animals as unicorns, or especially as rhinoceroses. However, our conscience can be put at ease for two reasons. First, the scenes of a unicorn chasing an elephant can refer only to a karkadann. Second, the single-horned animals in the captioned illustrations of zoological and *Shāh-nāmah* manuscripts form such a large and varied body of rhinoceroses that they easily identify or at least provide the *raison d'être* for the comparatively few undesignated specimens on buildings and works of art. There may be one or two examples which may eventually be proved not to be a karkadann, but the rest will undoubtedly stand up under further scrutiny and remain in this category.

THE LORE OF THE UNICORN IN THE MUSLIM WORLD COMPARED WITH THAT OF OTHER CIVILIZATIONS

For the sake of clarifying the complex lore of the unicorn the preceding pages were restricted to a study of the physical character and iconographic setting of various one-horned animals in the world of Islam and to the associations which people there had formed about them. The Muslim East is not, however, the only region which has concerned itself with the unicorn. This animal is universal with wide ramifications through the ages and in various cultures, most of which antedate the birth and rise of Muslim civilization.¹ With this fact in mind one can assume that since the Islamic world has always been ready to accept and integrate ideas which conform to its concepts, an interrelationship must have existed between the beliefs held by Islamic writers and those of other civilizations. This is all the more the case because the lands of the caliphate occupied a strategic position between India and China to the east and the lands of the classical heritage and the medieval civilizations to the west, all of which have fostered myths about the unicorns. By investigating a possible interchange our understanding of the prehistory and the significance of the unicorn pictures will obviously be deepened. In view of the complexity of this ramified and widespread material, many of our explanations can be nothing but hypotheses; but at least in a few instances a new and fairly well-documented insight into the growth of the myth seems to have been gained.

A. THE ANCIENT ORIENT

There is nothing in the Muslim texts which would indicate that any particular idea about the karkadann was taken over from one of the pre-Muslim civilizations of the Near East. It seems, however, possible that the ancient arts might perhaps be responsible for the equine type of karkadann.

¹ On this subject see 242, pp. 26-48.

The Mosul jar in the Berlin Museum on which this particular type occurs for the first time belongs to an archaistic class of pottery the ornamentation of which often shows iconographic survivals from the Babylonian period (pl. 31, left).² As we pointed out in an earlier passage the scene represented might very well have been inspired by an early seal. It is irrelevant whether or not the ancient model actually represents unicorns. Ibn al-Balkhī's interpretation of the Persepolis sculpture shows that the medieval Persian was ready to see a karkadann in any animal which looked as if it were represented with only one horn. Likewise, it does not matter that the old prototype may not have been a horse at all, but a bull of equine appearance.³ Ibn al-Balkhī shows again how loose the medieval reinterpretation of an old motif could be, since in another Persepolis relief he mistook a bull for a wild ass. The Mosul jar follows the old oriental motif rather closely. It might be surmised that later on and in other regions the equine unicorn was recognized as a karkadann, especially since it was popularly believed, as shown by the Muslim texts, that the karkadann had some connection with a horse. It was then detached from the traditional iconographic setting and adapted to purely Muslim ones.

B. THE CLASSICAL WORLD

A few Muslim writers have acknowledged their acquaintance with classical texts dealing with one-horned animals. Al-Jāhiz⁴ states that Aristotle speaks of the one-horned "Indian ass" in his *Historia animalium*.⁵ Later on Marvazī quotes two Greek authors for his transcription of *ῥινόκερος* and

² The dependence of the artists of the Seljuk period on the arts of pre-Muslim periods has been noted in the discussion of textiles (237, pp. 84-90), pottery, and metal, but so far no systematic discussion has appeared. The influence comes mostly from Sasanian prototypes; the unglazed pottery of Mesopotamia follows, however, Babylonian models.

³ Herzfeld (123, teil 1, p. 116 and fig. 29) stresses that the shape of the bull of this period "ist mehr die eines pferdes"; see also 270, p. 201, No. 580, and p. 202.

⁴ 145, vol. 7, p. 40, who, in turn, is quoted by al-Nuwairī (201, vol. 7, p. 315).

⁵ 27, book 2, chapter 1, p. 499b, lines 15 ff.; 28, pp. 218-221.

for the meaning of this word in Arabic.⁶ The same author presents, in addition, several other excerpts or references to classical writers, nearly all of whom he mentions by name. In doing so he distinguishes himself from other Muslims dealing with the subject who only rarely use Greek sources. Marvazī refers to Ptolemy's *Geography* in connection with the habitat of the animal, and he paraphrases Aristotle's theory that a single horn goes with a solid hoof and that this horn is placed in the middle of the head.⁷ In another passage he gives a general description of the karkadann according to a certain *اطموسوس*. Here he is apparently reproducing the section on the rhinoceros from the *Liber de animalibus* of Timothy of Gaza (*طموثيوس*).⁸

⁶ In the manuscript of the India Office Library the transliterated term is rendered as *وروفروس* which is translated as *ذو القرن على انفه* "he with a horn on the nose." This shows that the original Greek word must have been *ῥινόκερως*. Marvazī quotes "Ali b. Zain" (according to 6, fol. 134b) or "Ali b. Din" (according to 7, fol. 88b) as his source for the statements of a Yūnānī and also a certain *اطموسوس*. The Ali b. Zain (or Dīn) is, as Franz Rosenthal informs me, probably Ali b. Rabban al-Ṭabarī. This ninth-century writer was born in Merv in 808 (192) as the son of a Christian scholar of Syrian origin and with Syriac as his mother tongue. Only late in his life and after having finished his *Firdaws al-hikma* in 850 (235) did he become a Muslim convert. Marvazī's great admiration for the Greeks has already been noted by Minorsky (183, p. 2; cf. 57, vol. 1, p. 231, suppl. vol. 1, pp. 414-415).

⁷ 6, fols. 135a-135b; 7, fol. 89b. For the view of Aristotle see 28, pp. 218-221.

⁸ For comparison we are juxtaposing the texts of Marvazī and Timothy of Gaza:

Marvazī

"Its size is that of a horse and its habitat is on the Nile and the surroundings of *baḥr al-ašamm* (?). On its nose it has a single horn, like a sharp sword, with which it can split rocks by hitting it. Sometimes it attacks an elephant with its horn and kills it. The whole of the species consists of males; there are no females and no one knows how they come into existence and how they are born" (6, fols. 134b-135a; 7, fols. 88b-89a).

Timothy of Gaza

"In size the rhinoceros is about the same as the river-horse (hippopotamus). Coming from the ocean, he dwells by the side of the Nile. He has on his nose a horn like a sword with which he is able to bore through even a rock, and with this he often kills elephants. All rhinoceri are male and how they generate, no one knows . . ." (259, vol. 3, pp. 297-298, paragraph 45).

Marvazī follows Timothy very closely, although the details of expression are slightly different. Steier (248, columns 1339-1341) has, however, pointed out

It also happens that a reference to a specific classical writer turns out to be incorrect. Thus Ibn Bukhtishū' thought that the stories about the ḥarīsh (which he equated with the karkadann) went back to Aristotle. Actually they derive from the *Physiologus*. Although Ibn Bukhtishū' was wrong, his error indicates, at least, that he felt he was dealing with a classical story now incorporated in Islamic literature.

Two classical motifs are to be found both in al-Bīrūnī and Marvazī. These authors tell us that the frontal horn of the rhinoceros becomes erect when it charges and wants to strike with it and that the animal sharpens its horn against rocks so that it can cut and pierce.

The reference to a movable horn occurs in Pliny's *Historia naturalis* where this feature is attributed to the yale (a mythical animal) and to the forest bull in Ethiopia.⁹ Cosmas Indicopleustes attributes it, however, to the Indian rhinoceros.¹⁰ This myth has been explained by the late Sir Arthur Shipley in "the practice of some African tribes who trained the horns of their cattle to point, one forward and the other backwards. In the imagination of travelers these developed into movable horns which the beast could point forward and backward at will."¹¹ As the hunting accounts of the Swede Andersson show, the myth was still current in Southwest Africa in the middle of the nineteenth century.¹² It probably persists to the present time.

The horn-sharpening feature is recorded for the first time, in the first century B.C. by Diodorus Siculus,¹³ and is then

that the manuscript which served as basis of Haupt's edition is rather poor. The better manuscript which Lambros followed for his edition unfortunately does not contain the chapter on the rhinoceros. The text of Timothy goes indirectly back to Oppian's *Cynegetica* (see the passage in 202, pp. 102-105; for Timothy's sources see 248, column 1340). Timothy lived at the time of the Emperor Anastasius I (491-518).

⁹ 209, vol. 3, book 8, pp. 54-55.

¹⁰ 76, p. 358.

¹¹ 40, p. 40. For the history of the yale in classical medieval times and its heraldic use in the West, see 89, pp. 173-199.

¹² "It is believed by many . . . that it can, at will, turn the posterior horn, the other horn meanwhile remaining firm and erect" (25, p. 304).

¹³ 86, vol. 2, book 3, pp. 180-181.

repeated by Pliny,¹⁴ Aelian,¹⁵ and Solinus.¹⁶ In classical texts the rhinoceros sharpens its horn prior to its fight with the elephant. Al-Birūnī does not speak of this preparatory step in connection with the fight between the two animals because he himself had witnessed in India such an encounter in which this sharpening of the horn did not take place. He—like Marvazī—gives it only in the hearsay account of a traveler in Africa.¹⁷ Thus this myth, like that of the movable horn, probably reached the Muslim world from the Dark Continent. Whether it represents the direct influence of indigenous folklore or its classical version is a question that cannot be investigated in this paper. It can, however, at least be stated that the horn-sharpening motif probably originated from the fact that the biggest horns of the species which was known to the classical world (the white or square-lipped rhinoceros) are usually worn flat at the front of the tip, because the horn drags on the ground when the animal grazes.¹⁸ In some cases captive animals have reduced their horns to small stumps or the horns have altogether disappeared, due to constant whetting.¹⁹ Although this seems to be the right interpretation of the old idea, classical sources replaced the correct explanation by another which is based on the belief (expressed by Agatharchides,²⁰ Diodorus,²¹ and Aelian²²) that the horn of

¹⁴ 209, vol. 3, book 8, pp. 52-53.

¹⁵ 14, vol. 1, p. 432: book 17, chapter 44 (early third century).

¹⁶ Quoted by 74, p. 16 (Solinus lived in the second half of the third century).

¹⁷ There is so far no indication that Muslim authors believed in or at least reported another African myth, namely, that "the horns are soft and pliable when the animal is at rest, and that they at once become hard and solid when on the move." (25, p. 304).

¹⁸ 120, p. 31; 53, vol. 12, pp. 607 and 613. The identification of the classical rhinoceros goes back to Trouessart (53, vol. 12, p. 607).

¹⁹ 53, vol. 12, p. 617; 97, p. 182. The notion of the classical writers may have been further strengthened by the observation how the rhinoceros uses its horn to get the bark off trees, makes wallowing pits (128, pp. 3, 6, and 14), digs under small trees or bushes to loosen their roots (53, vol. 12, p. 611), or "noses" with its horn and muzzle in ant-hills (see the exhibit in the U.S. National Museum, Washington).

²⁰ This writer of the second century B.C. is quoted by Photius (206, columns 55-56).

²¹ 86, vol. 2, book 3, pp. 180-181.

²² 14, vol. 1, p. 432: book 17, chapter 44.

the rhinoceros is much like iron in strength and hardness. Starting from this assumption, the ancients concluded that the horn can be sharpened with a kind of natural whetstone. However this may be, in Islamic literature the motif remains a rare feature.

The next question to be discussed is whether or not the fairly common accounts of the fight between the rhinoceros and the elephant found in classical literature since Agatharchides and Artemidorus (second century B.C.)²³ are the prototype for this motif in the writings of Islamic authors. The Muslim accounts are either stereotyped or very fanciful and thus in neither case based on actual observation. They must be derivative and the question is only from which source—classical or otherwise.

When one compares the Islamic accounts, especially the earlier ones, with those of the classical writers, one notices that the two differ in certain aspects. They do not have the specific classical motivation, the fight for watering places and pastures;²⁴ they do not explain why the karkadann tries to hit the belly of the elephant, which in classical literature is described as the softest part of the elephant;²⁵ and, moreover, they do not mention that if the rhinoceros is unable to strike the elephant's paunch, the elephant in turn kills it later on with its tusks and the sheer weight of its body.²⁶ For

²³ For a short survey of the literary references see 247, columns 1785-1786. A fresco with a two-horned rhinoceros following an elephant was found in a Sidonian tomb-chamber of Ptolemaic times at Marissa (Moreseth) in Palestine (204, p. 26, pl. 10; 220, p. 67 and pl. 5, fig. 13). Since the elephant carries a saddlecloth and is apparently guided by a Negro, the fresco can hardly be assumed to reproduce the proverbial fight between the two animals; only their combination in the painting could have been suggested by the classical references.

²⁴ Agatharchides (second century B.C.) as quoted by Photius (206, columns 55-56); Artemidorus (about 100 B.C.) as quoted by Strabo (253, vol. 7, pp. 334-335); see also Diodorus Siculus (86, vol. 2, book 3, pp. 180-181; and Aelian (14, vol. 1, p. 432: book 17, chapter 44). All these passages speak of the rhinoceros.

²⁵ Pliny (209, vol. 2, book 8, pp. 52-53); Solinus (74, p. 16).

²⁶ Agatharchides as quoted in Photius (206, columns 55-56); Diodorus Siculus (86, vol. 2, book 3, pp. 180-181); Aelian (14, vol. 1, p. 432: book 17, chapter 44); Artemidorus as quoted in Strabo mentions, at least, that the ele-

Islamic writers, the sole motive for the fight is the ferocity of the karkadann which prevents any animal from grazing in its very extensive territory. There is never an allusion in Islamic literature to the possibility that the rhinoceros might not be victorious. Since the time of al-Qazwīnī, however, they have given more detailed descriptions of the manner in which the karkadann attacks the elephant and of the ensuing death of the attacker as a consequence of his victory. As has already been pointed out, the Islamic accounts lack also the common classical feature of the sharpening of the horn on a rock prior to the assault of the rhinoceros. All these differences seem to point to the fact that the Muslim stories are not directly dependent on classical literature. If this is the case, how can it be explained that both civilizations have the same motif but with such divergencies?

It is natural to assume that the story of the fight between elephant and rhinoceros came from regions where the two animals are at home, that is, either Africa or India. No Muslim references pointing to an African origin of the motif have so far turned up. It is not mentioned in the African part of al-Bīrūnī's report, though it is otherwise permeated with fanciful stories. The account of the Egyptian al-Nuwairī, which contains both Indian and African lore, speaks of the attack on the elephant as taking place in India. Furthermore, nearly all Muslim authors speak of the single-horned karkadann when they mention the combat; only al-Dimashqī speaks in this connection of the two-horned species of Sumatra, while al-Gharnāṭī followed by al-Damīrī refers to a three-horned variety, which again excludes the two African species which are bicorned. Finally, various reports about the relationship of the African animals directly contradict the Muslim myth of a rampant and ever-victorious rhinoceros. Thus it has been said that "even the ponderous and quarrelsome black rhinoceros (which is more aggressive than the white species) will . . . invariably make off (when elephants approach), usually giving vent to his fear or ire by one of his vicious and peculiar

phant can prevent the belly-slitting attack of the rhinoceros by the use of his trunk and tusks (253, vol. 7, pp. 334-335).

snorts.”²⁷ Another authority states that when the two animals visit the same water hole, the black rhinoceros at all times gives way to the elephant.²⁸ Big-game hunters in Kenya, British East Africa, insist that the rhinoceros will never remain in the presence of an elephant, since the two are deadly foes and the latter always emerges victorious from any conflict.²⁹ This belief has recently been challenged by an American zoologist who “on several occasions saw both animals drinking from the same watering place, with neither paying the slightest attention to the other,”³⁰ which, at least, indicates that the African rhinoceros is not eager to combat the elephant.

All these data speak against an African origin of the Muslim myth. This does not, however, preclude the fact that accounts of deadly encounters are unknown on this continent. Andersson reports in the book on his hunting experiences in Southwest Africa, published in 1857, that “furious battles are said to take place occasionally between rhinoceros and elephant; and though, of course, strength in the elephant is infinitely superior to the rhinoceros, the latter, on account of his swiftness and his sudden movements, is by no means a despicable antagonist. Indeed instances are known where they have perished together. At Omanbondé we were told that a combat of this kind occurred not long before our arrival. A rhinoceros, having encountered an elephant, made a furious dash at him, striking his long sharp horn into the belly of his antagonist with such force as to be unable to extricate himself, and in his fall, the elephant crushed the assailant to death.”³¹ Two details of this report, viz, the attack of the rhinoceros against the belly of the elephant and his being crushed to death by the weight of the collapsing elephant, recall at once the similar account of Aelian who wrote more

²⁷ 25, p. 325, footnote 1.

²⁸ 243, vol. 1, p. 417. There is no reference to any combat; likewise Lang in his account of the white rhinoceros in the Belgian Congo does not list the elephant as an enemy (162, pp. 87-88).

²⁹ 252, p. 3.

³⁰ 252, pp. 3-4.

³¹ 25, p. 124. Ken Stott, Jr., informed me that he too found that the African natives regard the two animals as deadly enemies.

than 1,600 years before the Swedish explorer.³² This might suggest that the latter's version and perhaps also the references of classical writers to the superior strength and power of the elephant as the decisive element in the combat are of African origin.

The fact that we are inclined to exclude Africa as the source of the Muslim myth leaves us now with India as the other alternative. Only two Indian texts dealing with the motif have come to my notice. They are unfortunately late³³ and not specific enough to clarify the issue, but being the only indications of a possible Indian origin of the story, they deserve a short discussion at this point.

Bābur stated in his memoirs that in certain regions it was thought that the rhinoceros could lift an elephant on its horn, a belief not shared by the emperor himself.³⁴ Unfortunately he did not give any further details and we therefore do not know which geographical area he had in mind. The editor of the memoirs assumed that he was referring to *Tramontana*.³⁵ If this localization of the story is correct, it still remains undecided whether it is the usual tale found in Muslim literature or represents a local "Tramontanan version." In the latter case it could very well be a reverberation of tales from the not too distant Indian jungle country where the animals are at home. There is, however, still the possibility that the emperor may have referred to India after all. While the exact region referred to remains uncertain, the remarks of the Mughal emperor show at least the state of mind from which the myth arose. In one place in his memoirs he muses: "I have often wondered how a rhinoceros and an elephant would behave if brought face to face."³⁶ He leaves this question open, yet in another passage he states: ". . . the rhinoceros is more ferocious than the elephant, and cannot be made

³² 14, vol. 1, p. 432; book 17, chapter 44; see also 74, p. 15.

³³ As Professor Geiger has kindly informed me, there is no reference to the rhinoceros-elephant fight in classical Indian literature.

³⁴ 32, vol. 2, p. 489.

³⁵ The region between the Hindu Kush and the Oxus River.

³⁶ 32, vol. 2, p. 451.

obedient and submissive.”³⁷ Starting from such an attitude it is natural that a simple-minded, less critical person would soon come to the logical conclusion about the outcome of a fight. Thus a native hunter, who with simple arms had been exposed to the headlong attacks of the angered rhinoceros, and also knew of the greater docility of the elephant, could easily come to a belief in the bitter rhinoceros-elephant fight which ends fatally for the latter. And even if the hunter did not tell such a yarn, it would naturally suggest itself to people to whom the dangers of the jungle are vividly described. The final steps in the development of the story are further exaggerations and the diffusion of the accounts by traders, itinerant craftsmen, soldiers, and sailors. Naturally, such stories would find an eager ear in the greater safety of regions removed from, but still in relative proximity to, the jungle, such as Tramontana. And of course, once the notion about the ferocity of the animal became associated with the observation of its solitary life,³⁸ another myth resulted, namely, that the rhinoceros does not let any other animal graze in its territory within a radius of 100 parsangs.

The second reference to the fight between rhinoceros and elephant is of fairly recent date. When, after a stay of 20 years in Bengal, Capt. Thomas Williamson wrote his *Oriental Field Sports* in 1819 he repeated in his chapter on the rhinoceros most of the features known to Muslim writers about this animal including its fierce enmity for the elephant.³⁹ Williamson writes that he is “compelled to rely much on the report of those residing in situations frequented by the rhinoceros,” and although he discredits the accounts of the natives who professed to have been present while the rhinoceros and the elephant were fighting, he nevertheless seems to be under the influence of the local beliefs of such deadly encounters.⁴⁰

³⁷ 32, vol. 2, p. 490.

³⁸ 53, vol. 21, p. 612; 128, p. 5.

³⁹ 278, pp. 163-177.

⁴⁰ 278, pp. 164-166 and 174-175. The scene with “a rhinoceros charging elephants” published by Coomaraswamy (75, vol. 2, pl. 22) is after a design of Captain Williamson drawn by Samuel Howitt (278, vol. 1, pl. 11). This picture shows at the right a large elephant whose belly has been ripped open by the rhinoceros in such a way that the blood-stained intestines show.

These two sources (in the absence of earlier and more specific accounts which, it is hoped, will eventually turn up) lead one to assume that the Muslim belief in the elephant-rhinoceros fight belongs possibly to Indian folklore. Such an assumption is, to a certain degree, corroborated by the fact that the account of the fight occurs in the "Voyages of Sindbad" which are strongly permeated by Indian popular stories.⁴¹ Here we find, furthermore, a clear statement of how the yarn was disseminated. In the second "Voyage" it is said that ". . . the sailors, travellers, and persons in the habit of journeying about in the mountains and lands have told us that this wild beast which is named the rhinoceros lifteth the great elephant upon its horn . . ." Thus it seems most likely that Muslim sailors

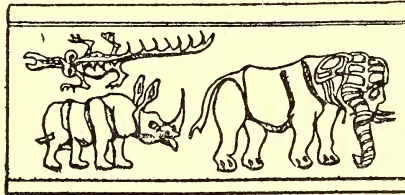


FIG. 2.—Indian seal found in Tell Asmar. Middle of third millennium B.C.
(After 104a, fig. 108.)

and travelers picked up the tale in India and brought it home with them.

As far as this writer knows, no early Indian figural rendering of the elephant-rhinoceros fight seems to have come to light. It is true an Indian seal, with a well-defined rhinoceros behind an elephant, was found in a house of the middle of the third millennium B.C. in Tell Asmar (the old Eshnunna) in Iraq, where it must have been brought by ancient trade (fig. 2). The fact that there is a crocodile-like gharial above the rhinoceros, however, would seem to invalidate the assumption that this is an early representation of the elephant-rhinoceros fight;

⁴¹The rukh stories likewise reveal Indian influence. A third Indian motif is found in the seventh "Voyage," where we learn of the burial place to which the elephant repairs when it feels the approach of death (23, vol. 3, p. 177). The Singhalese parallel was pointed out by the British zoologist Sir J. Emerson Tennent more than 80 years ago (256, pp. 181-182).

it would be wrong to assume a relationship between the two animals without considering the third, in this combination. An even more forceful argument is presented by a seal impression found in Mohenjo-daro on which is a procession of four wild animals, the elephant *following* the rhinoceros, and the latter preceded by two beasts which Sir John Marshall defines as a tiger or leopard and another catlike animal. Compared with the Tell Asmar seal, the position of the two animals in which we are here interested is reversed. All we can say, therefore, is that on seals of the Indus civilization the elephant and the rhinoceros occur together with other animals, without any fixed position and without indication of a fight.⁴²

The "unicorn"-elephant fight is one of the most widely spread motifs within the whole myth. Not only is it a standard feature of many classical and Islamic authors, but it is also to be found in the books of great Christian writers such as Isidore of Seville⁴³ and Timothy of Gaza.⁴⁴ Through the French-Norman poem of Guillaume le Clerc it was introduced in the medieval bestiaries and their series of miniatures,⁴⁵ and it is to be found in the lore of the Renaissance as, e.g., shown by the poetry of Joshua Sylvester,⁴⁶ by some tapestries,⁴⁷ and by the inscription on Dürer's woodcut of the rhinoceros.⁴⁸ Through the Jesuit Ferdinand Verbiest it was in the second half of the seventeenth century even introduced into Chinese literature.⁴⁹ It seems therefore appropriate to investigate

⁴² For the Tell Asmar seal see 104a, pp. 305-306 and fig. 108, a reference kindly pointed out to me by D. S. Rice. For the Mohenjo-daro seal impression see 179, vol. 2, p. 395; vol. 3, pl. 116, No. 14.

⁴³ 138, p. 435, paragraph 53.12.

⁴⁴ 259, vol. 3, p. 297, paragraph 45.

⁴⁵ 271, pp. 33 and 35, pl. 156; 74, p. 17. The text of Guillaume le Clerc (written in 1210) goes back to the Latin prose work *Liber de bestiis . . .* of Hugh de St. Victoire. Guillaume regards the unicorn as "si combatanz e si hardie, qu' as olifanz prent atie," but in its fight with the elephant it uses its claws and hoofs to rip the belly of its adversary (116, pp. 102 and 282-283).

⁴⁶ 242, pp. 217-218.

⁴⁷ 110, vol. 2, fig. 148 (Flemish-German, ca. 1540); 13, fig. 2 (Paris, mid-sixteenth century).

⁴⁸ 87, pp. 46 ff.

⁴⁹ 165, pp. 78-79.

what the relationship between these two animals actually is. In doing so this writer has to admit that he never witnessed an encounter between the two animals. Therefore he is in a not much better position to judge this problem than Cosmas Indicopleustes, whose account is partly based on stuffed animals, or al-Jāhiz, who merely evaluated literary reports without having seen the animal. A modern writer has, of course, a larger amount of first-hand evidence at his disposal, including that of modern zoologists trained in the observation of animals. However, it is astounding how even these well-trained observers can come to different conclusions.

The best zoological opinion seems to be that the rhinoceros is "as a rule a quiet, inoffensive animal."⁵⁰ Its senses of hearing and smell are extraordinarily acute, but its eyesight is so poor that it is of little use. Owing to this condition the animal depends mainly on its auditory and olfactory senses to warn it of potential danger. It is constantly on the alert and a sudden sound or scent can send it into uncontrolled panic.⁵¹ When the animal "gets one's wind . . . it will immediately go off at full speed in any direction . . . if facing you it is liable to run in your direction."⁵² This dash is actually more of a flight than an attack and the animal seems to be unaware of what it is heading for. To the untrained or frightened observer this looks, of course, like a wanton and ferocious at-

⁵⁰ 48, p. 473. Blanford adds to this statement the following very significant passage: "the stories of its ferocity and its deadly enmity to the elephant that were copied from the not very veracious pages of Captain Williamson's *Oriental Field Sports* into European works on natural history, being fables." (See also 240, vol. 5, p. 160.) Brehm (53, vol. 12, p. 608) states that "das indische Nashorn ist . . . ausserordentlich böseartig," but he explains in another passage that every rhinoceros is good-natured ("gutmütig") when it first comes across man and is not irritated, only to become vicious when aroused or when it has had bad experiences. The same Brehm mentions at another place that Indian rhinoceroses are "überaus gutmütig und harmlos" (p. 614).

⁵¹ 252, p. 3.

⁵² 128, p. 11. Brehm mentions how a rhinoceros ran away from a single dog, or as soon as it got the scent of a man (53, vol. 12, pp. 613-614). There is also historical proof for the reluctance of the rhinoceros to accept a challenge. Bābur mentions in his memoirs that during a hunt the animal would not attack either man or horse and fled for 2 miles into the plains before it could be killed (32, vol. 2, p. 451).

tack and just like the destructive disposition attributed to the animal by popular belief.⁵³ The impression of an attack is further strengthened by the fact that the rhinoceros can trot and gallop in contrast to the elephant which can only walk or shuffle.⁵⁴ "Only when wounded and driven about, the rhinoceros will sometimes charge home, though this is an exception."⁵⁵ It will then tackle anything it can dimly see and against which it rushes on in a straight line.⁵⁶ His targets can thus be trees, rocks, locomotives, trucks, the elephant mount of a hunter,⁵⁷ and so on. When it attacks, it "is said to use its sharp lower incisors (or as some think, lower canines), much as a hog does."⁵⁸ On the other hand when the animal is not frightened it can be easily tamed.⁵⁹

The elephant, being on the whole a rather timid, inoffensive animal,⁶⁰ tries to avoid the great Indian rhinoceros which, at times, it seems to fear and from which it runs away. This is said to apply equally to the wild elephants of Bengal and the trained hunting animals,⁶¹ although there is, as we shall presently see, other proof of the courage of the elephants. There is no reason to assume that there is a deadly fight for pasturage between them, as the classical writers believed.⁶²

⁵³ 128, p. 16.

⁵⁴ 48, pp. 474 and 465; 256, vol. 1, pp. 40-41. Shortridge states that the elephant "never attempts any pace beyond a shuffling kind of trot" (243, vol. 1, p. 368).

⁵⁵ 48, p. 473.

⁵⁶ 53, vol. 12, pp. 611 and 614.

⁵⁷ 148, p. 233; 240, p. 160.

⁵⁸ Blanford (48, pp. 473-474). To this zoologist was "shown in Cooch Behar, a straight horizontal scar on one of the Maharaja's elephants just between the feet . . . such a wound could not have been produced by the horn of the rhinoceros." Cf. also 128, p. 3; 240, p. 160.

⁵⁹ 165, pp. 80-81, footnote 2; 252, p. 3.

⁶⁰ 48, p. 466.

⁶¹ 38, pp. 14, 54, 91, 145; 240, p. 160. Shebbeare states about the great Indian rhinoceros: "Wild elephants, though only too plentiful in the surrounding forest, give the rhino and its haunts a wide berth" (241, p. 1229). The relationship between the two animals in India seems to be the opposite from what it is in Africa (see above, pp. 79-80).

⁶² This is also the opinion of Steier (247, column 1786) and Wellmann (274, column 2251).

There even exists a report of the peaceful encounter of a Sumatran rhinoceros

The attitude of the rhinoceros to smaller animals is quite unpredictable. To quote a recent observer of the African species: ". . . sometimes he feeds or drinks amidst a herd of mixed species, apparently oblivious to their presence. On other occasions he obviously wants the area all to himself, and makes no bones about it." The same author tells that he watched "a rhino charge into a herd of buffalo scattering them in all directions, and on another time a female rhino and calf sent a group of ten giant forest hogs scrambling away from the waterhole. The rhinos were not content to drink until the forest hogs had entirely abandoned the forest clearance in which the muddy pool was located."⁶³ This attitude is exactly the one which impressed itself so much on the Muslim mind and which has found such frequent expression in the figural arts.

The belief in the myth of the elephant-rhinoceros combat was so strong that at certain times the animals were set against each other. Thus when King Emmanuel of Portugal received, in May 1515, an Indian rhinoceros as a gift of Muḏaffar, King of Cambay, the first specimen to reach Europe since Roman times, he matched it against an elephant. The fight took place in Lisbon, on June third, 1515. As described in a letter by Valentin Ferdinand of Moravia, it proved to be a disappointing affair, since as soon as the elephant noticed the rhinoceros, it turned tail and with every sign of fear tried to get away; it finally broke some iron bars of a window and managed to escape.⁶⁴

and an elephant which recalls the one given by Stott of his experience with an African rhinoceros (see above, p. 80). Since I have not been able to find such a report on the Indian species, I am quoting, at least the passage about the episode at a water hole in Burma:

"I crept to the pool along an elephant path, and sure enough saw, not only a double-horned Sumatran rhinoceros with a fine posterior horn, but also a very fine bull elephant with a very good pair of tusks. The latter was throwing mud and water backwards over his body and between his forelegs. To cool himself and to drive away the gadflies, the rhinoceros was standing alongside the pool within ten yards of the elephant which seemed to take absolutely no notice of its presence. A cock silver pheasant was also standing between the two animals" (258, p. 149).

⁶³ 252, p. 4; 243, pp. 421-422.

⁶⁴ 104, pp. 33-41; 87, p. 50.

Even at the court of Lucknow, where the king arranged all kinds of animal fights, the contest between a rhinoceros and an elephant was not very exciting and altogether not easy to effect since the two animals would attack each other only when both were *must*.⁶⁵ The account given to us by Knighton in his *Private Life of an Eastern King* discredits the unhappy end in certain classical and all Muslim stories. At the same time, it contradicts the medieval Muslim representation of the fight according to which the karkadann approaches the elephant from behind since it is assumed that the elephant is fleeing from its enemy. Knighton's report states: "The elephant approaches as usual with his trunk thrown up into the air and head protruded; the rhinoceros either standing upon his guard, or also advancing with lowered snout. The tusks of the elephant sometimes pass on each side of the rhinoceros harmlessly, while the huge head shoves the lighter animal backwards. If the elephant's tusks trip up the rhinoceros, as is sometimes the case, they are then plunged into him without mercy; but more frequently the contest ends to the disadvantage of the elephant, by the rhinoceros inserting his snout between his antagonist's forelegs and partially ripping him up; the elephant belaboring all the time with his trunk, to a certain extent uselessly, however. Prevented by his tusks, the rhinoceros cannot get his snout far under the elephant's body, so that the wound he inflicts is not generally a very severe one."⁶⁶

⁶⁵ This pathological condition results either in peculiar paroxysms of excitement or in melancholy; it has often been described in the case of the elephant, but its causes are still little known. The usual explanation on a sexual basis is, at least to a certain degree, questioned by many Western writers on the subject. (See the comments on the most important literature in Edgerton's edition of the *Mātāṅga-līlā*, 197, pp. 29-38).

Al-Jāhiz was the first Muslim writer to point out the importance of the *must* condition, because he states that an elephant in heat is fiercer than a karkadann (145, vol. 7, p. 24); Al-Mas'ūdī describes how the elephant attacks its mahouts and guards and is then in such a wild state that even the karkadann flees from it (184, vol. 3, pp. 57-58). This is, however, contradicted by al-Nuwairī, who states that the karkadann attacks an elephant in heat, although no other animal can withstand it at that time; the elephant draws back in fear and his lust subsides (201, vol. 9, p. 316).

⁶⁶ 151, pp. 164-165. This book, first published in 1855, is based on information

The staging of such fights at the court of the kings of Oudh suggests yet another possible origin of the myth of the elephant-rhinoceros battle. In countries where people enjoy the spectacle of animal combats,⁶⁷ all possible combinations are either actually set to test against each other or, at least, thought of as possible rivals. In India both elephants and rhinoceroses were available and there were affluent courts staffed with the necessary men to arrange such fights. Although deductions from the behavior of the rhinoceros during hunting expeditions are probably of basic importance in the formulation of the myth, actually staged (or just fancied) combats may have given further substantiation to it.

In addition to these staged fights, the animals also encountered each other in the hunting field, when the elephant served as a mount. Thus in 1525 Bābur had the mahouts drive their charges toward a roused rhinoceros which had broken cover right in front of the elephants; the rhinoceros did not face the challenge, but ran off in another direction.⁶⁸ This must have been a real disappointment for the Mughal emperor, since he was interested in determining the outcome of an encounter between the two monsters.

Another document demonstrating the elephant's bravery is a miniature of the hunting Jahāngīr in the Sohn-Rethel collection (pl. 33); it shows clearly that it would stand its ground in face of a fierce attack and not run away.

What amounted to a fight took place during a viceregal hunt in Assam in 1909. At that time the elephant was brought to his knees while the rhinoceros rolled on the ground whence it rose to its feet and disappeared into the jungle.⁶⁹

The only dissenting opinion is voiced by Bengt Berg who reports that "it occurred several times on big hunting expeditions in India that the belly of big hunting elephants was slit open by the weapon of the aroused rhinoceros and the wounded

given to the author by an anonymous European courtier of King Nāsir al-dīn of Oudh (1827-1837). I owe this reference to Prof. K. A. C. Creswell.

⁶⁷ "Beast fights of various sorts have been held in India from time immemorial" (47, p. 451).

⁶⁸ 32, vol. 2, p. 451.

⁶⁹ 53, vol. 12, p. 619.

elephant fell on the battle field.”⁷⁰ Berg’s statement is apparently not based on personal observation, and he may very well have become a victim of the old myth.

There is finally one more report, the earliest of them all, which, however, does not indicate whether it was a staged fight or an episode during a hunt. According to the version translated by Sachau, al-Bīrūnī speaks of a young rhinoceros which attacked an elephant, apparently frontally, because “the rhinoceros wounded with its horn the forefoot of the elephant and threw it down on its face.” Whatever the conditions may have been under which the encounter took place,⁷¹ the mode of attack as given by al-Bīrūnī is quite different from various versions of the alleged fights as described by later Muslim writers and then represented by the artists.

The conclusions to be drawn from these observations are that certain elephants fear the rhinoceros and run away from it, but this is by no means always the case. The rhinoceros, on the other hand, does not seem to be afraid of the elephant,⁷² but rather tries to avoid it. However, when disturbed, especially by men, it will make a headlong dash which looks like a charge; this may actually be a flight, though at times it is a real attack. Only under special conditions, when the rhinoceros and the elephant are *must* or infuriated are they ready to fight. The outcome of these encounters is differently reported. It seems that the frontal attack on the elephant is not fatal. If the deaths claimed in the report by Berg have actually occurred, an attack from the rear, i.e., on a fleeing elephant, might be assumed. As to the origin of the Muslim combat myth, it has not been possible to assemble conclusive evidence, but the data so far gathered seem to point to India.

⁷⁰ 38, pp. 91-92.

⁷¹ The text of a more extensive rendering of this encounter found in Marvazī is unfortunately not well preserved in the two London manuscripts. According to this version the encounter was staged for Sultan Maḥmūd of Ghazna (6, fol. 135a; 7, fol. 89a).

⁷² According to Hubback “nothing except human scent seems to worry the rhinoceros” (128, p. 7).

There are a number of other features for which the Muslim authors give the same kind of information as the writers of the classical period. Usually, however, it is difficult to prove whether there is an actual case of borrowing at hand. Pliny and Solinus,⁷³ for instance, speak of the three-horned oxen of India. This recalls al-Gharnāṭī's words (repeated by al-Damīrī) which state that the rhinoceros has three horns, one between its eyes and two above its ears.⁷⁴ Another undecided issue is the position of the horn on the forehead of the animal. Aristotle,⁷⁵ Pliny,⁷⁶ and Aelian⁷⁷ speak of this feature; however, when it occurs in Arab writings it may also be a deduction from the position of the antlers and ordinary horns. As to the equine features of the karkadann in Muslim representations, it is unlikely that these can be accounted for by an author like Aelian who speaks of a single-horned horse,⁷⁸ since in Muslim literature no such description is given. But there is at least one feature in Muslim texts which may possibly have been conditioned by classical authors. We are referring to the belief in different unicorns which were accepted by even the outstanding writers of antiquity.⁷⁹ This conception may have lingered on in Muslim times although the categories of the Arab authors are different.

⁷³ Pliny (209, vol. 3, book 8, pp. 54-55; 165, p. 104), Solinus, *Collectanea*, 52, 38 quoted by 74, p. 6.

⁷⁴ The Chinese dictionary *Erh-ya* with commentary by Kuo P'o (276-324) also defines the hsi rhinoceros as having three horns, one on the head, one on the forehead, and the third on the nose (95 in 165, pp. 94 and 104). For a three-horned animal, somewhat resembling a rhinoceros, although not quite fulfilling the requirements of the *Erh-ya*, see the Six Dynasties figure in the Eumorfopoulos collection (96, vol. 1, p. 17, No. 128, and pl. 17).

⁷⁵ 28, pp. 220-221 (speaking of the single-horned oryx and "Indian ass").

⁷⁶ 209, vol. 3, book 8, pp. 56-57 (speaking of the unicorn).

⁷⁷ 14, vol. 1, p. 104: book 4, chapter 52 (speaking of the wild asses of India) and p. 399: book 16, chapter 20 quoted by 74, p. 11 (speaking of the animal called *καρτάζωνος* kartázonos by the Indians).

⁷⁸ 14, vol. 1, p. 76: book 3, chapter 41.

⁷⁹ 242, p. 34: "Aristotle knew of only two unicorns, but Aelian and Pliny between them muster seven: the rhinoceros, the Indian ass, the oryx, the Indian ox, the Indian horse, the bison, and the unicorn proper."

C. BIBLICAL AND EARLY CHRISTIAN WRITINGS

Biblical and early Christian influence on the lore of the mythical unicorn is very limited. Al-Jāhīz knew that the Psalter mentions the unicorn and quotes these Biblical references as a confirmation of the existence of the karkadann.⁸⁰ The most important contribution of the early Christian period is the characterization of the ḥarīsh and the story of its capture with the help of a young woman. The Muslim lore derives obviously from that very influential and widespread collection of allegorizing animal stories, called the *Physiologus*, a work now thought to have been composed about A.D. 370 in Caesarea, Palestine.⁸¹ If one compares the Greek version published by Sbordone⁸² with the earliest known Arabic ones, by al-Tawḥīdī (see p. 60) one finds that the *Physiologus* text is much shorter, although it is identical in the main features. But one of the Syriac versions⁸³ is fairly close to that of al-Tawḥīdī and it seems therefore that the influence came from this direction.⁸⁴ However, the Muslim accounts do not use the story for allegorical purposes as the Christian versions usually do, by likening the unicorn with Christ, by interpreting

⁸⁰ 145, vol. 7, p. 40.

⁸¹ 275, pp. 11 and 13.

⁸² 208, pp. 78-80: "It is a small beast like a kid, but very fierce. A hunter cannot approach it because of its great strength. It has one horn in the middle of its head. How then is it caught? They send out a pure and richly attired virgin before it and it jumps into her lap and the virgin gives the beast her breast and takes him up to the palace to the king." See also 163, pp. 229 ff. (quoted by 238, p. 181).

⁸³ 207, p. 43. According to Lauchert (163, p. 86) this is a "later" Syriac version. Wellmann attributes it to the seventh century (275, pp. 11-12), while Ahrens stresses its importance for the understanding of the original *Physiologus* (207, p. 9).

⁸⁴ This Syriac version is closer to that of al-Tawḥīdī than the Christian-Arabic version of the *Physiologus* published by Land (26, vol. 4, pp. 146-147). This particular Arabic version lacks references to the size of the kid, its quietness and swiftness, its aggressiveness against animals, its "natural affection," the lack of milk in the breast of the virgin, the intoxication induced by the sucking which is like that from wine, the tying with a rope and the motionless behavior of the animal; all these features are in al-Tawḥīdī and nearly all of them in the Syriac text. Al-Tawḥīdī did not use a Syriac text directly, but an Arabic translation entitled *Nawādir al-ḥayawān* (153, vol. 2, pp. 67 ff., footnote 1).

the single horn with the unity of Father and Son, and so on, thus giving every actor and feature in the story a symbolical meaning.⁸⁵ In Islam the passages about the ḥarīsh are just fanciful stories about a strange animal.

There is an early Christian feature of the unicorn story which has its parallel in Islamic literature; however, it does not represent a case of borrowing from a Christian source. Cosmas Indicopleustes tells us that when the unicorn "finds itself pursued by many hunters and on the point of being caught, it springs up to the top of some precipice, whence it throws itself down and in the descent turns a somersault so that the horn sustains all the shock of the fall and it escapes unhurt."⁸⁶ Although it has been noticed by a modern zoologist that the rhinoceros can jump down a sheer drop of 20 feet,⁸⁷ the idea that it could break its fall with the help of its horn is a mere tale. This feat has, however, been observed in the case of the Persian wild goat (*Capra aegragrus*) which can save itself after having made a false step by falling on its horn.⁸⁸ This very incident is represented in the *Manāfi'* manuscript of the Morgan Library in the chapter on the mountain goat (*buz-i kūhī*) and illustrates the reference to this feature in the text.⁸⁹ There seems little doubt that in this case it is Cosmas who borrowed this trait from an account of the Persian wild goat or of an antelope which can perform the same feat.

⁸⁵ For this see 242, p. 48; 238, pp. 181 and 186; see also the allegorical interpretation in the Christian-Arabic version of the story published by Land (26, vol. 4, pp. 146-147).

⁸⁶ 76, p. 361.

⁸⁷ 128, p. 6.

⁸⁸ 48, p. 503. McCrindle, the translator of Cosmas, tells us that the oryx is said to have the same facility (76, p. 361, footnote 3), while Shepard mentions also the ibex and the Rocky Mountain goat (242, p. 193).

⁸⁹ 182, vol. 2, pl. 25C. The text, fol. 37b, states: "One of the wonderful traits of the mountain goat is that it throws itself down from places that are about one-hundred spears high and stands on its horns." The same iconographic feature occurs in Western *Bestiary* manuscripts as, for instance, The Pierpont Morgan Library ms. 81, fol. 33 (ca. 1170). See also 40, fol. 9a (twelfth century) and 41, fol. 190b (ca. 1310).

D. INDIAN INFLUENCES

It is evident that India, the homeland of the great Indian rhinoceros, must have provided many features of the lore of the Muslim unicorn. This is at once borne out by the fact that the common names of the animal such as karkadann, karg⁹⁰ al-bishān,⁹¹ and ganda,⁹² and also sharav are all of Sanskrit origin. Since at least one of these words from the

⁹⁰ 268, vol. 2, p. 820. Prof. B. Geiger (referring to Vullers' dictionary and to Lagarde) confirms the old etymology which derives modern Persian karg from Sanskrit khaḍga (1) sword, (2) horn of a rhinoceros, (3) rhinoceros; and karkadan, Arabic karkadann, from khaḍga-dhenu, female rhinoceros (lit. rhinoceros-cow). He does not accept the etymology presented by Ferrand (98, vol. 2, p. 675) according to which karkadann derives from khaḍga-danta "having sword-(like) teeth." His nonapproval of this etymology is based on a number of reasons, especially on the fact that khaḍga means besides sword, also rhinoceros (thus used in Vedic and classical Sanskrit texts) and according to lexicographers also "the horn of the rhinoceros," and that, furthermore, the characteristic feature of the animal is its horn and not its teeth.

Since the early days of Assyriology the Akkadian word kurkizannu has been connected with karkadann and therefore has been translated as rhinoceros. Dr. A. Leo Oppenheim informs me, however, that "the context (of kurkizannu) clearly indicates the meaning 'young pig' and the correctness of this translation has been borne out recently by such occurrence as e.g. 'one pig and its ten kurkizannu.' The karkadann in Arabic, Syriac, Ethiopic (here: karkaned) etc. can therefore not be connected with kurkizannu."

Dr. Cammann informs me that in Sung times the "Western" name of the rhinoceros was known as ker-ka (second half of the eleventh century); this is obviously a Chinese rendition of karg.

⁹¹ Thus in the *Akhbār al-Šīn wa'l-Hind*, but there are also misread versions like al-nushān or al-nūshān (184, vol. 1, p. 385, and vol. 3, p. 58), al-mūshān (Ibrāhīm b. Waṣīf-Shāh), and الشان البستان الفستان in various manuscripts of al-Nadīm's *Fihrist* (192, vol. 2, p. 184). Reinaud already connected the word with Sanskrit viṣāṇa "horn." Al-Nadīm (192, vol. 1, p. 349, and 98, vol. 1, p. 130) and al-Jaihānī as quoted by Marvazī (6, fol. 135b; 7, fol. 89b) still call the horn of the rhinoceros (or a piece from it) by the name of al-bishān although al-Nadīm could have applied it also to the girdle decorated with the horn pieces. Even when the term is given to the animal itself, such a designation as البشان المعلم al-bishān al-mu'lam "the marked bishān" (*Akhbār al-Šīn wa'l-Hind* and al-Mas'ūdī) seems to refer to the designs in the horn. Marvazī states also that the Chinese call it بشان bishān, which is borne out by p'i-sha-na, the Chinese name for the horn; and in a Chinese Cham vocabulary it is given as basan. (For a discussion of the nomenclature see 98, vol. 2, p. 675; and 183, p. 82.)

⁹² كنده or گنده from Sanskrit *gaṇḍa* only given by al-Bīrūnī and Marvazī.

Sanskrit—karkadann or karg—seems to have been current in Iran during the late Sasanian period (see below, p. 150) we can assume that Indian stories about the animal could have been known in that country about that time.

It is, however, difficult to establish actual parallels by quoting pertinent Indian passages since the rhinoceros, though occurring as early as in the seals of the Indus valley civilization⁹³ and in Buddhist texts⁹⁴ “hardly plays any role in the cultural life, folklore or mythology of India. The allusions to it in literary records are exceedingly sparse.”⁹⁵ Still quite a number of Muslim borrowings from India can be established.

One such influence is only indirect, but it had great repercussions on the Muslim lore; it came from the legend in the Mahābhārata about the young hermit Ṛṣyaśṛṅga.⁹⁶ He was the son of the Ṛṣi Vibhāṇḍaka and a gazelle and on his forehead thus grew a single horn. This caused him to be called Ṛṣyaśṛṅga, “gazelle-horn,” or according to certain Buddhist versions of the legend, Ekaśṛṅga, “unicorn.”⁹⁷ When a

⁹³ 179, vol. 3, pl. III, Nos. 341-347, pl. II6, Nos. 10-13; see also copper tablets on pl. 117, No. 3. The clay figurines of the animal (pl. 97, Nos. 8-11) made by children indicate the familiarity with and even the popularity of the rhinoceros in the Mohenjo-daro civilization (179, vol. 1, p. 348; vol. 2, p. 387). The animal occurs also in Harappā (137, vol. 2, pl. 79, Nos. 74-79, pl. 91, Nos. 252-253) and Chanhu-daro (171, pl. 56, No. 8). For the inclusion of both rhinoceros and elephant in the same figural representation, see above, pp. 83-84.

⁹⁴ See the Khaggavisāṇasutta in 254, pp. 6-11. Prof. W. Norman Brown does not translate the famous refrain as “but live—as lives the rhinoceros—alone”; his rendition is “let him live alone, like the rhinoceros’ horn” (60, p. 218).

⁹⁵ 165, p. 112, footnote 2. Professor Geiger informs me that *khadga*, sword, horn of rhinoceros, rhinoceros, and *khadgin*, rhinoceros, literally “having a horn,” do not occur often in the literature of India. In Sanskrit works are some passages where the rhinoceros is mentioned in enumerations of wild animals or as having been killed by the arrows of a hero, while the law books state that its meat is lawful for eating. Briggs (55, pp. 280-282) has gathered references, nearly all of them modern, which illustrate the sacred position of the rhinoceros in India. See also 118, p. 378.

⁹⁶ The relationship to the Indian legend was first treated by Beal (11, p. 124, footnote 2) and then further established by Lüders (169, year 1897, pp. 114-115. See also 165, pp. 110-112; and 238, pp. 181-182). The various versions of the story are discussed in 169.

⁹⁷ 169, year 1897, p. 114.

drought struck the kingdom of Aṅga, the Brahmins advised the guilty King Lomapāda to bring the chaste R̥ṣyaśṛṅga into the country. The hermit is therefore visited by Śāntā, the daughter of the king (or by courtesans, according to other versions) whom the pious man imagines to be a penitent disciple. She arouses the hermit's love and then lures him to her cell on a disguised float which is at once released to bring them to Aṅga. Rain falls and the hermit marries the king's daughter. This seems to be the ultimate prototype for the *Physiologus* story of the capture of the unicorn with the help of a young woman which, as we have seen, occurs again in the accounts of the ḥarīsh.

The legend of R̥ṣyaśṛṅga is also the *raison d'être* of the cervine type of unicorn. The genesis of its development is quite clear. The first stage took place when the Indian legend (or a derivative) was adapted for the purposes of the *Physiologus*. The Christian version reappears then in the accounts of the ḥarīsh the earliest version of which so far traced is to be found in al-Ṭawḥīdī (died after 1010). The ḥarīsh apparently soon became confused with the karkadann, since both animals have a single horn.⁹⁸ As far as can be seen the wrong identification appears for the first time in the *Ṣiḥāḥ* of al-Jawharī (died between 1003 and 1010) which states that the ḥarīsh is the karkadann.⁹⁹ Ibn Bukhtishū', too, who wrote only slightly later (he died after 1058) opens his account of the karkadann with the remark that the Arabs call it ḥarīsh and then speaks of the ruse involving a maiden with which the animal can be caught, a feature not quoted by al-Mustawfī as being part of the account of the animal in the *Ṣiḥāḥ*. The only remaining question is just how the kidlike animal of the *Physiologus* and of the Muslim texts came to resemble an antelope or stag in the figural representations. In this connec-

⁹⁸ Laufer (165, p. 115) points out that the Sanskrit word vārdhrāṇasa means both a rhinoceros and an old white goat-buck, so that the confusion might have been reinforced by semantic conditions, if they did not produce it entirely.

⁹⁹ The account is reproduced in al-Mustawfī (191, pp. 40-41, translation, p. 29). The eleventh-century dictionary of Asadī also states that the karkadann has the shape of a goat (30, p. 105).

tion it is well to remember that the prototype of the ḥarīsh, the hermit of the Indian legend, was the son of a gazelle and was originally called "gazelle-horned" (Rṣyaśṛṅga) and that there was a general folkloristic belief in cervine unicorns in the classical and postclassical periods,¹ which possibly may go back to Indian concepts.² The myth of this type of animal found figural expression also outside the Muslim world. This fact was established by Laufer who referred to an illustration of a cervine unicorn in the Chinese *Chêng lei pên ts'ao*, dated 1208.³ It therefore seems that the iconographic type goes back to an earlier literary or figural model which was based on the Rṣyaśṛṅga story or on general folkloristic notions about a cervine animal. As stated before (p. 18) the analogy to antelopes, the usual horn-bearing hunted animals, possibly influenced the development of the type.⁴

In other cases Muslim authors have specifically acknowledged India as a source of the information they give in their books. To this category belongs the story first told by al-Jāḥiẓ that the karkadann prevents other animals from grazing in its domain. The same applies to the yarn of the foetus sticking its head out of the dam's womb prior to its birth, for which both al-Jāḥiẓ and al-Bīrūnī claim Indian origin. Al-Qazwīnī gives an account of a caravan traveler who miracu-

¹ Thus, e.g., Aristotle speaks of a unicorn gazelle (oryx). In the *Cyranides*, a Greek work written between A.D. 227 and 400, it is said that the rhinoceros is a quadruped resembling the stag, having a very large horn on its nose (165, p. 110).

² This is assumed for the *Cyranides* by Laufer (165, p. 115).

³ 165, p. 109. There is also a Chinese bronze figure of a cervine unicorn in the A. Schoenlicht collection, which Visser attributes to the Sung period or earlier (266, pp. 218-219); it is difficult to give a specific date to this piece which might possibly be later than Sung.

⁴ The iconographic history of the sharav falls outside the scope of this paper since it is not a unicorn, although in Islam its lore became connected with that of the rhinoceros. Being the product of Indian imagination it can be surmised that there are Indian pictures which could have influenced the miniature of the sharav in the Berlin al-Qazwīnī manuscript (pl. 13, upper left). That such animals exist in Indian art is shown by a seventeenth-century Goanese bedspread in the Brooklyn Museum on which we find a bovine animal with the characteristic four excrescences on the back (fig. 3; cf. 187, p. 130, speaking of "strange spiny-backed creatures").

lously saved his companions from highway robbers by throwing powdered rhinoceros horn mixed with dust on the brigands. Since the man was an Indian, it can be assumed that the belief in this quality of the horn was current in India. It may very well be that some other alleged uses of the rhinoceros horn come from the same country. This seems to be implied in the statement of al-Qazwīnī and others about the effects of the protuberance of the rhinoceros horn which is "only to be found in the possession of the kings of India." At first sight this statement looks, of course, suspect, since a branch of the rhinoceros horn can be nothing but a fanciful fabrication of the mind. If one wants to attach any significance to al-Qazwīnī's

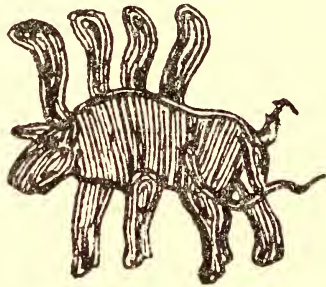


FIG. 3.—Sharav (śarabha). Detail from an embroidered Indo-Portuguese bedspread. Goa, seventeenth century. Brooklyn Museum. (After 187, fig. 9.)

passage one would first have to explain how the notion of such a branch could have arisen.

One possible solution of the riddle might be the psychological effect of seeing the famous horn for the first time. It could very well be imagined that the Muslims must have been amazed at its insignificant dimensions. Its small size was contrary to the traditional ideas about the horn so clearly demonstrated by the pictures and it also fared very poorly when compared with the tusks of the elephant. Since the horn was in high repute it must have been difficult to imagine that this was the whole of it and therefore the myth might have arisen that this particular object in royal possession—perhaps a cup like the ones still kept in the Shōsōin⁵—was just a very power-

⁵ 147, vol. 1, pl. 31; vol. 7, pl. 8. See also 246, p. 55.

ful branch of the main horn. This interpretation was all the more natural because everybody was acquainted with branched antlers of a stag with which it had been sometimes compared. All this sounds reasonable enough to take the branch of the horn out of the range of myths and into that of reality. Once this has been established there seems no reason to doubt that the effects of the "branch" in the possession of the kings of India reflect Indian beliefs in the extraordinary qualities of the horn itself.⁶

It is a classical reference which points to India as the country of origin of a yarn first told in the Islamic period in the *Akhhār al-Šīn wa'l-Hind* and then elaborated by al-Mas'ūdī, namely that the karkadann has no articulation in its legs and feet and therefore has to sleep erect, leaning against a tree. Aelian suggests an Indian origin of this story by telling us that the Indian unicorn called *καρτάζωνος* *kartázonos* (which corresponds to Sanskrit *khadga-dhenu* and Arabic *karkadann*) has no joints in its feet.⁷ This motif seems to have spread to the East, as far as China. In the T'ang period rhinoceroses were said to have been captured with the help of

⁶ This high repute of the horn in India first attested by classical writers such as Ctesias, Philostratus (205, vol. 1, p. 234), and Aelian (14, vol. 1, p. 76: book 3, chapter 41, and p. 104: book 4, chapter 52) lasted throughout the centuries. In the sixteenth century the Portuguese physician Amatus Lusitanus writes:

"The men of our Portuguese nation who have penetrated the interior of India . . . say that its horn (i.e., of the unicorn) is greatly prized by the Indian kings, and also those who have practiced medicine for some time in that country and have then returned home say that in India there is no stronger or more dependable antidote against poison than the horn of the unicorn" (242, p. 143).

Lately A. H. Godbey has suggested that the antidotal power of the rhinoceros horn may not have been in Ctesias' original account, since neither Aristotle nor Pliny mention this feature, though both were familiar with his text and used it in their writings. It would thus appear to be a later interpolation of the text which is preserved only through quotations in other authors. If this plausible assumption should prove to be correct (and the lack of any reference to it in the early Indian literature supports it), the belief in the magical virtue of the horn during Roman times would probably go back to Chinese superstitions which were imparted to the Western world when Roman traders exported the horn for the Far Eastern market (109a, pp. 262-263, 277-278).

⁷ 14, vol. 1, p. 399: book 16, chapter 20, quoted by 74, p. 11.

posts built of rotten timber which gave way as soon as the animal leaned against them, leaving the jointless monsters helpless on the ground.⁸ Such an alleged hunting custom is also described in the West, but here it is the jointless elephant which comes to grief by resting against a partly sawed tree.⁹ In the *Physiologus* the story of the elephant without joints in his legs is again connected with India,¹⁰ but Strabo speaks about it in connection with the African species.¹¹ It remains, of course, a puzzle how such a myth could be connected with the elephant whose habits were familiar to so many Indians. It could perhaps be imagined—as Laufer has thought¹²—that the story was first connected with the little-known rhinoceros, since it is found in classical, Muslim, and Chinese sources.¹³ Later on the myth possibly was transferred to the elephant in regions and by people unfamiliar with the elephant,¹⁴ just as Caesar attributed the jointless legs to the elk¹⁵ and Pliny to the achlis.¹⁶

There are, however, certain points which speak against Laufer's theory. Thus, it seems to be a fact that the elephant sleeps standing up, sometimes leaning against a support. He assumes this position "not from any difficulty in lying at length on the ground, but rather from the coincidence that

⁸ 164, year 1913, pp. 361-362; 165, p. 146. In the Chinese accounts no direct reference to India is made, only to "maritime people" living in a mountainous country.

⁹ This myth goes back to Ctesias, just like that of the unicorn (274, column 2249). It was opposed by Aristotle who denied that the elephant sleeps standing and stated that it bends its legs and settles down (27, book 2, chapter 1: p. 498a, lines 8-13. Cf. 275, p. 30).

¹⁰ 208, p. 130. The passage is quoted in 164, year 1913, p. 362. The motif in the *Physiologus* has been traced back to Ctesias (275, p. 30).

¹¹ 253, vol. 7, pp. 324-325. Many classical, medieval, and renaissance references to this elephant myth are given by Tennent (256, pp. 32-38). We quote one from *Troilus and Cressida*: ". . . the elephant hath joints, but none for courtesy: his legs are legs for necessity, not flexure" (act II, scene 3).

¹² 164, year 1913, p. 363.

¹³ See above, p. 99.

¹⁴ The jointless elephant occurs also in Muslim literature, e.g., in al-Mas'ūdi (184, vol. 3, p. 8) and al-Mustawfi (191, pp. 32-33, translation, pp. 23-24).

¹⁵ 66, pp. 352-353.

¹⁶ 209, vol. 3, book 8, pp. 30-31. Rackham thinks that the achlis is perhaps the moose or reindeer and presumably a vernacular name.

the structure of his legs affords such support in a standing position that reclining scarcely adds to his enjoyment of repose. Elephants in captivity have been known for months together to sleep without lying down.”¹⁷ On the other hand the rhinoceros lies down on its side to sleep and it sits up with its legs doubled under it or it rests on its haunches. This is significant, although the animal has also been observed to rest and sleep while standing.¹⁸ All this points to the conclusion that we do not necessarily have to accept Laufer’s theory of a priority of the rhinoceros myth which was later on transferred to the elephant and other animals. This is one of the many cases where we still stumble in darkness and have yet to bring definite proof to show from where and how the myth was disseminated. Certain data speak for India but they are not conclusive enough.

E. CHINESE INFLUENCES

It is unusual to find Chinese ideas incorporated in a Muslim concept but the case of the rhinoceros was exceptionally favorable for such a process. The Arabs were among the chief exporters of rhinoceros horn to China. The Chinese interest in horns with special designs must have been known to the traders who were anxious to get the best possible prices. They in turn told of the queer Chinese ideas when they were back home and thus Chinese concepts found an echo in Muslim writing. It is significant that it was a book revealing mercantile relations with the East, the *Akhbār al-Šīn wa’l-Hind*, which apparently was the first to speak of the various patterns on the horn. As has been shown by Laufer, writers of the T’ang period already speak of the “likenesses to all things” in high-grade rhinoceros horn,¹⁹ although the Chinese sources speak more conservatively about grain or flower pattern, impressions of beans, etc., when they mention specific motifs.²⁰

¹⁷ 256, p. 39; 243, vol. 1, p. 365.

¹⁸ 263, p. 234. See also 258, p. 146; 252, p. 3.

¹⁹ 165, fig. 141, footnote 1, and p. 144: “The horn is filled with figures resembling objects of nature.” This statement dates from A.D. 860.

²⁰ 165, p. 141, footnote 1, p. 143.

However, Wang P'i-chih, a Chinese writer of the end of the eleventh century, gives an elaborate repertory of these designs which include not only plants and animals but also parts of the dress, deities, scenery, buildings and so on,²¹ so that it is obvious that a rich lore had developed once the horn had been used²² not only for official girdles,²³ but also for cups, knife handles, scepters, footrules, and other implements during the T'ang period.²⁴ On the other hand, the lack of specific descriptions of grain pattern in other natural products²⁵ indicates that the whole concept in Muslim literature is obviously borrowed.²⁶ Since the idea is foreign to the unicorn lore of

²¹ 165, p. 149 (footnote 7 of preceding page). The Chinese author seems to speak of natural pattern in the horn, but he indicates that these designs are made more easily discernible by the work of craftsmen. He says: "When the horn is completed into a carving, as if it were a veritable picture, it is highly esteemed by the people."

²² The earliest reference to the horn of the rhinoceros (hsi) in China so far found is from the year 311 B.C., that is from the end of the Chou dynasty. At that time it was already regarded as an object of value and together with 300 boats, 500,000 arrows, and elephant tusks was sent as a gift by the King of Yüeh to the State of Wei. In a slightly later text it is indicated that objects were made of rhinoceros horn and ivory (46, p. 328).

²³ On the use of rhinoceros horn for the Chinese costume, see Laufer (165, pp. 142 ff., footnote 4). The horn used for girdles had to be of special quality, owing to their official use, while that used for vessels could be of lower standard. "If the specks are deep in color, the horn is suitable to be made into plaques for girdle ornaments; if the specks are scattered here and there, and light in color, the horn can be made only into bowls and dishes" (165, p. 141, footnote 1, and pp. 143-144. See also above, p. 54, footnote 8).

²⁴ Such objects are illustrated in 147, vol. 1, pls. 21, 24, and 31; vol. 3, pl. 8; vol. 6, pls. 18, 19, 20-23, 25-31, and 37; vol. 7, pls. 8, 51, 56, 58, and 59; vol. 10, pl. 22; and vol. 11, pls. 46, 49-51, 54, and 55.

²⁵ As far as I am aware the descriptions are rather general and nonspecific like that of Ahmad Ṭūsī who at the end of the twelfth century states that the bark of the khadink tree (خَدْنَك) "shows pattern . . . as if worked by a Chinese painter," adding soon afterward that "it shows patternlike damascening in steel" (134, p. 213). It seems characteristic that according to al-Bīrūnī the term خَلَنْج khalanj does not only mean onyx, but also "all things which show colored lines and figures such as cats, foxes, civet cats (?), giraffes, and especially a certain wood of which, in the lands of the Turks, tables, cups, drinking vessels, and similar objects are made" (134, p. 214).

²⁶ It may, however, be possible that the alleged designs on the horn of the rhinoceros induced Muslim artists to carve the outside of the much more common elephant tusks with various animals. This custom is first traceable in the

the classical world and, from all we know, apparently also to that of ancient India, the borrowing probably comes from China, although Muslim writers, in some instances, may have exaggerated Chinese ideas of the designs.²⁷

In a few other cases, it is not quite certain that ideas which the Muslims thought to be of Chinese origin derived actually, or at least exclusively, from that source. To this group belongs the lurid account of al-Gharnāṭī (repeated by al-Damīri) of how the kings of China tortured a person by having him licked by the karkadann, a treatment which separated the flesh from the bones. (The idea of a thorny tongue is—as we have seen—also to be found in the story of the flight of the sinād calf from its mother). It is true that a Sung publication speaks of the prickly surface of the tongue of the rhinoceros,²⁸ but so does the Venetian Marco Polo who tells of the spikes on the tongue of the Sumatran rhinoceros which it uses when attacking a person.²⁹ The feature is even to be found in Pliny.³⁰ On the other hand the Emperor Humāyūn is said to have told this story about wild yak.³¹ The story of the prickly tongue³² may therefore have come to the Islamic world from quarters closer than China.

In the report of al-Gharnāṭī (repeated by al-Damīri) the inlays of rhinoceros horn on thrones are not specifically called a Chinese custom. Since they are mentioned together with the alleged designs on the horn and the Chinese girdles, it is, however, not impossible that the Muslim writers had a Chinese

Fatimid period and therefore later than the first reports on the designs in the rhinoceros horns, those in the *Akhhār al-Šīn wa'l-Hind* and al-Mas'ūdī.

²⁷ 165, pp. 148 ff., footnote 7 (reference on p. 149).

²⁸ Su Sung, author of the *T'u ching pên ts'ao* (165, fig. p. 140).

²⁹ 210, vol. 2, p. 285.

³⁰ 211, p. 340, footnote 1. I have not been able to trace the passage in Pliny to which the editors of the Marco Polo edition refer.

³¹ 210, vol. 1, p. 277, footnote 3. For a reference to the prickly tongue of wild oxen of India see 99, p. 283, footnote to p. 267.

³² Laufer explains the fable of the prickly tongue of the rhinoceros in the following manner: "The animal mainly feeds on herbage and the alleged or real observation of its inclination for brambles led to the conclusion that its tongue must be thornproof and prickly" (165, pp. 140 ff., footnote 7, reference on p. 141).

origin in mind. I have not been able to find a reference to such a Chinese custom in the Sung literature, but there was a court atelier during the Yüan period which amongst other things turned out couches inlaid with rhinoceros horn and ivory.³³

China, however, influenced the Near East not only in the conception of the karkadann and its horn, but also its iconography. In spite of the distance between the centers of the two civilizations, Chinese representations of unicorns had probably greater influence on the minds of Near Eastern artists than those from any other country. In certain cases the Far Eastern influence is obvious. There is first of all the karkadann on the title page of the al-Qazwīnī manuscript in the Metropolitan Museum (pl. 17). It has the characteristic shape of the ch'i-lin of the Ming dynasty with its split hoofs, scales, and bushy tail. The only difference from the contemporary Ming examples would be the wings instead of the flames, and, what is more important, the single horn instead of two as we find them, for instance, on the Ming mandarin squares.³⁴ However, the literary references in the Chinese encyclopedias of that period follow the older translations and speak of a single horn,³⁵ so that an illustration following a literary source or a pre-Ming model might have influenced the illuminator of the Persian title page.

A Chinese model is also the source for the miniature of the shādhahvār in the al-Qazwīnī manuscript in the Princeton University Library (pl. 43, upper). Its lionlike body, tail, and paws together with the use of a single horn seem to indicate that the animal is derived from representations of the hsieh-

³³ 165, p. 142, footnote 4 (reference on p. 143): The official in charge of this atelier was appointed in 1263, and there were 150 workmen active in it. In view of the relationship between the rhinoceros horn and maritime ivory (which will be discussed in the following section) it should be pointed out that narwhal and walrus tusks were likewise used in the making of thrones. Old Russian stories speak of precious chairs made of this material, there called "fish teeth" (164, year 1913, p. 338, quoting von Baer, 34, p. 10). The best known example is, however, the Danish throne built of narwhal tusks, which was made in 1662-1665 (238, pp. 240-243, figs. 250 and 251).

³⁴ 68, fig. 4b.

³⁵ Kind information of Dr. Cammann.

chai.³⁶ The main difference between the two animals is the color, which in the Persian miniature is red instead of white. If this change is not due to the fact that the Persian artist arbitrarily changed the color, it might be surmised that the ultimate prototype was a Chinese woodcut which showed the animal only in black and white.

Far Eastern influence may also be assumed in the two *Shāh-nāmāh* miniatures of the Mongol period in the Myers collection (pl. 24). The basis for this supposition is the fact that the Chinese knew of a lionlike creature with a single horn (fig. 4), and as we have seen in our discussion of Indian influ-

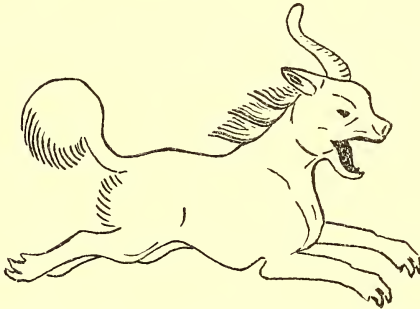


FIG. 4.—One-horned leonine monster from a Chinese bronze mirror. T'ang period (618-907). Freer Gallery of Art. (Drawn by Mrs. Eleanor M. Jordan.)

ences, China also knew from the early thirteenth century on, at least, the iconographic type of a single-horned cervine rhinoceros. Thus there is a certain possibility that the prototypes of these monsters came from the Far East. This is made more likely by the fact that these animals show flames above their front legs, a typical Chinese feature which occurs on dragons and on some other animals in the pre-Ming period.³⁷ But while there is no doubt about the Far Eastern origin of

³⁶ 68, fig. 4a.

³⁷ The Freer Gallery of Art has a T'ang mirror with a large dragon with flames emanating from above the front legs (No. 38.8) and another from the same period showing two horses, one apparently even horned, with flames above the front legs (No. 44.5; pl. 48, upper). Other mirrors from the Sui and T'ang periods with such flame-endowed horses in 261, part 2, vol. 2, pls. 117 and 129. Dragons of the Sung period commonly show flames.

this flame motif, both the shape of a lion and of an antelope for a karg could be explained by certain details given in the *Shāh-nāmah* and other Muslim texts.

The ch'i-lin, the hsieh-chai, and the flame motif should be regarded as "chinoiserie" in Muslim art. Fairly common as these and some other Chinese mythical creatures are in certain periods, they still represent an unassimilated foreign element. There is, however, one Chinese animal which became thoroughly integrated into Muslim art, namely that of the buffalo or oxlike type of karkadann. Such a statement might seem surprising as the many references in Muslim texts would seem to point toward an indigenous concept of this sort. However, a confrontation of the oldest example, that in the *Manāfi'* manuscript of the Morgan Library, with a Chinese painting will quickly dispel any doubts about the Far Eastern origin of the type.

For comparison we have selected a Buddhist painting in the Freer Gallery, showing "Lohans moving through forests and sea" (pl. 12). It dates from the Ming period,³⁸ and is thus centuries later than the Mongol *Manāfi'* miniature, but its rhinoceros corresponds to the descriptions in T'ang and Sung literature and may thus be regarded as representative for the earlier periods. The first figure on this scroll is a lohan riding on a buffalolike animal carrying on its forehead a single large horn bent forward.³⁹ There is no doubt that this bovine animal is the one-horned variety of the hsi rhinoceros of the Chinese⁴⁰ which is described in the fourth-century edi-

³⁸ Freer Gallery of Art, No. 19.174. Sirén attributes the scroll to the late Sung period and to Fan-lung (a priest) (244, pp. 57-58, pl. 93). A. G. Wenley attributes the painting, however, to the late Ming period; he thinks that the painting could only be a very free copy of Fan-lung's work.

³⁹ That a rhinoceros with a forward-turned horn goes back to a much earlier period, is demonstrated by the figures on a kettle attributed to the Shang period (165, fig. 18).

⁴⁰ There is also proof that the hsi-rhinoceros and the ox came to be regarded as identical animals so that in legends the names of the two were exchanged (90, pp. 328-329). In this connection it is also significant that although from post-Han times down to the present both ssū and hsi mean rhinoceros, the first-named animal was originally a wild bovine of large size and formidable nature, probably the gaur, while hsi stood always for rhinoceros (46, pp. 322-330).

tion of the *Erh-ya* Dictionary in the following terms: “. . . the hsi resembles a water buffalo with a pig’s head, has a large stomach and short legs. Its legs have three hoofs. Its color is black. It has three horns, but there is also a one-horned type.”⁴¹ When one now compares this Chinese animal with the Persian karkadann, one finds the same large penetrating eyes, long ears, wide nose, the hump, and the feet.⁴² How slavishly the Persian artist followed the Chinese prototype is particularly shown by the painting of the horn with its peculiar curve. The artist first placed it farther down on the head, with the curve going backward, thus coming close to the actual position of the horn of which he seems to have had some idea. But another look at his painted model of Chinese inspiration must have shown him his “mistake,” which he hurried to make good, although traces of his first endeavor are still noticeable under the leaves of the surrounding shrubbery. The Chinese painting even explains a peculiar feature in the Near Eastern miniature, namely the zebra-like stripes between the front legs and the head. They are the misunderstood skin folds of the neck which, like the folds in the hides of the famous “elephants” in the same manuscript,⁴³ were turned into a pattern by the artist; and since the painting from which he worked apparently showed the ribs of the animals, he converted these, too, into stripes. All these features reveal an integrated re-creation after a foreign model.⁴⁴

It may very well be that the Chinese model not only influenced the painters, but also the writer of the Persian version of the *Manāfi*. He states that the karkadann closely resembles a buffalo, that its neck is strong and long, that the single

⁴¹ The translation was kindly supplied by Dr. Cammann.

⁴² Laufer (165, p. 89) had already pointed to the similarity of the Morgan miniature to a woodcut illustrating the *Erh-ya*. Since he compared it also with the representation of a bovine animal on an Assyrian obelisk (which had erroneously been associated with a rhinoceros), he diminished the importance of his discovery.

⁴³ 154, vol. 5, pl. 820A.

⁴⁴ Until recently it was generally believed that the group of miniatures in the first section of the *Manāfi-i hayavān* to which the karkadann belongs was painted in pure Abbasid style and thus devoid of any Far Eastern influence.

horn on the forehead is crooked and near the eye and that the tail and hoofs are similar to those of a buffalo. All these details are very specific and since they tally better with pictures of the bovine type of Far Eastern extraction than with the real animal, it could be assumed that such pictorial records are reflected in the text.

In several representations the Near Eastern artists did not give the horn on the forehead of the bovine rhinoceros the forward curve which we found in the *Manāfi'* miniature and in the Ming scroll of the Freer Gallery. They replaced it by a long straight horn. This was due to another outside influence of which we shall have to speak in the next chapter.

What has been said regarding the origin of the iconography of the single-horned bovine karkadann in Muslim painting may also apply to the double-horned variety which shows, as we have seen, a horn on the nose and a longer one on the forehead of the animal (pl. 15, right). The same type of rhinoceros is found on a Chinese mirror said to be of the T'ang period (fig. 5).⁴⁵ The type persisted throughout the centuries, as demonstrated by a Ming mandarin square, formerly in the collection of Mrs. Krenz, which shows the same spotted bovine rhinoceros with two horns which we find in the Princeton miniatures of the karkadann and the sinād.⁴⁶ In spite of this close parallel between the double-horned rhinoceroses in Far and Near Eastern representations, a case for a different explanation of the Muslim version can also be put forth. The double-horned variety seems to appear in the Near East only after the correct position and the proper shape of the horn in the single-horned variety has become known and has been applied on the nose of the animal in a number of miniatures. Even at this progressive stage the artist followed, however, traditional patterns of thought and design as we noticed, for instance, in the case of the antelope-karg in the *Shāh-nāmah* of 1605-1608 (1014-1016) in the

⁴⁵ Figure 5 is after 72, chapter 40, p. 56A; see also 261, part 2, vol. 2, pl. 148. Kind information of Dr. Cammann.

⁴⁶ Dr. Cammann kindly informed me about this textile, the present whereabouts of which is unknown.

Metropolitan Museum. Could it not be assumed, therefore, that the double-horned variety is nothing but the traditional bovine animal with the straight horn on its forehead now supplemented by an additional nasal horn? In this case we would not have to assume a Chinese prototype for the two-horned version of the karkadann.



FIG. 5.—Chinese mirror. T'ang period (618-907). (After 72, chap. 40, p. 56.)

F. THE LATE MEDIEVAL WORLD

After having surveyed the pertinent classical and Oriental sources, there remains now the sole task of exploring a possible interrelation between Muslim and medieval European writings on the unicorn. Such an investigation is important because in the West it is generally assumed that the extraordinary reputation of the horn of the unicorn as a detector of poison was due to the influence of Arab doctors.⁴⁷ Their writ-

⁴⁷ 242, pp. 140-142; 238, pp. 189 and 200.

ings are supposed to have caused the rise of the new belief, of which there is no trace in the medieval world before the thirteenth century.⁴⁸

When one wants to investigate this Arab influence one naturally starts with the karkadann which is the unicorn par excellence in the Muslim world. In investigating a possible relationship one is, at first sight, permitted to disregard the great difference in physical appearance between the short, curved rhinoceros horn and the long, straight tusk of the narwhal which, to the late medieval mind in the West, was the true horn of the unicorn.⁴⁹ After all, the representations from various Islamic countries seem to indicate that the Muslim usually regarded the horn of the rhinoceros as long and straight. There is, however, the surprising fact that with the exception of al-Qazwīnī in the thirteenth century, his somewhat later follower, al-Mustawfi, and the latter's contemporary, Ibn al-Wardī, no other Muslim author consulted here speaks of poison in connection with the horn of the karkadann. In the eleventh century, Ibn Bukhtīshū' deals with the medicinal uses of the animal but he does not mention the horn or, for that matter, any other part of the body, as an antidote against poison; nor does the late thirteenth-century Persian zoological pharmacopoeia, the *Manāfi'*, speak of it. Al-

⁴⁸ Hildegard of Bingen (1098-1179), though speaking of the medicinal qualities of various parts of the unicorn, does not mention the alleged virtues of the horn. Albertus Magnus (1193-1280) "makes little of the horn's magical virtues and thinks they should be investigated further." Pietro d'Abano (ca. 1250-1318) however, "during his exploration of Arabic lore acquired a firm faith in the alicorn . . . and indeed if one were asked to name a single writer to whom the European belief might be attributed with least exaggeration, one could not do better than to choose this Peter" (242, pp. 120-121).

⁴⁹ Even in the European mind the rhinoceros horn often took the place of the true "alicorn" or narwhal tusk. (Alicorn from Italian alicorno and French licorne is used by Shepard to avoid cacophony [242, p. 101, footnote 1, and pp. 141-142] and it seems a good term to use.) The tip of a rhinoceros horn, presented by the prior and the brothers of the Monastery of St. Mary of Guadalupe, Spain, to Pope Gregory XIV, in 1590, is said to have been used in powdered form, as medication in the pontiff's last illness. The horn with its fine case (of which I learned through the kindness of G. Schoenberger) is now in the American Museum of Natural History, New York (168, p. 532). Other such horns are mentioned by Shepard (242, p. 133).

Nuwairi mentions the poisonous quality of the horn only as an explanation for the death of the gored elephant without saying anything about the possibility that it could be used as an antidote for other poisonous substances, especially in human food. Even al-Damiri, the most extensive writer on the subject, gives no information on this point. Furthermore, al-Qazwini does not seem to stress the antidotal property; he merely mentions it—after having told his readers that knife handles are made from the horn and without alluding to a possible connection between the two uses. Finally, neither al-Qazwini nor al-Mustawfi mention the “sweating” of the horn, which in the case of the alicorn is supposed to have indicated the presence of poison.⁵⁰ Thus the earliest Muslim source for the antidotal quality of the karkadann horn is almost contemporary with similar references to the alicorn in European literature, and it lacks a feature of possible importance, the sweating. This makes it imperative to find out first how al-Qazwini came to speak of the horn’s antidotal effect and then whether it is actually the karkadann which could have given rise to the late medieval myth of the alicorn’s medicinal quality.

One might be tempted to assume, on first thought, that the sudden rise of the belief in the antidotal qualities of the karkadann horn was due to Indian or Chinese influence, which in other instances proved so important. When one examines the al-Qazwini text closely one notices, however, that its power to nullify poison applies to the horn as a whole and not to the more effective “protuberance in the possession of the kings of India.” Hence, in the Arabic text this specific virtue is not connected with beliefs which can be traced back to India. Since relevant passages in Sanskrit literature seem also to be lacking,⁵¹ the sources for an Indian origin of the horn’s antidotal

⁵⁰ 242, p. 119. The history of the “sweating” of the alicorn is, as far as I know, not yet explored, so that I am unable to state how early this feature occurs in the West.

⁵¹ Pelliot suggested that the antitoxic quality of the rhinoceros horn in India may be due to a popular etymology which connected *viṣāṇa* “horn” with *viṣā* “poison” (98, vol. 2, p. 675). If this should prove to be correct, it may be

nature are the classical accounts of Ctesias, Philostratus, and Aelian in which the miraculous virtue is associated with cups made of the horn. Drinking vessels made of the horn are hardly ever mentioned in Muslim texts,⁵² nor have medieval cups—to my knowledge—turned up in Muslim collections. The same objection applies to the assumption of a Chinese influence, since the Chinese likewise stressed the use of cups. Indigenous sources, however, leave no doubt that from early times on the Chinese attributed an antidotal virtue to the horn.⁵³ Arabic and Persian texts give as little indication of a

regarded as the reason why the belief seems to have existed for a very long time without having found expression in the higher form of Sanskrit literature.

⁵² I have come across only two cases from past centuries: The royal vessels made of rhinoceros horn of which Ibn Faḍlān speaks are called *طينوريات* *taifūriyāt* (134, p. 34), a term which Zeki Validi translates as “grosse Präsentierteller” (134, p. 77). In view of the shape of the horn, this can hardly be the proper interpretation of the Arabic word. Dozy renders it, however, as “plat creux et profond” (88, vol. 2, p. 48) which together with other dictionary definitions seems to establish “deep vessel” as its basic meaning. This term could thus very well have been applied to a drinking cup made of rhinoceros horn.

The second reference is to be found in Bābur's memoirs. He mentions a boat-shaped drinking vessel made of the horn, but he does not speak of its antidotal property (32, vol. 2, p. 389). In modern times Reinhart speaks of a bowl of rhinoceros horn made in India which had the alleged antidotal quality (219). Brehm (53, vol. 12, p. 623) also speaks of such drinking vessels. Meyerhof mentions a cup, a bowl, and a bottle offered to him in Cairo; of these only the last-named object seems to have been regarded as active in detecting poison (98, vol. 2, p. 680).

⁵³ 246, p. 55. The horn was also used for stirring food, since, owing to this action, poisoned food started to foam: “The horn is a safe guide to tell the presence of poison: when poisonous medicines of liquid form are stirred with a horn, a white foam will bubble up, and no other test is necessary; when non-poisonous substances are stirred with it, no foam will rise.” (165, p. 138, quoting Li Shih-chên, a fourth-century authority.)

As to the origin of the belief Laufer has this to say: “The Taoist adept and writer Ko Hung (died in A.D. 330 at the age of eighty-one) is apparently the first Chinese to speak of the poison detecting quality of the horn, which on contact causes liquid poison to foam. This property is accounted for by the fact that the animal while alive feeds particularly on poisonous plants and trees provided with thorns and brambles.” This poisonous food is then thought to affect the horn and according to the principle that poison cures poison the horn becomes an efficient antidote (164, 1913, p. 323; 165, pp. 75, 138-139, and 154, footnote).

Chinese source for this particular belief as they do of an Indian one.

When all these facts are considered one can only say that Indian or Chinese conceptions *could* have affected the Muslim mind. On the other hand, it seems unlikely that such influences and such influences alone suddenly caused al-Qazwīnī to include the information about the antidotal quality of the horn in his chapter on the karkadann. One is, therefore, forced to a more plausible solution of the riddle.

One might be inclined to think that classical literature could qualify as a possible source for the myth, because from the time of Ctesias the horn of the rhinoceros (or whatever the animal might have been called) had the reputation of protecting against poison.⁵⁴ Yet if classical writing were to be held responsible for this myth, traces of it would have been found at earlier times (for instance in the text of Marvazī) when the influence of classical authors was stronger than in the time of al-Qazwīnī. It seems, therefore, that the solution of the whole question does not lie in this direction. We have to look for it elsewhere and with other methods.

In the course of this investigation, it has been found at times that in an ancient source two different animals were thought to be identical or were at least confused in the minds of the people.⁵⁵ This was usually the case when these animals belonged to little-known species and had one or more characteristic traits in common. This not infrequent occurrence might give us the required clue. We therefore have to investigate whether or not there is a rare animal sharing certain features with the rhinoceros which possesses a horn or horns endowed with antidotal virtues. From such an inquiry we find that a substance often thought to be a horn does exist, although the animal from which it derives is mysterious and not properly identified.

⁵⁴ The classical writers besides Ctesias are Philostratus (Apollonius of Tyana) and Aelian (see 74, pp. 8-11, and 242, pp. 27, 35, and 39). As pointed out above, the passage in Ctesias may, however, be a later interpolation based on Chinese beliefs which trade brought to the West (see p. 99, footnote 6).

⁵⁵ Karkadann and sharav; karkadann and ḥarīsh; karkadann and sinād. There are many such cases.

Al-Bīrūnī tells us that the *khutū* (خُو) or *khutūw* (خُو) ⁵⁶ is highly treasured, especially by the Chinese and the Turks of the East, because it is believed that this animal substance like the bezoar sweats when it approaches poison.⁵⁷ About three centuries later—in 1339—al-Mustawfī speaks of the same miraculous properties but no longer restricts the belief to the Chinese and states that poison has no effect on anyone who carries it since he can see it sweating and be warned.⁵⁸ Two other authors, al-Akfānī (died in 1348/749)⁵⁹ and al-Ghaffārī (wrote in 1511/917),⁶⁰ likewise testified to the same quality, al-Akfānī furthermore adding that the *khutū* was a favorite with the Turks and Chinese. This particular horn, however, did not always have a reputation for possessing antidotal properties, because the *Hudūd al-‘Ālam* written in 982 (372) and thus our earliest source mentions only that knife handles were made of this material.⁶¹ This earlier use as knife handles which may have continued when the antidotal

⁵⁶ The spelling *khutū* is found in the *Hudūd al-‘Ālam* (129, pp. 62, 84, 92, 94, 96, and 97), Marvazī (183, p. 5, line 10, and p. 11, line 7) and al-Mustawfī (191, Persian text, p. 20) and thus seems to be the Persian version. *Khutūw* is the form chosen by M. J. de Goeje in his editions of al-Iṣṭakhrī (139, p. 289, line 1) and Ibn Ḥawqal (135, p. 337, line 14; see also 111, p. 222), and it is also used by E. Wiedemann for his translation of the pertinent passages from al-Bīrūnī (277, p. 353); it apparently represents the Arabic form.

⁵⁷ Al-Bīrūnī's *Kitāb al-jamāhir fī ma'rifaṭ al-jawāhir* was not available to E. Wiedemann when he translated the passage from this text (277, pp. 346-347). He had to use al-Khāzinī's *Kitāb mīzān al-ḥikma*, written in 1121 (515), which preserves a section of al-Bīrūnī's work (277, pp. 353-355, also quoted in 164, 1913, pp. 315-316).

After this manuscript had been finished, F. Rosenthal kindly referred me to the original passage which is now available in the Hyderabad edition of 1355 H. (45a, pp. 208-210). The two texts are not identical; they vary a great deal, even in subject matter. An account of the special features of al-Bīrūnī's original text is given on pp. 138 ff.

⁵⁸ 191, p. 20, translation p. 14.

⁵⁹ 277, p. 354, footnote 2, also quoted in 164, 1913, pp. 316-317, and comments in 164, 1916, pp. 380 ff. The work is apparently the one listed as No. 5 in 57, vol. 2, p. 137, and suppl. 2, p. 169.

⁶⁰ 277, pp. 357-358 quoting G. Jacob; the passage is reproduced by 164, 1913, p. 317. The original texts of al-Akfānī and al-Ghaffārī were not available to me.

⁶¹ 129, pp. 84 and 96. On p. 94 the *khutū* is called a horn; al-Mustawfī refers to it as the animal itself.

virtues became more widespread, links it with the horn of the karkadann which, according to al-Bīrūnī, Marvazī, al-Qazwinī, the *Manāfi'*, and al-Mustawfī was also used for this purpose.⁶² Both horns were also greatly in demand and therefore sold at high prices. Even as late as the sixteenth century the khutū horn had a great reputation since al-Ghaffārī tells us that the pādishāh, apparently the Sultan of Turkey, bought it at a high price and that its fame reached as far as China and the Maghreb.

Additional remarks in the Muslim sources throw further light on the physical character of the horn without giving any obvious clues to its identification. The color is said to range from white, yellow, green, and red to gray and black.⁶³ The curved specimens are the highest in price (al-Bīrūnī). The price for a young horn is higher than for an old one (al-Mustawfī) because the young ones are fresh and firm while later on they become dark-colored and soft (al-Ghaffārī).

There is no doubt that the animal from which the khutū horns came is even more mysterious than the karkadann. I have not found a single writer who states that he had ever seen the animal or quoted someone else who was more fortunate than he in this respect. It is therefore not astonishing that even the zoological class to which the animal bearing these horns belonged is uncertain. Al-Bīrūnī quoted anonymous authorities to the effect that it was the bone from the head of a bull; Ṭūsī thought it to be a snake bone, and al-Akfānī attributed it to a bird. The most important of these identifications is that given by al-Bīrūnī, as it is the oldest

⁶² The use of rhinoceros horn for the hilts of Egyptian swords is reported as late as the early nineteenth century by J. L. Burckhardt (98, vol. 2, p. 680). Since the material has very fine coloring and can be beautifully polished, it is well fitted for the purpose quite apart from other intrinsic values. About the use of khutū horn for knife handles see below, pp. 117, 121 ff., 126-127.

⁶³ Al-Bīrūnī states: "Its best quality is the one passing from yellow into green, next comes one like camphor, then the white one, the one colored like the sun, then one passing into gray." Al-Mustawfī says that it is yellow in color. Al-Akfānī quotes the Ikhwān al-Rāzīyān, the two Rāzī brothers, that it "changes from yellow into red. Then comes the apricot-colored one, then that passing into a dust color and down to black." According to al-Ghaffārī its "color is yellow and the yellow inclines to red."

and therefore probably closest to the early forms of the myth. Here we notice again how the lore of the *khutū* and that of the *karkadann* could become intermingled, since in either case the horn is said to belong to a bovine animal. The two other identifications given above are due to later importations of Asiatic myths from farther east; ⁶⁴ they do not seem to be of any consequences for the growth of the main conceptions of the *khutū* horn and reveal only the general mystification about its true origin.

The information about the countries from which the horn is supposed to come is more specific than that on the animal itself, but this does not help to make up for the general uncertainty. The *Hudūd al-Ālam* lists the following regions as exporting the horns: The Tūlas mountains southwest of Lake Balkhash, ⁶⁵ China, ⁶⁶ Tibet, ⁶⁷ the Turkish Toghuzghuz country in eastern T'ien-shan, ⁶⁸ and finally the Kirghiz country which supplied large quantities. ⁶⁹ According to al-Iṣṭakhri the horn

⁶⁴ Laufer (164, 1916, pp. 382-384; also 166, p. 566) has shown that the *khutū* horn, said to come from the forehead of a large bird, is actually the enormous bill of the *buceros* or hornbill which is carved by the Chinese and Borneans. According to Malayan beliefs shavings from it become blood-red when placed in a poison dish. There is also the bird *al-khathaḡ* (الْحَثَق) of "China, Babylon, and the lands of the Turks." Al-Damiri says of it that it dies in the presence of poison and that people make knife handles from its bones since it sweats in the presence of poison (77, vol. 1, p. 251; 78, vol. 1, p. 667, quoted in 164, 1916, p. 388, footnote 1). References to the swooning or dying of birds are a regular feature in Indian literature (70). Disregarding diacritical points, *khathaḡ* is written in the same way as *chatuḡ*, of which we have to say more later on (see pp. 122 ff.).

There are altogether seven different zoological definitions for *khutū* in Vullers, *Lexicon* (268, vol. 1, p. 659). One of them states that it is a thousand-year-old snake, an explanation which goes back to the Liao Annals (166, p. 566).

⁶⁵ 129, p. 62.

⁶⁶ 129, p. 84.

⁶⁷ 129, p. 92.

⁶⁸ 129, p. 94.

⁶⁹ 129, pp. 96 and 97. The Kirghiz country is also quoted by al-Birūni though with certain doubts. The *Hudūd* (129, p. 97) mentions, however, that a certain clan of the Kirghiz hunts not only for furs and musk, but also for the *khutū* horns. The importance of the Kirghiz region as a major source of the *khutū* is corroborated by a Chinese source. According to the T'ang Annals the *ku-tu* is mentioned as one of the wild animals of the country of the *Kie-kia-se*; i.e., Kirghiz (Laufer, 164, 1916, pp. 370-371).

is exported from Şaghāniyān (the region north of Tirmidh on the Oxus),⁷⁰ while al-Ghaffārī mentions the lands of the Berbers and Turkestan as the habitat of the animal.

It is not surprising when, in this nebulous land of uncertainty, yet another horn appears to add further confusion. Al-Birūnī speaks, in connection with the regular khutū, of the tooth of a fish 1 cubit long which the Volga Bulgars bring from the northern seas.⁷¹ In Mecca, where it is imported, it is regarded as "white khutū." The tooth is so much in demand that the Egyptians "who crave it" paid two hundred times its value. Al-Birūnī does not give the reason for this extraordinary popularity. When he states that white knife handles are sawed out of the tooth he obviously does not tell the whole story. Since it is called the "white khutū" it must share another more specific and rare quality with the colored khutū, not just the prosaic function of serving as a material for knife handles. The most obvious connection, and the one which would easily explain the high price for both varieties, is that the tooth has the same poison-detecting faculty as the ordinary khutū. It will be our task to substantiate this assumption.

Unfortunately the description of the physical character of the "white khutū" is very meager. There is, for instance, no indication whether the tooth is straight or curved. In other respects, al Birūnī's report is more specific but even so not very clear. According to him one is able to distinguish the "white khutū" from ivory, since he points out that the various designs displayed on it give it the appearance of wriggling.⁷²

There remains now only the question of what the khutū horn actually is; and it is here that we run into great if not

⁷⁰ Al-Iṣṭakhrī (139, vol. 1, p. 289, line 1); Ibn Ḥawqal (135, p. 337, line 14). If Pelliot's emendation of a passage of Abū Dulaf Mis'ar b. Muḥalhil (of about 940 [329]) is correct, still another place of origin would be among the Chigil; in this text it is described as a cow (98, vol. 1, p. 211; vol. 2, p. 679). About the Chigil see Minorsky's comments in 129, pp. 297-300 and maps V and VI.

⁷¹ 277, p. 354; 260, p. 50.

⁷² The German translation of Wiedemann uses the word "durcheinanderkriechen." Al-Ghaffārī states that "designs are displayed in the khutū as in damascening."

insurmountable difficulties. This is not the first time that a scientific searchlight has been focused on these mysterious horns. Just before and after World War I they were discussed by a number of Orientalists, who proposed rhinoceros horn, mammoth ivory, walrus tusks, and narwhal teeth as possible solutions. Rhinoceros horn, as suggested by several German scholars,⁷³ seems to be out of the question as the *original* meaning because al-Bīrūnī would probably have recognized it as such and he would have spoken of its antidotal qualities in his account of the rhinoceros.⁷⁴ The *Ḥudūd al-‘Ālam*, too, distinguishes between the countries which supply rhinoceros horns and those which export khutū horns. Furthermore, it should be recalled that al-Bīrūnī states that the curved khutū demands the highest price, which presupposes that there is also a straight variety. This obviously does not apply to the horn of the rhinoceros. Finally, it seems most unlikely that the Egyptians, who were familiar with the horn of the African rhinoceros, would have paid exorbitant prices for it under the name of “white khutū,”⁷⁵ quite apart from the fact that rhinoceros horn is not white. The possibility of walrus tusk—with which to a certain extent the rarer narwhal tooth is tied up because both come from the same northern regions—was suggested by B. Laufer in the most extensive and learned studies on the subject.⁷⁶ Strong as his case seemed to be in 1913 and 1916, especially for the Chinese variety, the ku-tu-hsi,⁷⁷ it is now somewhat weakened by the information provided by the *Ḥudūd al-‘Ālam* that khutū horns were exported from specific central Asian mountain countries, including Tibet. It seems rather difficult to imagine, as Laufer did in the case of the Kirghiz country, that the well-defined regions mentioned in the *Ḥudūd al-‘Ālam* were only the intermediary

⁷³ I.e., Wiedemann (164, 1916, p. 380), Reinhart (219, p. 184), Ruska (222, p. 163). A. Zeki Validi Togan has lately expressed the same opinion (134, p. 216).

⁷⁴ 164, 1916, p. 381.

⁷⁵ This point was made by 164, 1913, p. 354.

⁷⁶ 164, 1913 and 1916.

⁷⁷ In the writings of Dr. Laufer, ku-tu-hsi was transliterated as ku-tu-si.

exchange posts for the walrus tusks on their way from the North to the Muslim world. Thus the newly gained information makes the issue even more complex instead of clarifying it. To settle this question of animal geography and commercial history, with the limited amount of information at hand, seems still an impossible task.

Some observations can be supplied, however, which may provide at least a partial solution of the problem. First, it seems that one should not treat the ordinary colored *khutū* and the white variety as one and the same material as was done in earlier investigations. It is true that the two types of horn have certain features in common and have thus, in the mind of the medieval Muslim, been connected with each other, even fused to a certain degree; yet they were originally not identical. In the case of the two types of *khutū*, as we have shown above, the text of al-Bīrūnī distinguishes between the animals from which they came, the different material qualities of the horns, the countries from which they were imported, and the people who imported them. Considering all possible solutions, it seems most likely that the white *khutū*, the fish tooth from the northern sea, is either the tusk of the walrus or that of the narwhal.

The identification of the colored *khutū* is a much more complicated question. Our oldest and best authority, al-Bīrūnī, makes it clear that the material does not look at first sight like horn or teeth. He states twice that the *khutū* is "the *bone* from the forehead of a bull," and he concludes only later on, after the discussion of the fish tooth called white *khutū*, that "judging from its appearance" this regular *khutū* is "like-wise . . . the main portion of a tooth or horn." Therefore one has to visualize this *khutū* as something odd looking and perhaps fragmentary. The mountainous regions mentioned in the *Hudūd al-'Ālam* as the sources of supply seem to point to a land animal. Thus the possibility of an identification with mammoth bones, a suggestion first made by Wiedemann⁷⁸ but

⁷⁸ 277, p. 354, footnote 2. Later on Wiedemann thought *khutū* to be rhinoceros horn (164, 1916, p. 380). About mammoth teeth in the Muslim world, see 143, p. 18, and 177, p. 319.

later rejected by Laufer,⁷⁹ poses itself again. In view of the vagueness of the original sources and the confusion and wrong identifications in the Middle Ages it seems, however, not very fruitful to speculate about a solution of this riddle, especially as it is of no immediate significance for this study.

Let us now turn back to our main thesis, namely, that one variety of the *khutū* is the tusk of the walrus or that of the narwhal. That we speak here in the same breath of two teeth of such different form and character does not have to worry us unduly, since the medieval zoologist was, as we have seen, notoriously unconcerned about such matters. As long as the animals or their horns had some identical basic features they were easily fused, even in the mind of the scholar. The narwhal tusk was probably quite rare in comparison with that of the walrus. Furthermore, it can be assumed that the teeth came into the trade as broken or cut pieces, so that only the traders and the artisans knew the difference.

The various arguments for our assumed identification of the "white *khutū*" are individually perhaps too limited to be conclusive, but when put together they all point in the same direction.

There is first the Chinese *ku-tu-hsi*, which eminent orientalist like Laufer, Pelliot, and Ferrand have identified with the walrus and narwhal tusks, so that at least the nature of the *khutū*'s Chinese counterpart is clearly established.⁸⁰ More significant, however, is the evidence relating to the use of fish teeth in the Near East.

Let us begin with the rarer narwhal tusk. There is first as a most important piece of evidence the tusk in the treasury of San Marco which reached Venice in 1488 (pl. 47, upper and middle).⁸¹ It must have come from the Muslim East because

⁷⁹ 164, 1913, pp. 329 and 354; 164, 1916, pp. 372-373 (though in 164, 1913, p. 356, Laufer holds a confusion with mammoth ivory as a possibility).

⁸⁰ 164, 1913 and 1916; 98, vol. 2, p. 679. The first to connect *khutū* with *ku-tu-hsi* was G. Jacob (143, pp. 82-83; 142, p. 9).

⁸¹ 238, pp. 198-200, figs. 210-211. Schoenberger gives a detailed description and history of the tooth. Its surface has been scraped smooth; the scrapings were probably used for medicinal purposes.

naskhī inscriptions are engraved on its silver mountings. In turning to literary references, one can point to Philip II of Spain who is said to have received 12 narwhal tusks or "alicorns" from the Sultan of Turkey.⁸² In 1623, according to Pietro della Valle, European merchants still regarded Turkey as a likely place to sell such a tusk.⁸³ Muslims, too, must have participated in this trade because in the sixteenth century the French traveler André Thevet reports that on an island in the Red Sea and on the mainland nearby, he saw men who artificially straightened the horns of elephants and walrus and sold them as true alicorns.⁸⁴ Manipulations of such a nature presuppose a knowledge of the real narwhal tusk.

As to walrus ivory, historical and archeological evidence shows that it appears fairly early in the Muslim world and was then continuously used. Al-Birūnī's statement that the white khutū was brought by the Bulgars from the northern seas and then made into knife handles⁸⁵ is actually not the earliest reference to it. A passage in 'Awfī (which according to J. Markwart goes back to a geographer of the first half of the tenth century) tells us that in the Arctic Ocean "a fish rises from whose teeth handles of knives and swords are made."⁸⁶ Not quite so specific, but apparently still referring to the walrus, is a passage in al-Maqdisī (end of the tenth cen-

⁸² 242, p. 112, quoting Immanuel Meteranus, *Historia Belgica Nostri*, year 1599.

⁸³ The passage is quoted verbatim in 166, pp. 367 f., footnote 3.

⁸⁴ 242, pp. 172-173.

⁸⁵ This use is also attested for the ku-tu-hsi, 164, 1913, p. 318, which demonstrates the Far Eastern usage for the first half of the twelfth century (see also pp. 359 and 366); p. 358 gives a reference for the year 1320.

⁸⁶ 177, pp. 265 (lines 1 and 2), 310, and 312, where the passage is interpreted as referring to the "Bartenwal" (i.e., Greenland whale) and its baleen, since the author cannot imagine that one would have called the walrus a fish. This paper has amply proven that zoological opinions of rare animals were very vague in medieval Muslim society so that it does not seem astonishing that a walrus should have been called a fish. Furthermore the baleen of the whale is quite unsuitable for sword handles. Al-Birūnī's statement that "white hafts of knives are *sawed* from the fish tooth" also point clearly to maritime ivory. As we shall presently see, Muslim swords with handles made of walrus tusks are extant in large numbers. Hennig (121, p. 243) likewise thought this passage referred to walrus and not to whales.

ture A.D.) according to which fish teeth together with other northern products such as amber and sable and ermine pelts were again imported by the Bulgars.⁸⁷ The early twelfth-century Marvazī, in his chapter on the northern seas, speaks also of a fish “whose tooth is used in setting knives.”⁸⁸ Unlike al-Birūnī, none of these sources employs the term *khutū*. There is only one other author who provides a name. It is a different designation, but details in this passage corroborate and supplement al-Birūnī’s text and thus indicate that we are still dealing with the same material. This refers to a definition of *chatuq* جتق, which in 1073 (466) Maḥmūd al-Kāshgharī included in his Turkish-Arabic dictionary *Dīwān lughat al-Turk*, and which, on account of its importance, deserves to be quoted in full: “Horn of a sea fish imported from China. It is (also) said that it is the root of a tree. It is used for knife handles. The presence of poison in food is put to test by it because when broth or other dishes in the bowl are stirred with it the food cooks without fire (if poison is present in it), or if the horn is placed on a bowl it (the horn) sweats without steam.”⁸⁹ There seems little doubt that this refers to the tusk of the walrus or the narwhal.⁹⁰ As in the case of al-Birūnī

⁸⁷ 175, p. 325, line 2 (the Arabic term used is اسنان السمك). The passage is reproduced and translated in 143, p. 4.

⁸⁸ 183, chapter 15, ¶3, quoted by Minorsky, p. 83. Professor Minorsky was kind enough to refer me to this text.

⁸⁹ 173, vol. 3, p. 164, lines 9-12. In this edition جتق is written with a *jīm*, but Brockelmann who used this text transliterates it as *chatuq*, as if it had a *chīm* (58, p. 112). We are following Brockelmann’s rendering of the word in this investigation.

⁹⁰ Maḥmūd’s secondary explanation of *chatuq* as the root of a tree seems to be based on the Chinese term *ku-tu-hsi* or at least on its first two syllables. Although Laufer did not know Maḥmūd’s passage, he came across the relationship to a tree in some other context, so it seems best to quote him:

In the “peculiar Khitan writing of the word *ku-tu* 柁 (ku-tu-hsi is apparently of Khitan origin) the classifier ‘tree’ appears in either element . . . The tradition of *ku-tu* being in structure or appearance like wood seems to have originated in the Liao period (907-1125) and . . . was perpetuated down to the age of the Mongols . . . Under the word *ku* 柁 the Dictionary of K’ang-hsi cites the *T’u king pên ts’ao* of the Sung period to the effect that this word refers to the trunk of a tree which is white like a bone, and hence receives its name, and that the southerners make from it very fine utensils. *Ku-tu* does

(who had stated that the *khutū* was preserved in the treasuries of China), Maḥmūd links "the horn" with the Far East, and he describes even more vividly the manner in which the poison is detected, which is remarkably close to the accounts which we find later in European literature. The inclusion of *chatuq* in a Turkish dictionary confirms also the information supplied by other authors; namely, that the Turks played a decisive role in the history of the *khutū*. As to the difference in names, Brockelmann regarded *chatuq* as the right form and assumed *khutū* and *khartūt* to be corruptions.⁹¹

not relate to any specific tree, but denotes the burls or knotty excrescences on the trunks of the various trees which in diverse parts of the world, owing to their fine veneer, are chosen with a predilection for carvings, particularly of bowls. . . . The most clever artists in burl-carved work known to me are the Tibetans . . . These bowls have two peculiar features in common with *ku-tu-si*: many of them are white and yellow, and with their peculiar veins, offer somewhat ivory-like appearance; and some of them are believed by the Tibetans to be capable of detecting poison" (164, 1916, pp. 359-360).

In view of the fact that Maḥmūd had stated that the *chatuq* came from China it is thus not at all surprising to find this Far Eastern thought reflected in its definition. The contradiction between the reference to a root as we find it in the Muslim source and the knotty excrescence used in China can be easily accounted for, since the two are not too different, at least in the eye of the nonexpert. More important is that the appearance and the faculty of detecting poison relate the wooden vessels to maritime ivory, and that Tibet, from which the finest bowls came, was one of the regions which supplied the *khutū* to the Muslim world (129, p. 92).

The identification of *ku-tu-hsi* with parts of a tree was, however, not only a Far Eastern way of thinking. A certain wood found in Turkish regions possessed so many of the features of the *khutū* that the two invited comparison and, possibly, confusion in the minds of some people. Al-Bīrūnī gives us the following information about this wood:

"The particular use of the word *khalanj* is . . . for a certain wood (showing figures and colored lines) of which, in the lands of the Turks, tables, beakers, drinking vessels, and similar objects are made. Sometimes these patterns are so fine that they resemble those of the *khutū*. When the markings are as fine as this, knife and dagger handles are made of this wood which the Bulgars import into Khwārizm or Khurāsān." (134, p. 214, al-Bīrūnī quotes Ḥamza al-İṣfahānī, who died between A.D. 961 and 971.) Here not only the close relationship between the horn and the wood in appearance and special use becomes apparent, but the text tells us also that both were imported by the same people, the Bulgars. To this may be added that the *khalanj* wood occurred also in the Kirghiz country, which likewise supplied large quantities of the *khutū* horn which was there fashioned into knife handles (129, p. 96).

⁹¹ 58, p. 112.

On the other hand, one should keep in mind that the Chinese ku-tu-hsi points to an Islamic term more like khutū. Be that as it may, in view of the comparative rarity of maritime ivory it is good to recall the many variants for bishān ("rhinoceros horn")⁹² and to realize that it is not surprising that the tradition about the correct Arabic or Turkish name should have been rather weak. It may very well be that khutū and chatuq are but two readings of the same word, since the first two letters are identical in Arabic and differ only in their diacritics, while the final letters are close enough to make it possible for their written forms to be mistaken for one another, especially when the qāf has no diacritical points.⁹³

The use of maritime ivory for the making of knife and dagger handles is also attested for later periods and by non-Muslim writers. Thus in 1518, according to the *Annals of the Ming Dynasty*, a Muslim ruler sent knives made of fish teeth, together with horses and camels, as tribute to the Chinese court.⁹⁴ Several Western authors of the sixteenth and seventeenth centuries likewise mention that daggers with skillfully fashioned handles of walrus tusk (often called fish teeth) were very popular in Turkey at that time.⁹⁵ The Jesuit Father

⁹² See above, p. 94.

⁹³ The uncertainty of the correct spelling of the word is also demonstrated by a single page in Yāqūt's *Geographical Dictionary* which contains first the word الحبق and then الحثور (281, vol. 3, p. 447, lines 5 and 21). Both words do not make sense and have thus been emended to stand for al-khutū, the first change having been suggested by P. Pelliot (98, vol. 2, p. 679) and the second by Wüstenfeld (281, vol. 5, p. 290). الحبق reflects the spelling جتق as given in Maḥmūd al-Kāshgharī's dictionary, since only the diacritical points of the first two letters are different.

⁹⁴ 164, 1916, p. 355, quoting the *Annals of the Ming Dynasty*.

⁹⁵ These passages are to be found in 164, 1916, pp. 361-365, quoting von Herberstein (1517 and 1526), Belon (1553), and Avril (second half of the seventeenth century). Laufer (164, 1916, pp. 365-366) points also to a passage in Jahāngīr's memoirs which speaks of a Persian dagger with a fish-tooth hilt spotted with black. This was sent to the Emperor as a gift of Shah 'Abbās of Persia (144, vol. 2, p. 94). The curious piebald look of the "fish tooth" induced the editors of the memoirs to assume that the material was probably tortoise shell. There are however, fossil walrus teeth which have just this spotted appearance. The memoirs go on to tell how the emperor tried to get another piece like the fish tooth of the presented dagger, how it was finally found and then made into two dagger hilts and a thumb stall (144, pp. 96-98).

Avril, for instance, states that "the Persians and Turks who buy up the tusks of the walrus put a high value on them and prefer a scimitar or a dagger haft of this precious ivory to a handle of massy gold or silver . . ." ⁹⁶ Although the sources are usually specific in speaking of walrus tusks in connection with these weapons, in one case the description could possibly refer to a narwhal: "When the Turkish merchants buy the knives they give them to the workers so that they put a point on them, which is usually the tooth of the walrus of which there are two sorts. One is straight, white and compact, resembling the alicorn; . . . the other is curved like that of a boar . . ." ⁹⁷

As a final reference we should like to quote a passage from *Of the Russe Common Wealth* by Giles Fletcher, published in London in 1591, which seems to bind together all the various aspects of the problems: "Besides these (commodities) they have . . . the fishe tooth . . . which is used both among themselves and the Persians and Bougharians, that fetcht it from thence for beads, knives, and sword hafts of noblemen and gentlemen, and for divers other uses. Some use the powder of it against poison, as the unicornes horne. The fish that weareth it is called a morse, and is caught about Pechora. These fishe teeth, some of them are almost two foote of length, and weigh eleven or twelve pound apiece." ⁹⁸ Here we first have the identification of "fish teeth" with the tusk of the walrus or morse, and then the confirmation of its use for knife handles and sword hafts; in addition the Bulgarians are mentioned as intermediaries in the commerce; then comes the important allusion to the antidotal property which we have all along assumed for the fish tooth, owing to its connection with the colored khutū which is now proved, and finally we find the mouth of the river Pechora mentioned as a hunting ground for the walruses; this river was the goal of many trading missions, since the region between it and the Ural mountains supplied the Muslim world in the Middle Ages

⁹⁶ 164, 1916, p. 364.

⁹⁷ According to Pierre Belon (quoted in 164, 1916, pp. 362-363).

⁹⁸ 50, p. 13; also quoted in 166, p. 567; 242, p. 133.

with the most coveted furs and it is evident that it was also the natural highway for the trade in walrus tusks.

In view of all these references in Oriental and Western sources it seemed imperative to examine knives and swords of various types from Muslim countries, especially Turkey and Iran, to find out whether walrus (or narwhal) ivory was used for their handles. About 50 swords, daggers, and knives with ivory handles in the Walters Art Gallery, Baltimore, the Metropolitan Museum, New York, the Peabody Museum, Salem, and the United States National Museum, Washington, D. C., were therefore investigated. It soon became evident that most handles were fashioned from the tusk of the walrus, whose tooth structure, with its characteristic osteodentine core, makes it easy to identify.⁹⁹ For instance, all the 17 swords, daggers, and knives from Turkey and Iran, dating from the sixteenth to the nineteenth centuries, in the Walters Art Gallery have handles made of the tusks of the walrus (pl. 47, lower). There seems, therefore, little doubt that the hilts and handles of many other swords and knives¹ are made

⁹⁹ Excellent analytical descriptions and illustrations of the various aspects of the elephant, hippopotamus, walrus, and narwhal ivory are given by Schoenberger (238, pp. 171-174 with figs. 190-192). They clearly indicate that the material of the handles is derived from the walrus.

It has been suggested that some of these handles might have been made from the teeth of the sperm whale which lives in the warm parts of all oceans. I am greatly indebted to Mrs. W. E. Schevill, of the Museum of Comparative Zoology of Harvard University, for having been kind enough to make sections of the tooth of this whale and of the tusk of the walrus so that this question could be settled. They showed clearly that the dentine and osteodentine structure of the whale tooth is quite different from that in the material used for the handles. Although the osteodentine section in the latter seemed often unusually wide, there seems little doubt that the material comes from the tusk of the walrus.

¹ In the collection of Henri Moser-Charlottenfels were many knives and swords of various shapes with hilts made of walrus ivory. These arms came from Iran, Afghanistan, Turkey, Bukhara, and Khiva, and dated from the seventeenth till the nineteenth century. The collection contained also two powder priming flasks of that material. The excellent plates of the catalog, especially those printed in color, make it quite easy to recognize the walrus ivory (189, pls. 8-10, 12, 17, and 40, in color 11, 18, and 19).

of the same material.² Since the literary evidence has been so fully proved for the later centuries, it can readily be assumed that the medieval armorer likewise used walrus tusks for his swords and knives. So far no medieval Muslim knives, daggers, or swords with ivory handles have come to my notice.³

The Muslim swords and knives in our museums corroborate still another point of the literary sources. Al-Bīrūnī states that the middle portion of a fish tooth,⁴ sawed into pieces, is distributed among the various hafts so that every piece is shared by them. These sections are said to indicate that the haft is made of the tooth and not of ivory or from chips from the edges, because they display various designs which have the appearance of "wriggling." Al-Ghaffārī deals with the same aspect of the material (which according to him is yellow to red) and speaks of damascening designs. These authors are obviously referring to the inner part of the walrus tusk with its characteristic osteodentine core showing a densely veined pattern in a slightly browner or more reddish color. On examination of the swords and knives it at once becomes evident that the sections of the tooth are so applied that the finely patterned osteodentine part shows prominently. It is therefore easy—just as al-Bīrūnī said—to recognize a haft made of walrus tooth and to distinguish its material from elephant ivory, which lacks this particular design.

² It is called داندان ماهی *dandān-i māhī* or شیر ماهی *shīr-māhī* or *shir-i māhī* in Persian.

Stone (251, p. 561, s.v. *shirmani* [sic]), referring to the use of walrus tusks for hilts in the Near East, states that the reason for this custom is that this material is less likely to split than elephant ivory. Since Stone does not give his source it was not possible to check on this information. Another explanation is given by Father Avril who states that the tusk has the property of stanching blood (164, 1916, p. 364).

³ K. E. von Baer has shown that the use of maritime ivory for sword hilts is referred to as early as the first half of the third century A.D. At that time Solinus reported that the inhabitants of ancient Ireland used the teeth of maritime animals for that purpose (34, pp. 126-130; see also 164, 1913, pp. 333-334).

⁴ Wiedemann (277, p. 354), in his translation, speaks of the "mittlere Teil (des Zahnes)"; he obviously refers to the core of the tooth which alone shows the characteristic pattern.

The fact that in the Middle Ages walrus ivory was available in the Muslim East in large enough quantities to be used in the manufacture of such ordinary implements as knives and daggers raises the question of how this material reached the Near East. Al-Bīrūnī tells us only that it was the (Volga-) Bulgars⁵ who imported the fish tooth from the northern seas. From other sources we learn more about their transactions—for instance, that their merchants brought unpolished swords from Azerbaijan to the heathen Wisū (or Īsū), one of the northernmost people known to the Muslims,⁶ to be traded there for beaver pelts and other furs.⁷ The Wisū, in turn, bartered the swords for sable furs in the lands farther north, in the regions along the Arctic Ocean where the blades were used as harpoons in the hunting of whales.⁸ It can be assumed that the walrus ivory reached the Muslim world via the fur-trade routes.⁹

Trade in walrus ivory on the north coast of Russia (where

⁵ The capital of the Bulgars was about 72 miles (115 kilometers) south of Kazan (see 129, p. 461, and map 12 on p. 435; 35, vol. 1, p. 788).

⁶ Usually identified with the Finnish Ves' (129, p. 309; 134, p. 55, footnote 3). Hennig thought that they lived in the Perm region, the center of which was Cherdyn (121, pp. 254-255). Zeki Validi Togan rejects this identification and proposes Kotlas (134, p. 172). According to Ibn Faḍlān the Wisū lived a distance of 3 months from the Bulgars (134, p. 55; 177, p. 282). This applied to the water route during the summer months; in winter it took only 20 days to cover this distance with sleighs (134, p. 171).

⁷ 177, p. 300; 134, p. 67.

⁸ (143, pp. 76-77; 177, p. 300; 99, p. 24). The people to the north of the Wisū probably lived even beyond the Yūra or Yūghra (177, p. 301), identified with the Ugrian Ostiaks and Voguls (129, p. 309).

The location of the various far-northern tribes referred to by Muslim writers is still a matter of conjecture. The same applies to the possible routes which the traders used during the summer and winter expeditions (Togan, 134, pp. 171-173, objects to Hennig, 121, p. 251). But the existence of the trade is well established, as are many details of the way in which it functioned.

⁹ Another proof of the existence of this fur trade is the praise which Ibn Sa'īd bestowed about 1260 on the furs of the polar bears which were brought to Egypt (121, p. 249). In the fourteenth century Arab traders occasionally managed to reach the Far North, since we have reports about their trips to the northern Ural Mountains (121, pp. 259-260) and they even penetrated as far as the regions of the fur hunters along the shores of the Arctic Ocean (121, p. 263).

both the walrus and the narwhal live)¹⁰ is even older than the earliest references to it in Muslim literature. In the second half of the ninth century A.D. the Norseman Ohthere sailed around the North Cape to "Biarmia" (the region from the White Sea to the Ural) to obtain "horshvael which have in their teeth bones of great price and excellencie."¹¹ This may have started (or stimulated) commercial activities in this commodity with Europe.

As to the Muslim trade with the tribes of the Far North we need not rely only on literary sources, since it is also attested by archeological finds. Two silver vessels with Kūfic inscriptions of the eleventh to twelfth century were found below the Arctic Circle in northwest Siberia, one in the District of Berezov, and the other in a fortified camp on the river Sosva.¹² In addition there have come to light in the same general region three other silver vessels whose more barbaric style indicated that they came from Muslim borderlands.¹³ All these objects, like the swords from Azerbaijan, must have been exchanged for the goods of the northern regions, that is, the much-coveted furs and the maritime ivory.¹⁴

While literary references and actual objects make it certain that walrus tusks and, to a lesser degree, also narwhal teeth were known in the Islamic East and that they are obvi-

¹⁰ One species of the walrus, *Odobenus rosmarus* L., lives in the Arctic Ocean in an area stretching from the mouth of the Yenisei, around Novaya Zemlya, Spitsbergen, and Greenland as far as Hudson Bay. It has a shorter and more curved tusk than the North Pacific species, *Odobenus obesus* Ill., which lives along the coasts of northeast Asia and northwest America (53, vol. 12, p. 629). The narwhal, *Monodon monoceros*, lives usually between the 70th and 80th degrees northern latitude and is to be found among other places around Novaya Zemlya and the waters north of Siberia (53, vol. 12, p. 476).

¹¹ 34, pp. 7-8 and 116-125; 164, 1913, pp. 337-338.

¹² 223, pl. 82, No. 147, and pl. 83, No. 148, which date from the twelfth century (sixth century) (262, pp. 406-407). The sites are indicated on map 1 in Smirnoff's introduction (223). Another silver vessel of slightly earlier date was found farther south in northwest Siberia, near Surgut (223, pl. 80, No. 145).

¹³ 223, pl. 58, No. 92; pl. 85, No. 155; pl. 87, No. 156.

¹⁴ Walrus ivory also reached Europe, as shown, for instance, by two twelfth-century German walrus carvings in the Walters Art Gallery, one a chess piece (113, vol. 4, No. 284), the other part of a larger composition, probably a corner of a portable altar (221, fig. on p. 243).

ously the "white khutū" or fish teeth of the ancient sources, it still has to be demonstrated that the medieval Muslim actually confused the khutū horn with that of the rhinoceros. This final link is necessary to explain how in Islam the antidotal virtue of the khutū became suddenly attached to the horn of the karkadann.

There is literary proof that this identification of the khutū with the rhinoceros horn happened at least as early as the beginning of the twelfth century. About 1120 the Persian geographer Marvazī states in two places that the khutū is the horn of the rhinoceros and, vice versa, that the rhinoceros horn is called khutū. To make his assertion even more specific he mentions, too, that the Chinese make high-priced girdles from this khutū;¹⁵ this was, as we have seen, universally and specifically stated about the horn of the karkadann.

Marvazī does not stand alone with his identification. About 200 years later al-Akfānī states that the khartūt خرتوت is also called khutū. Khartūt in the form of khartīt خرتیت or khartīṭ خريط is still the Egyptian designation for a rhinoceros.¹⁶ Thus khutū horn and rhinoceros horn appear again as interchangeable terms.¹⁷

¹⁵ 183, Arabic pp. 5 and 11, translation p. 17 (ch. 8, paragraph 15); and p. 23 (ch. 8, paragraph 27).

The mistake in the Muslim identification is clearly demonstrated by a Chinese source which is approximately contemporary with Marvazī. Hung Hao states, about 1143, in the *Sung mo chi wen*: The ku-tu-hsi (the Chinese equivalent of the khutū) is so rare that "among numerous pieces of rhinoceros horn there is not one (of this kind). It has never been worked into girdles (as in the case with rhinoceros horn)" (164, 1913, p. 359; about the date see 164, 1913, p. 366). Marvazī's identification shows that Laufer's statement "No Arabic author has ever used the word *khutū* with reference to the rhinoceros" (164, 1916, p. 381, footnote 3) can no longer be maintained.

¹⁶ 164, 1916, p. 380, quoting Wiedemann; see also 88, vol. 1, p. 363 (خريط); 98, vol. 2, pp. 679-680; 92, p. 182 (خرتیت); 53, vol. 12, pp. 605 and 607. It will be recalled that Brockelmann assumed both khartūt and khutū to be garbled versions of chatuq (see p. 123).

¹⁷ This opinion is exactly the opposite of that of Laufer who states that "if anything is quite certain, it is that rhinoceros horn is not understood by chutww (*khutū*)" (164, 1913, p. 354). Laufer assumed also that "the Arabs . . . have merely transferred to the walrus-tusks certain popular beliefs entertained regarding rhinoceros horn," while my deduction is that the influence ran in

Once the equation between the two materials was made, it was natural that the special quality of detecting poison was sooner or later transferred from the *khutū* to the *karkadann*. There is as yet no indication of this transfer in *Marvazī*'s long chapter on the rhinoceros, perhaps because the identification was made only shortly before this writer's time. To our knowledge the first reference to poison appears in the report of *al-Qazwīnī*, where the new virtue of the rhinoceros horn is significantly mentioned after it has been stated that it is good for knife handles.¹⁸ *Al-Qazwīnī* (and after him *al-Mustawfi*) seem to have regarded it as an antidote since he stated that ". . . when it is near poisoned food or drink it breaks the strength of the poison." There is not yet any reference to the poison-detecting properties which distinguish the *khutū*.

The final stage in the development was reached when the *khutū*'s agitation or sweating in the presence of poison was attributed to the horn of the rhinoceros. This point was reached about 1446 (850) in the *Kharīdat al-'ajā'ib wa-farīdat al-gharā'ib*, the cosmography of *Ibn al-Wardī*.¹⁹ In this work one learns that "one utilizes the horn of the rhinoceros by using it for the handles of the royal table knives. When poisoned dishes are placed before the king the handles become moist and agitated."²⁰ Here then are all the elements

the opposite direction. *Lauer*'s research has, however, immeasurably enriched our knowledge and his conclusions, which no longer seem to tally with historical data, are due only to the fact that he did not have enough Islamic source material at his disposal.

¹⁸ Besides the poison-detecting qualities there is yet another medicinal property which was transferred from the *khutū* to the *karkadann*. *Al-Akfānī* reports "that it has been established by experience that together with the vapors of perfume, the *khutū* has an excellent effect in the case of hemorrhoids." This is precisely the effect ascribed to it in India where for this reason rhinoceros horn is used in the form of plates for food, finger-and-toe-rings, cane handles, and so on (219, p. 184), although the earlier accounts of the *karkadann* never mention this particular use of the horn.

¹⁹ *Ibn al-Wardī* is not an original writer: his book is only a transcription, often word for word, of the *Jāmi' al-funūn* of the Ḥanbalite geographer *Najm al-dīn Ahmad b. Ḥamdān al-Ḥarrānī*, who was in Egypt in 1332 (732) (see 98, vol. 2 p. 412; 57, vol. 1, pp. 130-131 and suppl., vol. 2, pp. 161-163). *Ibn al-Wardī*'s passage might therefore go back to *al-Ḥarrānī*.

²⁰ At the beginning of his statement about the rhinoceros *Ibn al-Wardī* quotes

of the myth in the proper setting: the problem of detecting poison on the royal table, the knife handles made of a special horn, and, finally, the revealing symptoms of sweating and agitation. While in the case of al-Qazwīnī one is still left in the dark about a possible connection between knife handles and the poison-detecting quality of the horn, their mutual relationship is now established, and the entire legend is presented in a logical and well-integrated fashion. The whole reads now like an account of the alicorn's magic power, written in the West, except that Ibn al-Wardī concludes his report with the usual Muslim story of the Chinese girdles made of the horn and their great monetary value.

From this time on the horn of the rhinoceros seems to have been endowed with the mythical antidotal property, though the decline of great writers in the Muslim world makes it more difficult to establish evidence for this; but even so there are occasional references especially in Western sources. For instance, James Lancaster, while lying in the Strait of Malacca in 1592, tried to barter for the horn, "which is highly esteemed of all the Moores in these parts as a most souveraign remedie against poyson."²¹ Even in our times vessels made of the horn are said in Egypt, India, and Turkey to possess the antidotal quality.²²

al-Jaihānī as his source for the information that the karkadann in the shape of a donkey (see pl. 20) is to be found in Sumatra. Since al-Jaihānī's work, written between 892 and 907 (279 and 295), is now lost, it is not possible to check on whether any of Ibn al-Wardī's additional remarks go back to this early source. It can, however, be assumed that since antitoxic reactions of knives are absent in all earlier reports, al-Jaihānī can hardly have given this information.

²¹ 242, p. 218.

²² For Egypt see the report of M. Meyerhof in Cairo (98, vol. 2, p. 680), and for India those of Reinhart in Delhi (219, p. 184) and of Shebbeare quoted in 118, p. 377. Andersson reported in the middle of the last century that cups made of horns of reddish tints were also "esteemed" in Turkey on account of their poison-detecting quality (25, p. 309). The same author gives in addition two other accounts of the powers of the horn which so vividly describe the traditional Muslim beliefs that they are herewith quoted:

"The horns of the rhinoceros,' says Thunberg (apparently Karl Peter Thunberg, 1743-1828, a Swedish naturalist), 'were kept by some people both in town and country, not only as rarities, but also as useful in diseases and for the

After having followed the later history of the horns of the *khutū* and *karkadann* and their relationship to poison, it might be appropriate to deviate for a moment and ask when and where this whole development started. Since both *al-Bīrūnī* and *Marvazī* have pointed to a connection with China, one naturally looks to Far Eastern authors for further elucidation of this question; but here we run into difficulties. Although *Laufer* investigated the history of the walrus and narwhal tusks in China, where they had been known since the T'ang period, he could not find anything about the *ku-tu-hsi*'s connection with poison before the middle of the thirteenth century, that is to say nearly two centuries after the Muslim authors had spoken about it. An earlier Chinese account tells us only that it was a priceless material, veined like ivory and of yellow color, that it came from the *Khitan* country in the far north of China and that it was used for sword hilts and knife handles.²³ When, about 1259, the *ku-tu-hsi* is finally mentioned in connection with poison it is listed as a product of the Muhammadan countries of the West or of central Asia. Its outstanding quality is not the *detection* of poison due to a specific reaction, as *al-Bīrūnī* and *al-Kāshgharī* had indicated,

purpose of detecting poison . . . The fine shavings of the horn taken internally were supposed to cure convulsions and spasms in children. With respect to the latter it was generally believed that goblets made of these horns in a turner's lathe would discover a poisonous draught that was put into them by making the liquor ferment till it ran quite out of the goblet. Such horns as were taken from a rhinoceros calf were said to be the best and the most depended upon.'

"The horn of the rhinoceros,' *Kolben* tells us, 'will not endure the touch of poison. I have often been a witness to this. Many people of fashion of the Cape have cups turned out of the rhinoceros horn. Some have them set in silver, and some in gold. If wine is poured into one of these cups, it immediately rises and bubbles up as if it were boiling; and if there be poison in it, the cup immediately splits. If poison be put by itself into one of those cups, the cup, in an instant, flies to pieces. Though this matter is known to thousands of persons, yet some writers have affirmed that the rhinoceros horn has no such virtue. The chips made in turning one of those cups are even carefully saved, and returned to the owner of the cup; being esteemed of great benefit in convulsions, faintings, and many other illnesses.'" (25, p. 309.)

²³ The passage occurs in a treatise which was written pursuant to a mission which took place from 1129 till 1143 (164, 1913, pp. 318-320).

but its neutralizing power.²⁴ In 1366 another author interpreted this further by stating that "ku-tu-hsi is poisonous by nature and can thus counteract all poisons, for poison is treated with poison." He arrives at this opinion because, as he points out, one of the Chinese transliterations of the Khitan word ku-tu-hsi is written with three characters meaning "black magic, poison, and rhinoceros horn."²⁵ The latter was regarded as an effective antidote and it is therefore natural that this important quality of the horn was transferred to the ku-tu-hsi and that they were eventually thought to be identical (in 1387).²⁶ Even in the latest reports there is no word about the special poison-revealing reaction which was attributed to the khutū or the chatuq. We thus have either to assume that there was an earlier connection between the ku-tu-hsi and the horn of the rhinoceros than Laufer had been able to trace, or we have to doubt the particular statements made by al-Bīrūnī and al-Kāshghārī. If the second alternative should be correct—and it seems quite possible—it may very well be that the Turkish promoters of the maritime ivory used an alleged Chinese reputation to enhance the value of their merchandise.

Let us now return to the iconographic aspect of our study. Our thesis that the walrus and narwhal varieties of the khutū became fused with the horn of the rhinoceros seems to be borne out by many representations of the karkadann. Varied as the body structure of the animal in the Islamic representations is, since the time of the Aleppo plaque of 1168 and the Mosul jar in the Berlin Museum, the majority show one identical feature: the long, straight, tapering horn. Even illustrations of various iconographic types in al-Qazwīnī manuscripts sometimes show this form in spite of the fact that the text states not only that the horn is bent but goes so far as to describe its curvature.²⁷ The long, straight shape seems to

²⁴ It occurs in the report of Chang Tê, whom the Mongol emperor Mangu sent in 1259 as a courier to his younger brother Hülāgū, the founder of the Īl-khān dynasty of Persia, who resided in Tabriz (164, 1913, p. 320).

²⁵ 164, 1913, p. 322.

²⁶ 164, 1913, p. 325.

²⁷ "In it is a curve convex towards the animal's front and concave towards its back." This, by the way, is apparently the passage which has been mis-

have been regarded as so significant that it was kept even after the rhinoceros had been recognized as possessing a curved horn which the painters learned to place correctly on the nose of the animal. Thus the miniature of the karkadann in the Princeton al-Qazwīnī manuscript shows the fairly realistic representation of a narwhal tusk, with its spiral grooves, in combination with an ordinary rhinoceros horn (pl. 15, right). There is, therefore, a good possibility that all the other long, straight horns could be interpreted as tusks of the narwhal; the slightly curved ones, like that on the head of the karkadann in the Sarre manuscript (pl. 13, lower), can be imagined to have been inspired by walrus tusks even though the text of al-Qazwīnī, which called for a bent horn, might have been a contributory factor for this particular shape.

At this point in the investigation we are also justified in assuming that the horns on the heads of two animals decorating the plaque from the Aleppo madrasa (pl. 6) possibly reflect a narwhal tusk. All the characteristic features, such as the long, straight, and tapering form and the helical grooves are unmistakably reproduced. Furthermore some of the later representations of the karkadann (pls. 2, upper; 7; and 19, upper) show vertical markings which may indicate that the artists still knew that certain designs on the horn were necessary, although they had forgotten the real ones and substituted more fanciful patterns. Thus the representation on the Aleppo plaque might indeed be one of the earliest instances in which the ideas of the terrestrial karkadann and the maritime khutū are fused. The only other example in an early style so far found is the enigmatic representation on an Hispano-Moresque ivory pyxis²⁸ which was formerly in the collection of the Comtesse de Béhague and is now in that of the

translated in Western books on the unicorn as follows: "... with raised striae outside and a hollow within" (242, p. 265).

²⁸I know this ivory box only from reproductions. It is discussed in 100, vol. 1, pp. 75-76, and illustrated on plates 28 and 129. Ferrandis thinks that the unicorns are fighting each other. Two pyxides, dated 968 (357) and 970 (359) (100, pls. 19-25), are said to be closely related. It is, however, quite impossible that the Ganay pyxis is later than these parallels; it may even be modern.

Marquis de Ganay (pl. 5, right). Here, too, each of the paired unicorns proudly carries a long, tapering horn which seems to be marked with helical grooves. These equine long-bearded animals are, however, unique. All other unicorns on Spanish ivory boxes of the same period, have a winged body and carry a horn ending in a hook-shaped curve which, in spite of the helical grooves, can have no connection with the narwhal tusk (pl. 5, left).²⁹ The unicorns on the Ganay pyxis have also no close parallels among the representations of the species in the art of the Muslim East of the twelfth, thirteenth, and fourteenth centuries. On the other hand, they are much like the Western types which have appeared in Christian art since the late twelfth century.³⁰ In view of the unusual character of these animals it seems wise not to draw any conclusions before other examples have been found or pertinent texts have been discovered.

After having finished this survey we can now come back to the final question which we raised at the beginning of this chapter, namely, whether it was the karkadann which instigated the medieval myth of the antidotal property of the alicorn. The complexity of the subject makes it impossible to give anything but a tentative answer. With this limitation in mind one can state that it could very well have been the horn of the karkadann endowed with the new power it received through its fusion with the *khutū* which was the source for the medieval myth. The dates of the first reference to the antidotal virtue of the *khutū* (in *al-Birūnī*) and its first identification with the horn of the rhinoceros (in *Marvazī*) make this quite possible.³¹ Only if the sweating of the alicorn should prove to be an early and essential feature in the detection of

²⁹ See also 100, vol. 1, pls. 42, 48, 50, 56, and 59.

³⁰ 238, figs. 196-197 and 207; see also 196, pls. 2-4, 6, and 7; 195, Nos. 73-78 and pl. 6; 94, No. 290 and illustration.

³¹ There would be thus three interchanges between rhinoceros horn and maritime ivory. In China the antidotal virtue of the rhinoceros horn was transferred to the *ku-tu-hsi* (164, 1913, p. 353), while in Islam the lore of the *khutū* created in turn the antidotal myth of the rhinoceros horn. Finally in the West it is now again the rhinoceros horn which seems to have endowed the alicorn with antidotal power.

the poison in the West (which it does not seem to be) would the source of the influence be the *khutū* itself, because only in the first half of the fourteenth century does the horn of the *karkadann* allegedly show this peculiar reaction.

The possibility of Muslim influence on Western representations cannot yet be fully gauged. It is, first of all, tied up with the unicorns on the atypical and problematic pyxis in the Marquis de Ganay's collection. This document startles us on account of the early manifestation of the type, just as it is provocative in its historical implication. Nevertheless, its uniqueness in Hispano-Moresque and seemingly even in Muslim art does not admit any conclusions at this time. The second earliest *karkadann*, with a straight, tapering horn and spiral grooves, the one on the plaque of the Aleppo madrasa of 1168 (564), probably antedates by some years the earliest picture of the unicorn with a narwhal tusk in European bestiaries.³² The difference in time is, however, very small and the Muslim decoration, furthermore, shows only an animal head and not the whole quadruped. Whether the third earliest Muslim piece, the Mosul jar fragment in Berlin, has a chronological precedence over Western representations is already questionable. Its exact date in the late twelfth or, more likely, in the thirteenth century, is difficult to determine, because its style is archaistic. Also, the long horns of its unicorns do not show the characteristic grooves. Thus, owing to the scarcity and the problematic character of the examples now available, the case for a priority of the Muslim unicorn cannot, for the time being, be postulated, although it is not impossible that in point of time the Near East might have a slight edge over Europe. Only when we know more of early Muslim representations of the *karkadann*, especially those on easily transportable (and exportable) works of art, can we be more precise about the possibility of a transmission from East to West. For the time being it seems fair to assume

³² The date when in the West narwhal teeth were first thought to be the horns of unicorns and represented as such has been put at about 1200 (238, pp. 194-195).

that in medieval Europe, other and probably better circumstances must have existed in which the iconography of the unicorn bearing a narwhal tusk could have evolved.

SUPPLEMENTARY NOTE

The account of the *khutū* in al-Birūnī's *Mineralogy*, the *Kitāb al-jamāhīr fī ma'rifat al-jawāhīr*, published in Hyderabad in 1355 H. (see above, p. 114, footnote 57), contains the following data:

The *khutū* is a much-desired animal substance especially treasured by the Chinese and the Turks of the East. Like the bezoar stone, it is supposed to sweat when it is near poison, a belief confirmed by messengers from the Qitāy Khān, whom al-Birūnī had asked about it.

The exact nature of the substance is so uncertain that al-Birūnī gives several identifications and explanations. Some statements are accompanied by critical comments, while others reveal clearly how confused the problem remained to him. It is not surprising, therefore, when he finally states that to know what the *khutū* actually is appears hopeless.

As in al-Khāzinī's version, it is first assumed to be a bone from the forehead of an ox living in the land of the Kirghiz. Al-Birūnī gives little credence to this theory, though it is supported by older, unnamed books. According to his own observations, the *khutū* is too thick to be from such a bone, especially since the Turkish oxen are of small build. He prefers to think that "it would fit the horn much better." If this should be so, he would attribute it to the antelopes of the Kirghiz. Another theory designates it the forehead of a water karkadann (کرکدن مائی), called water elephant (فیل مائی), while yet another characterizes it as a bone from the brow or the horn of a very large bird. According to the last assumption (which is the one to provoke the author's final despair), the bird falls down on some island and the bone is taken after the flesh has decomposed. Further details in the ensuing account of the bird, such as its tremendous size (which blots out the sun), its veneration as a divinity, its

habitat in deserts behind the sea between China and Ethiopia, and finally, its feeding on elephants, make it clear that the myth refers to the rukh.

The khutū's all-important pattern is discussed after al-Bīrūnī has mentioned the water karkadann as a possible source of this substance. He likens its damascened design to the core of a fish tooth which the Bulgarians import into Khwārizm from the Northern Sea. He then mentions that the fish tooth is a little more than a cubit long and that its core, running through its whole length, is known as its substance or jewel (جوهر السنّ). It is not quite clear whether in the next paragraph he still speaks of the fish tooth (obviously the walrus tusk) or the khutū, though it seems as if al-Bīrūnī again had the former in mind. It tells how a Khwārizmian came across specimens whose enamel surrounding the core was brilliantly white. He carved knife and dagger handles from its core, which was white with an admixture of yellow and like the core of a cucumber split lengthwise. He brought it to Mecca as white khutū and sold it to the Egyptians for a high price. Here our author is apparently referring to a dishonest commercial transaction.

Al-Bīrūnī stresses the khutū's connection with water in one more instance. When carved pieces fall into fire, a fishlike odor rises, and just as fumigating with fish bones is said to help hemorrhoids, so does khutū smoke.

The description of colors is fairly close to al-Khāzini's version. Its beginning and end, however, are different. The former is significant, since it could just as well apply to the walrus tusk: "The best is the crooked one, which is colored between yellow and red." The price of such crooked specimens is 100 dinārs (gold coins) for a hundred dirham's weight (ca. 314.8 grams), while the poorest quality of the tooth costs only one dinār with no regard to weight. The largest piece seen by al-Bīrūnī weighed 150 dirhams (ca. 472.2 grams), and its value was 200 dinārs.

Finally, al-Bīrūnī reports two peculiar uses for the khutū not otherwise mentioned in the literature. The Amīr Abū

Ja'far b. Bānū had a large chestlike box with long, broad, and thick khutū plates, while the Amīr Yamīn al-dawla owned an inkwell which was a source of blessing for him but brought ill-luck to others.

The editor of the *Kitāb al-jamāhir fī ma'rifat al-jawāhir* adds to his text (45a, p. 208, footnote 2) the passage on the khutū in the same author's *Pharmacology*, the *Kitāb al-ṣaidana*. This is only a shortened version of the account in the *Kitāb al-jamāhir*. In parts it gives the impression of being slightly garbled, as is evident from a passage like: "the khutū . . . is the forehead of a karkadann, that is the water elephant."

Al-Bīrūnī seems to imply that he has actually seen khutū pieces. It is therefore significant that he distinguishes between the khutū and the fish tooth, i.e., the walrus tusk. The selling of a fish tooth to Egyptians as white khutū and the long, broad, and thick plates of Abū Ja'far's box speak also for the existence of two different materials. There are close similarities, however. The khutū's core has designs and colors very much like that of the walrus tusk, while the piece carved by the Khwārizmian looked like white khutū (a substance which, contrary to my assumption based on Wiedemann's translation of al-Kāzini's text, does not exist as a separate category). The issue then is to find two animals which have "teeth" of marked similarities. In this respect, it will be recalled that I have come across a number of swords the handles of which were unusually wide for walrus tusks, although they had its osteodentine pattern.

Unfortunately, I cannot offer any satisfactory solution of the problem. It seems unlikely that al-Bīrūnī is speaking of the tooth of the sperm whale which otherwise could figuratively be called a water karkadann or water elephant (see p. 126, footnote 99). The narwhal has no core with a design. On the other hand, it is not likely that Egyptians would have paid a high price for hippopotamus teeth, which must have been fairly common in their country. Furthermore, this animal was known as "water horse" (فرس الماء), and the structure of

its tooth differs greatly from that of the walrus. In case there is no other tooth like that of the walrus—nor a horn resembling it—the only remaining possibility would be that al-Bīrūnī makes a distinction between two types of walrus teeth, perhaps teeth of different sizes or in different stages of preservation; or we would have to assume that the cause of the whole confusion is of semantic nature. It could be conjectured that at a certain time the walrus was usually called a fish, but sometimes also a water karkadann, without its being understood that the two names referred to the same animal. Accepting this, it is only natural that the products of these alleged two animals look very much alike, since they come from one type animal. However, even if we have to accept that, originally, there were two different products from two different animals, it is clear that such rare and mysterious materials as khutū and walrus tusk could easily be mistaken for each other, as they seem to have been in Egypt. This makes it possible to understand how features connected with the original khutū could have been transferred to the walrus tusk. On the other hand, al-Bīrūnī's identification of the khutū with an ox or a water karkadann was the starting point for the confusion with the terrestrial karkadann which was supposed to have had a bovine form. If the text of the *Pharmacology* is not garbled, this confusion occurred already in al-Bīrūnī's own writing.

° Why our author called the tusk a forehead bone remains another puzzle, especially since he himself preferred to call the khutū a horn. Possibly he became prejudiced by the intelligence given to him by the men of the Qitāy Khān who designated it as such or by the reports connecting it with the rukh.

The passage in al-Bīrūnī shows that the bird theory explaining the nature of the khutū actually has two sources: the buceros (see p. 116) and the rukh. The association of the khutū with the rukh has its parallel in the relation of the karkadann and the rukh (see p. 33). There is, therefore, one further reason why khutū and karkadann could be confused

with each other. It is also noteworthy that al-Bīrūnī is the first to identify the *khutū* with the fabulous bird and that al-Akfānī repeats in his account only what he had read. We likewise find that the same fourteenth-century author copied, besides other facts, al-Bīrūnī's original statements of the *khutū*'s popularity with the Turks, its range of colors, and its usefulness in the case of hemorrhoids. In al-Akfānī's time the price of *khutū* seems to have dropped, however.

THE KARKADANN AS A SCIENTIFIC AND ARTISTIC PROBLEM

The preceding sections dealt first with the figural representations of the rhinoceros in the Muslim world and then with the lore of various unicorns in relation to myths in other civilizations. Extensive as our account may have seemed, its enumeration and reconstruction of facts do not tell the whole story, since they have been presented in a historical vacuum. It is necessary to survey the whole development and to connect it wherever possible with the framework of intellectual growth in the Muslim world. After all, the myth of a strange animal represents a challenge to human resources and imagination and the approach to the problem reveals clearly the power of observation in explorers and the critical faculties in writers in each given period. In the case of the karkadann writers set the pace for artists because the former were the first to deal with the problem and it is on them, as we have seen, that the artists heavily leaned. It is, therefore, with them that we have to start the final part of this investigation.

When an author was confronted with the accounts of sailors and travelers, his first problem was to decide, and this far away from the habitat of the karkadann, whether this strange animal was just a human fabrication or a reality. As stated in al-Jāhiz' *Kitāb al-ḥayawān*, this was still an issue as late as the ninth century. The attitude of al-Jāhiz with regard to the doubted existence of the beast was based on literary learning; since it is mentioned in the Bible and in Aristotle, there is no question in his mind that its reality is assured and so he presents whatever information he has at his disposal.¹ There is, however, a certain amount of critical attitude in him and in the best writers of the ninth, tenth, and eleventh centuries. Thus al-Jāhiz uses logical reasoning when he tries to challenge the story that the young karkadann puts its head out of its

¹ 145, vol. 7, p. 40.

mother's womb and eats leaves when passing trees. His argument runs like this: "What it has eaten must necessarily be excreted. If the young karkadann continued eating and did not excrete, it would be remarkable; if it excreted in the womb of its mother, it would be even more remarkable."² His conclusion is that he does not think that this is entirely impossible, but he is inclined not to believe it. For al-Mas'ūdī this story is incredible and he uses a scientific method to check it. He interviews men who have traveled in India as to the mode of pregnancy of the rhinoceros and their answer discredits the whole yarn.³ Al-Birūnī, too, had a scientific attitude when he clearly distinguished between his own observations and what he has been told by others. It is true, the reports of his informants are full of fantastic details which al-Birūnī does not challenge, perhaps because he lacked proper means of checking them, but he is at least fully reliable as to what he has seen. This was no mean achievement considering the preconceived ideas about the subject and the uncritical acceptance of book learning. One has only to compare his observations with those of Ibn Baṭṭūṭa, whose preconceived notions of the rhinoceros obscured his perception of the animal on the several occasions that he saw it.

Al-Birūnī's independent attitude is likewise shown in his account of the mysterious *khutū*. He quotes in the first place an opinion which is founded on data provided by foreign informants thought to be familiar with the subject. Yet, in spite of the fact that their information is corroborated by literary sources, he questions this lore from his own observations, gives the reasons for his doubts, and with all due caution concludes by providing his own theory. In the end, he does not hesitate to throw doubt on all his given information because he sees the hopelessness of reconciling the various contradictory, if not outright confused, sources.

Al-Nadīm, another figure of the early period, is the only person who uses the literary form of an interview with an

² 145, vol. 7, p. 41.

³ 184, vol. 1, pp. 387-388.

informant. About the year 987 (377) he interrogated a Christian monk who had spent some time in China and he reproduces this conversation in his *Fihrist*.⁴ Needless to say, this more direct approach produces not only a vivid presentation of the freshly gained knowledge, but the information itself is new. Thus we learn for the first and only time how the “philosophers and wise men of China”⁵ imagined that the strange figures in the horn originated. It is the first impressions of the newly born animal which are reproduced in the horn. This explanation of the mythical designs is just another myth, but we have here at least an awareness of a phenomenon which needs to be interpreted.⁶ Al-Nadīm, unlike all the other Muslim writers, thought it worth while to reproduce this information. In this instance it is also possible to come fairly close to the original Chinese version of the myth. According to one Li Hsün, it was believed that “the rhinoceros, ‘communicating with the sky’ during the time of pregnancy, beholds the forms of things passing across the sky, and these are reproduced in the horn of the embryo: hence the designation ‘communicating with the sky.’”⁷ In both accounts the figures in the horn are thus due to visual sensations either of the pregnant mother or of the newly born calf, though the Chinese author (in his effort to explain the curious name of the animal) restricts the impressions to heavenly bodies. In view of this basic agreement it can be assumed that the particular version reproduced by al-Nadīm was also current in the Far East and picked up there by his informant. Another unusual statement is contained in al-Nadīm’s reference to the price of rhinoceros horn. In contrast to the stereotyped wording in all other Muslim texts mentioning the high cost of the Chinese

⁴ 192, vol. 1, p. 349; translation, 98, vol. 1, pp. 129-130.

⁵ Ferrand (98, vol. 1, p. 140) speaks erroneously of “les savants de l’Inde,” the text has فلاسفة الصين وعلمائها.

⁶ It is based on the principle so common in superstitions and in magic that “like produces like or that an effect resembles its cause” (105, p. 11).

⁷ 165, p. 147; see also p. 137, footnote 1. Li Hsün lived in the second half of the eighth century; he made his statement in an account of the drugs of southern countries.

girdles, the monk reported that the price for the horn had actually fallen to a fraction of its former value owing to the change of taste on the part of the ruling Chinese king. In view of the alert mental attitude of al-Nadīm it is not surprising that he grasped certain facts even better than did his informant. For instance, when he heard the explanation for the figures in the horn he immediately exclaimed that this must be the horn of the karkadann. This the monk denied, since he had heard another name; laboring under the common delusion that different names meant different animals, he was unable to see the identity of the two.

The profuse variety of nomenclature tripped even the great al-Bīrūnī, who was led astray by the reports of travelers. After having reproduced his fine observations of the Indian rhinoceros (called *ganda* by him) he continues: "I thought that the *ganda* was the karkadann but a man who had visited Sufāla in the country of the Negroes told me that the kark, which the Negroes call *impilā*, and the horn of which furnishes the material for the handles of our knives, comes nearer this description than the karkadann." In spite of this confusion of terms al-Bīrūnī must have realized a possible connection between *sharav*, *ganda*, karkadann, and kark, otherwise he would not have grouped together the separate descriptions of the real and mythical derivatives of the rhinoceros. In doing this he escaped the misconstructions of many writers like Marvazī and al-Damirī who tried to amalgamate various reports so as to achieve an all-embracing, more or less uniform, but also confusing account.

The early fourteenth-century writer al-Nuwairī gives the usual potpourri on the karkadann based on al-Jāhīz, al-Mas'ūdī, and others, but at least he deserves credit for having contributed a critical observation about the African rhinoceros in contradistinction to the Indian species. Being, as he was, a government official (*kātib*) and historiographer he was, of course, not interested in the physical differences of the two groups but rather in the variety of tales about the animal. Thus al-Nuwairī is the only medieval author encountered by me who, after having stated that the Indian rhinocero-

ros is so terrifying that it lets no other animal graze in its neighborhood, adds that the Ethiopian variety behaves differently and mingles with other animals.⁸ In stating this he makes use of his advantageous geographical position as a resident of Egypt, just as about 300 years earlier al-Bīrūnī had profited from his Indian experiences. As we have briefly noted before, the observation of reality in the case of an Egyptian writer has its parallel in the pictorial arts. In the little carpet of a miniature of the *Maqāmāt* of 1337 (738) in the Bodleian Library (pl. 18, lower) we find for the first time in the traditional motif of the karkadann's pursuit of the elephant a realistically rendered rhinoceros. In spite of the smallness of the available area we have here—in defiance of the traditional unicorn—a representation of the bicorned species with which an Egyptian could be familiar, while a single-horned animal from India was nothing to him but a literary allusion.

All later writers preferred quantity of curious information to critical studies. They did not consult those of their contemporaries who had actually seen the animal, nor did they restrict themselves to al-Bīrūnī's trustworthy information.⁹ Incredible reports from various sources were no longer questioned but were gladly accepted for their intriguing details. Al-Qazwīnī is typical of these eclectic writers, although he still manages to write a fairly well-integrated chapter on the karkadann. Perhaps the most uncritical author on the subject was al-Damīrī, whose hodgepodge account is characteristic of the decline in scientific attitude.¹⁰ In a not too extensive report he repeats himself several times¹¹ because he used different sources which had the same elements. At other places he contradicts statements which he has made a few lines be-

⁸ 201, vol. 7, p. 315.

⁹ Marvazī quotes al-Bīrūnī extensively, but he adds a great deal of fantastic folklore from classical and Muslim writers.

¹⁰ Besides al-Jāhīz, al-Zamakhsharī, and Abū 'Umar b. 'Abd al-Barr, whose names are given in his article on the rhinoceros, he leans heavily on al-Gharnāṭī, 'Awfī, and al-Qazwīnī whom he does not mention as his sources.

¹¹ Thus he mentions the fight with the elephant three times and the stories of the "outside feeding" of the foetus and of the designs on the horn twice each.

fore, such as first declaring that the karkadann has one horn and then attributing three to him.¹² Valuable as his account might be to a modern scholar as a source of varied information, it shows clearly that the writer no longer tried to digest and integrate his material. But al-Damīri is not by any means the first to incorporate blatant contradictions into a medley on the rhinoceros. About 250 years before his time Marvazī speaks, in the first section of his chapter on the karkadann, about the strange behavior of the young animal while it is still in its mother's womb and how, after birth, it tries to escape the licking of its dam. Only a few sentences afterward the same writer reproduces the classical myth that the whole species consists only of males and that no one knows how they come into existence. Yet Marvazī does not feel the slightest necessity to ease the shock of such conflicting statements, or to present at least some kind of explanation for the different theories. Such contradictory data within a single text—let alone those found in the writings of different authors—serve to explain how the karkadann could take on so many different forms and could even have two different shapes in the same manuscript.

Other sources of confusion were the various animals which were alleged to have single horns and which were sometimes identified with the rhinoceros. There is no better example of the state of mind of writers of these centuries than the fact that they not only described these different imaginary beasts, but dealt also with their medicinal value and their lawfulness as food.

It was in this period of uncritical writings that the artists started to use the karkadann as a figural motif. There was no well-established iconographic prototype for a unicorn from old Oriental, classical, and Sasanian times.¹³ The karkadann

¹² Another contradiction is the length of gestation which is once given as 4 years and then as 3 or 7 years. In addition, the rhinoceros is said to be 100 cubits long and even more, and in another place it is alleged to be smaller than a buffalo.

¹³ This generalization is not contradicted by very rare exceptions such as the old oriental model for the animal on the Berlin Mosul jar or the vague

was therefore quite unlike other motifs such as the "sphinx" or the "harpy," which were popular in this period. The lack of an iconographic prototype might appear puzzling in view of the various animals among the Persepolis sculptures which could have qualified as models for the karkadann. It may be that the beast which Ibn al-Balkhī described as karkadann was too fantastic and unlike the usual bovine type described by the writers to have appealed to the artists. On the other hand, the frequently occurring reliefs of the bull attacked by a lion¹⁴ did not come up to the traditional picture of the karkadann as it had crystallized in medieval writings. It is true that this animal is a bovine and only one horn is shown, but this iconographic advantage is offset by the fact that the animal is overcome by the lion, which was impossible according to the texts. Thus the Achaemenian reliefs of the lion and the bull are but rarely used as pictorial models for a unicorn scene.¹⁵

The apparent nonexistence of the unicorn motif in Sasanian art is especially important for the development of the karkadann design in Muslim times. It can be explained by the fact that the rhinoceros was very little known in Sasanian Iran and probably completely unknown in earlier periods. The word karkadann or a similar form does not occur in the extant Middle Iranian literature. It is not found in the Pahlavi *Bundahishn* (in the chapter about the creation of the animals), nor, for that matter, in the Avesta. There exists also no other term meaning "rhinoceros" in this literature.¹⁶ In spite of this lack of direct information the existence of karka-

affinity between the karkadann killed by Iskandar in the Demotte *Shāh-nāmah* and the griffin mount of Anahita on a Sasanian silver plate (228, pl. 116).

¹⁴ 228, pl. 21.

¹⁵ For one of the rare exceptions see plate 45 and its explanation on page 69. Usually the slain animals show two horns or two antlers.

¹⁶ Kind information of Prof. B. Geiger. He also pointed out to me that kark occurs in Pahlavi only in the meaning "hen" and in the Avesta only in the compound kahrkāsa "vulture" (literally: hen-eater). Another modern Persian word for rhinoceros arj ارج, which is identical with Pahlavi arz, occurs in the *Bundahishn*, though it is counted there among the fish (276, p. 51).

dann in Pahlavi can be inferred with a high degree of certainty since this word is mentioned as the Persian designation in the Syriac translation of the Pseudo-Callisthenes.¹⁷ Nöldeke has shown that this translation was most probably made by a Nestorian at the end of the Sasanian period (seventh century).¹⁸ This would naturally imply that karkadann existed in Pahlavi, having been borrowed from the Sanskrit, and that the Syrian Christians of the Iranian empire became familiar with this term and used it in their literature. Although this deduction indicates the use of karkadann in Sasanian times, the term must have been uncommon, as demonstrated by its absence in the Pahlavi literature. While the rare use of the word seems to imply that the people were ordinarily unaware of the real animal, it should be pointed out that the notion of a unicorn as such was not unknown in Pahlavi literature. The *Bundahishn* speaks of a three-legged, six-eyed, and nine-mouthed ass whose head is adorned with a single golden, thousand-branched horn.¹⁹ It stands in the ocean and with its horn "vanquishes and dissipates all the vile corruption due to the effort of the noxious creatures." These details indicate that the concept of this mythical animal is quite different from those held of the karkadann, which, in spite of fantastic elaborations, always kept a core of reality. The lore of the three-legged ass had therefore no influence on Muslim literature or Muslim iconography.²⁰

In the absence of an established iconographic tradition in pre-Islamic and early Islamic times, one wonders what it was that caused the artists to take up the motif and then, at least

¹⁷ 215, Syriac text, p. 211, line 15, translation, p. 119. The rhinoceros occurs there in the corrupt forms marqēdad and bargēdad. Eighty of the animals were sent with other gifts by Queen Kundāqā (Candace) of Samrāyē to Alexander the Great.

¹⁸ 199, pp. 13-17.

¹⁹ 276, pp. 67-69.

²⁰ The "purification of the water through the unicorn" was, however, introduced into the *Physiologus*. It appears there in the "water-conning" scene, which later found charming expression in late fifteenth-century tapestries (242, pp. 60 and 235-236, pl. 5). The Islamic world did not accept this part of the *Physiologus*, just as it had rejected the original Iranian myth of the three-legged ass.

in the East, only as late as the middle of the twelfth century. Further research might, of course, produce earlier examples, but they would hardly represent a common type. So far there is good evidence that no such animal designs were widely known in the ninth century, since al-Jāhiz could refer only to representations of the 'anqā' and not of the karkadann when he wanted to prove that the two animals were not identical (see p. 33).²¹ That from the late twelfth century on the animal enjoyed a certain popularity for about 150 to 200 years, is demonstrated by the fact that decorative schemes display it then as an isolated motif, that is, on its own merits and without any further folkloristic context.

It seems that the time has not yet come to give a definite answer for the *raison d'être* of the design. The karkadann is only one of the animals and one of the many motifs popular at this period, and it would be necessary to trace the background of at least the most important ones to find out what appealed to a Muslim in each of them. However, certain considerations come to mind which might give some explanation why artists were interested in this motif.

Shortly before the first pictures of the karkadann appeared in the East, the amalgamation of the khutū horn with that of the karkadann had taken place. This meant that the karkadann was no longer regarded merely as the supplier of the high-priced horn for the curious girdles of the Chinese, which had been its greatest distinction; its antidotal quality then made it significant for the Muslims themselves. On the other hand, the mysterious khutū horn had finally found a body to

²¹ The only early Islamic example known to me from the literature is a fragmentary statuette of the animal, excavated in a Khwārizmian castle, said to be from the end of the eighth century A.D. Representations of a four-armed deity from a contemporary castle of the same region indicate cultural relations between Khwārizm and India at this period which could also explain the occurrence of the rhinoceros in this early art (101, p. 164). The only statuette of a rhinoceros mentioned in the Muslim literature with which I am familiar is the one of gold and jewels that was given by native chieftains to Iskandar after he had spoken to the "talking tree." This precious object was given with other gifts, among them two elephant tusks, thus possibly indicating an Indian locale (102, vol. 4, pp. 232-233, line 1575; 103, vol. 6, p. 169).

be attached to and could thus be represented in an animal decoration. This must have made the Muslim world receptive to the inclusion of the karkadann as a motif at this particular time.

Furthermore, an additional reason for its new popularity was possibly the sequence of animals chasing each other, which constituted a favorite Seljuk decoration for circular bands on metal and pottery objects. As the fiercest beast and killer of all animals, including the elephant, it was an obvious choice for this decorative scheme. Finally, it should be remembered that this period was very fond of fantastic animals such as those usually defined as sphinxes, harpies, and griffins. The karkadann fitted well into this group.

The era was receptive to becoming visually aware of a new animal. The commercial activities of the big cities made a large body of learned men possible. These scholars and their colleagues, supported by princes, were exhaustive in their encyclopedic surveys of the world, its people, animals and plants. This is testified by the works of al-Idrīsī, Yāqūt, Ibn al-Baiṭār, al-Qazwīnī, Ibn Khallikān, and others, all of which reveal a tremendous curiosity toward the various aspects of the world—even of its “wonders”—and an attempt to satisfy this widespread yearning.²² What these learned books might lack in originality they made up by a great deal of detailed information, real or fancied. There is not only an insistence on the correct dates and spelling of names, but also on visual recording. Thus when Ibn al-Ṣūrī (died 1242/639) was botanizing in Syria he was accompanied by an artist who made colored drawings of plants in the different stages of their growth.²³ It was also at this time and in line with this thoroughness that the illustration of manuscripts dealing with animals and plants was deemed necessary. This learned activity extended even to imaginary monsters and supernatural beings from a lower folkloristic level. One has only to look

²² 234, vol. 2, pts. 1 and 2 passim.

²³ 234, vol. 2, pt. 1, p. 54; vol. 2, pt. 2, p. 649, quoting Ibn Abī Uṣaibi'a (130, vol. 2, p. 219).

through illuminated copies of al-Qazwīnī's text to see the many strange creatures which existed in the world of a thirteenth-century Muslim.

All these factors seem to explain the existence of the karkadann in Muslim art. If there is any doubt left, it might center around the isolated figures of the animal. Here the folkloristic appeal of the elephant-hunt scenes with their delight in telling a story does not apply; and we can likewise assume that the artist did not haphazardly select this unusual animal just to satisfy scientific curiosity. Was it then the magic quality of the horn that caused the artist to prefer a fearful monster to other equally decorative designs with more pleasant associations and led him to apply it several times to a beautiful luxury object (pls. 1 and 2)? Or had the design become common enough so that not too much attention was paid to it as an individual motif? If we knew more about the working of the Muslim mind in the twelfth, thirteenth, and fourteenth centuries, the answer to these questions would not be so difficult. One factor which prevents a solution is our present lack of knowledge as to whether there is any psychological basis for the choice of certain motifs in Muslim art. We thus do not know whether we are confronted with a case parallel to certain phenomena in Western art. During the Romanesque period, for instance, one frequently finds capitals and initial letters decorated with monsters which do not fit into the usual religious aspect of contemporary art. These creatures have been explained as "psychologically significant images of force, aggressiveness, anxiety and fear;" in other words, as "projected emotions."²⁴ It seems still premature to speculate whether the fascination of the Muslim artist for a violent all-powerful monster, which without mercy kills man and beast and is only rarely vanquished and subdued, is likewise conditioned by human fears. As has been stated before, the final explanation of the motif lies in the further study of all important designs used during the Middle Ages.

Once the picture of the karkadann was presented to the

²⁴ 236, pp. 132-137.

public its appeal lay in the fact that it evoked a wide response. It proved equally attractive to the scholar and to an illiterate audience of popular stories; only their intellectual reactions and mental associations were different. It is also certain that whatever the intent of the artist and the education of the onlooker may have been, neither of them seems to have been concerned with a conscious symbolism in the design.

In view of the lack of an established iconographic prototype, medieval Muslim artists had to rely for their representations mainly on the writers. Naturally they were influenced by the opinion of their contemporaries like al-Qazwīnī and al-Damīrī though they also followed long-established descriptions such as those of al-Jawharī and Fīrdawsī. All these authors proved to be difficult sources of information. The texts were often fantastic and contradictory and their terminology was misleading. The descriptions provided material for only some of the bodily aspects of the animal, while a great deal of intriguing information was of no use to a painter or sculptor. One cannot blame the writer for restricting his accounts because his aim was not to provide the raw material for a decorative artist; yet these limited and fanciful sketches were all that the painter had to go on for his designs.

In view of this handicap the artist needed further help. In some instances he was able to exploit a peculiar linguistic condition, because by reading كرك to mean gurg, "wolf," all iconographic difficulties were removed and he could then easily paint a wolflike animal with a single horn. I am not familiar with other Muslim examples of substitutional iconography based on two meanings of a written word, but the phenomenon has, for instance, been observed in India.²⁵

²⁵ See the Indian motif of the elephant-carrying bird which was originally the solar bird garuḍa carrying in its talons or beak the chthonic snake nāga. Since nāga means both snake and elephant the one animal was substituted for the other and a new iconographic type was created (127, pp. 17 and 21; 265, vol. 2, letterpress to pl. 59; 279, pp. 255-257). In this case the substitution is due to the two definitions of a word, while in the case of karg-gurg, we have not only two definitions but also two pronunciations. By the way, the elephant-carrying garuḍa is also the prototype for the elephant-carrying simurgh, see p. 32 and pl. 17.

Muslim art provides, however, another instance where the re-interpretation of the name created the physical appearance of an animal unknown to the artist. This happened in the case of the giraffe, called in Persian *shutur-gāv-palang* شتر گاو پلنگ (literally, "camel-ox-leopard"), illustrated in the *al-Qazwīnī* manuscript of 1789 in the Freer Gallery of Art. When the Indian artist had to reproduce this unfamiliar animal he did not follow the text (which starts with a statement that the head is like that of a camel, and so on), but he concocted a creature whose bovine-horned head is carried on a long neck above the furry body of a leopard (pl. 16, upper).²⁶ Here too, then, there is hardly any doubt that it was the word which created the physical form.

Substitutional iconography engendered by linguistic conditions was by its very nature only of limited help. In the case of the unicorns it was applied only to some of the animals in the *Shāh-nāmāh* illustrations. For other texts and other occasions the artist still needed inspiration for his imagery. In certain instances he eagerly employed foreign iconographic models. This happened when these models seemed to fit the mental picture he had formed from the scant information in Muslim literature. To this category belongs the buffalo- or cowlike karkadann which follows an iconographic type from China; or we can refer to the karkadann in the shape of an antelope, deer, or goat which ultimately seems to have been derived from Indian models, literary or figurative. It is also for this reason that an iconographic model was assumed to be the most likely prototype of the equine karkadann and not alone the occasional hints about a relationship of the karkadann with the horse, as found in Arab authors.

The happy conjunction of textual allusions with foreign iconographic types which gave visual realization to several

²⁶ There is nothing of a camel in this "giraffe," if we do not regard the elongated neck as having been inspired by that animal.

The process which leads from a descriptive name to a new type of animal is also found, in China, in the case of the Chinese word *t'ō ni'ao* or ostrich, actually "camel-bird," which is represented as the literal meaning of the word implies (165, pp. 126 f., figs. 16 and 17).

forms of the karkadann is, of course, not an isolated phenomenon. It was similarly fecund in the case of other animals. Thus the *simurgh* turned, in the Mongol period, from a mere parrotlike bird into the much more colorful and more awe-inspiring *fêng-huang* type of Chinese derivation, which from that time on graced so many fine miniatures and other art objects.²⁷ Another good example is the *faras al-mā'* فرس الماء,²⁸ whose name means literally "water-horse," but obviously refers to the hippopotamus. This animal is described as an aquatic "superhorse" in such zoological treatises as the *'Ajā'ib al-makhlūqāt* or the *Manāfi'-i ḥayavān*.²⁹ It required the appearance of the Far Eastern horse with flames emanating from above the front legs (pl. 48, upper)³⁰ to create in the Mongol period a picture of the animal which was then accepted as a proper rendition of the animal (pl. 48, lower).³¹

The Muslim artist likewise used foreign designs to illustrate certain details in the animal physique. Thus when the chinoiserie trend of the sixteenth century introduced Chinese

²⁷ The early type is represented in a *Mu'nis al-ahrār* miniature (pl. 8), while the Far Eastern type is found, for instance, in the Sulaimān-Bilqis and other paintings (pls. 34-37).

²⁸ Another Arabic name is *faras al-baḥr* فرس البحر "horse of the sea." In Persian the animal is called *asb-i ābī* اسب آبی.

²⁹ "One says it resembles the horse on land, only that its mane and tail are bigger, etc." (al-Qazwīnī.) The same author reports also a story of a dark-colored horse with white dots which came out of the water and covered a mare (217, vol. 1, p. 141; 218, pp. 228-229). The *Manāfi'-i ḥayavān* in the Morgan Library states "its face and forehead resemble those of a horse" (5, fol. 29a).

³⁰ See also 261, pt. 2, vol. 2, pls. 117 and 129 (mirrors of the Sui and T'ang periods). No examples of the design from the Sung and Yüan periods are known to me, but Dr. Cammann informs me that the antiquarians of the Sung period knew the motif on the T'ang mirrors and called it *hai-ma* "sea-horse." This legendary animal with its flames above the front legs was used in mandarin squares to denote a low military rank (68, p. 110, fig. 11b). According to Cammann it is first mentioned for this use in the specifications for Ming military insignia of 1393.

³¹ See also 157, fig. 14. The Sarre manuscript of al-Qazwīnī shows, however, a winged horse (154, vol. 5, pl. 853B). This is a parallel to the representations of the winged karkadann. In both cases the wings seem to imbue the animals with the special qualities mentioned in the text.

fabulous animals with branched and crooked horns (see pls. 43, upper, and 45) this type of horn with its "protuberances" was applied to the nose of the karkadann in a Beatty manuscript (pl. 14, upper) since it seemed to tally with the description in the al-Qazwīnī text.

In taking over a foreign iconographic model it was to be expected that the coloration would be changed or certain anatomical details would be misinterpreted or altogether discarded. We noticed this in the case of the Princeton *shādhahvār*, which is red—not white, as a *hsieh-chai* type animal should be.³² It is likewise quite natural that the Near Eastern artist was entirely unaware of the symbolical meaning of the animal that he copied. It thus happens that in Islam the animal carries with it mental associations different from those of its prototype. In China the *ch'i-lin* is the noblest and most perfect of all animals, the emblem of goodness and virtue, and its appearance a sign of happy augury,³³ while the *karkadann*, which at least in one case took over its shape, is a ferocious and tyrannical beast. The same contrast is to be found in the reinterpretation of the *hsieh-chai* as *shādhahvār*. The Chinese monster stands for equity, since it is able to distinguish between right and wrong,³⁴ while the Near Eastern animal is characterized by its sound-producing horn, although some writers have also referred to its carnivorous appetite.

In spite of all the help given by literary references and foreign models, artistic imagination was still necessary and the artists provided it in many of their creations. This resulted in many "sports" which were, like all mythical creations of the East, "zoologically beguiling" and imbued with lifelike appearance, though nothing similar to them existed in nature.

The great disparity of iconographic types until recent times naturally makes one wonder why the Islamic artists did not continue to paint the rhinoceros realistically, once they had determined what the animal was like and were able to por-

³² 68, p. 108.

³³ 273, t. I, p. 423.

³⁴ 68, p. 108.

tray it in its actual shape. Applied to specific representations this question could also be phrased: how can it be explained that the early seventeenth-century artist illustrating the *Shāh-nāmah* in the Metropolitan Museum showed the karg as an antelope with a horn on its nose, after earlier artists, like the painter of the Princeton *Shāh-nāmah*, had been able to produce the general impression of the animal and all its characteristic features?

The answer seems to be twofold: the condition is due both to a mental attitude and the lack of a technical process. There is first the continued uncritical belief in early authorities whose writings were handed down through generations, often augmented or reduced in later compilations but not basically changed, let alone improved, by new observations. This explains the continued use of the al-Qazwīnī text with its many absurd myths of the karkadann, sinād, ḥarīsh, and shādhahvār, even after many people had become aware that the stories could not be true, and it accounts likewise for the adherence to traditional iconographic types, after the true character of a natural phenomenon had been established. This intellectual authoritarianism has often been quoted as a cause of cultural stagnation. Less obvious is the second factor, namely, the technical inability to make a large number of unvarying copies of pictures all illustrating the same text. This prevented the wider dissemination of new knowledge based on more discriminating observation, and thus made scientific work in the modern sense impossible. With this limitation Muslim scholars suffered the same handicaps in scientific reporting as the writers of antiquity and the Middle Ages. The West overcame this disadvantage in about 1461 when the first illustrated printed book, Boner's *Edelstein*, was published in Bamberg, and was soon to be followed by other books with figures of tools and well-observed natural objects.³⁵ Such scientific reporting, with its wide distribution of immutable pictures, could not be paralleled in Turkey before 1729 when, as the second printed Turkish book, a history of the Ottoman navy,

³⁵ 140, pp. 54-56.

with five maps, was printed in Istanbul;³⁶ nor in Egypt until 1800 when, during the French occupation, the first all-Arabic publication, the journal *Tanbih*, was printed in Cairo;³⁷ nor in Iran until 1816, when the first press was introduced in Tabriz.³⁸ The dates 1461 and 1729, 1800 and 1816, illustrate in a nutshell the difference in scientific development in the two civilizations.

Since there never seems to have been a great demand for representations of the karkadann, no definite iconographic type crystallized to become universally accepted throughout the Islamic world. Only the bovine type came close to this distinction. In Spain a decided preference for one type was evolved, otherwise no regional preference for one or the other version is recognizable. The Spanish version, however, presents a special case, since the winged feline karkadann with a short stubby head and a long curved horn with helical grooves is, as far as we know, to be found in but one medium, ivory, and only during the first half of the eleventh century A.D. In the Islamic world outside al-Andalus, the literary and iconographic sources used by the artist and his individual approach to the artistic problem is usually more important in understanding a type than the country of origin of the decorator or the region where he worked.

While the karkadann occurs fairly frequently in Syria and Iran, and is likewise to be found in Spain, Iraq, and Anatolia, one wonders why Egypt and India, the two countries which were in a position to be better informed about the animal than others in the caliphate, did not make wider and more original use of it. The rarity if not lack of the design in early Egyptian decoration can be explained by the fact that the animal

³⁶ 31, p. 12. The book by Ḥajjī Khalifa is entitled *Tūhfat ul-kibār fī esfār ul-bihār* ("Present for the Great Ones Dealing with Naval Wars"). In 1729-1730 (1142) a book of fables appeared entitled *Ta'rikh ul-Hind ul-gharbī* ("History of the West Indies"), which contained 4 geographical maps, 1 celestial chart, and 13 figures of men, animals, and plants (31, p. 14).

³⁷ 107, p. 149 (No. 16 of his list). After the departure of the French in 1801, printing in Egypt stopped until 1822 when, on orders of Muhammad 'Alī, it was again introduced into the country (107, p. 157; 42, pp. 13 ff.).

³⁸ 61, vol. 4, pp. 155 and 468.

came into general vogue only after the middle of the twelfth century. It is thus apparently lacking in the Fatimid repertory.³⁹ In the Mameluke period it occurs mostly on brass objects, which, though made in Cairo, reveal a great deal of Mesopotamian inspiration, if they were not in certain cases actually made by Mesopotamian artists.⁴⁰ Since the motif on Egyptian pieces of the karkadann attacking other animals is no different from earlier representations of the same subject on objects made in regions farther east, it may be surmised that the design came to Egypt from this part of the Muslim world. Only where the artists were on their own (as in the case of the carpet designs of plate 18, lower) did an original version result, which took notice of the specific character of the African rhinoceros.

Equally surprising, on first thought, is the not too frequent use of the motif in India, where the animal is at home and must have been known to many artists. It is not represented, for instance, on the ivory powder primers of the Mughal period which show combinations of all sorts of animals.⁴¹ It is likewise missing on a large Mughal carpet in the Textile Museum in Washington on which many different specimens of Indian fauna are realistically rendered in a landscape setting.⁴² There is only a vague stylization of it on the animal rug with fantastic zoological combinations.⁴³ However, the carpet in the National Gallery in Washington and several

³⁹ 176. Rhinoceros horn is not mentioned in al-Maqrizi's account of the treasures of the Fatimids (150). The horn already had, however, a reputation in Pharaonic times, owing to its healing and magical powers. In the tomb of Hor-Aha pottery imitations of the horn were found which served as substitutes for real pieces and were supposed to have the same magical powers. The animal had disappeared from Egypt in historical times (249, pp. 42 f., footnote 4).

⁴⁰ Thus a tray in the Metropolitan Museum of Art (No. 91.1.602) was made in Cairo by one Ḥusain b. Aḥmad b. Ḥusain of Mosul (84, p. 234 and fig. 3). It is closely related to another tray in the same museum (No. 91.1.605) which has three representations of the motif of the attacking karkadann (see above, p. 28, footnote 9).

⁴¹ 51, figs. 1-9, 11-12.

⁴² No. R 6.3. This carpet, which is nearly 20 feet long, is still unpublished.

⁴³ 15, title picture and fig. 3.

Mughal miniatures prove that the rhinoceros in its actual form is not altogether foreign to the artistic repertory of Muslim India. Its apparent rarity conforms only to the scant interest paid to it in the non-Muslim literature and arts of India.

The decline of the decorative arts in the Muslim world since the time of Timūr, noticeable in pottery, glass, and even metalwork, had its effect on the use of the karkadann motif. The imagination of the artists in the twelfth, thirteenth, and early fourteenth centuries was no longer as vivid as before. The craftsmen seem to be satisfied with certain standard shapes and themes of ornamentation. This eliminated many decorative motifs, among them the isolated karkadann and the karkadann-elephant fight. The fact that al-Damīri no longer mentions the antidotal quality of the karkadann horn, in spite of the fact that he was familiar with al-Qazwīni's text, also helps to explain their disappearance. The animal continues, however, to be painted in the always popular '*Ajā'ib al-makhlūqāt* and *Shāh-nāmāh* manuscripts.

The tradition of the legendary karkadann, based on bookish and uncritical literary sources, was broken only in the early sixteenth century.⁴⁴ This must have been due in the first

⁴⁴ This fact has some bearing on the critical evaluation of objects. It applies for instance in the case of a large green-glazed Persian bowl, formerly in the V. Everit Macy collection (82, pp. 8-9, No. 30; 172, p. 124, No. 488, illustrated). The vessel belongs to a ceramic group which has been attributed to the Garrūs district in Kurdistan (213, vol. 2, p. 1531), and it has been dated tenth to eleventh century. It is decorated with the figure of a rhinoceros easily distinguishable by many of its characteristic features such as the bulky mass of its body, the pointed ears, the wide mouth with the protruding upper lip, and especially the curved horn on its nose. How can such a representation be explained, when in spite of diligent search it has not been possible to find another representation of a rhinoceros dating from before 1337 which approximately reproduces its physical appearance or shows at least the correct position of the horn? It will be readily admitted that this writer knows only a limited portion of the existing Muslim objects which portray the "unicorn" and that these represent only a minute fraction of all the designs made in the Middle Ages. Still, it must also be taken into account that popular, scholarly treatises such as those of Ibn Bukhtīshū', al-Qazwīni, and al-Damīri knew nothing of the most obvious feature of the animal, the position of its horn.

Furthermore, the motif was hardly known when the Garrūs pottery was made. Yet, a village potter working in a provincial district of Iran, a great

place to the fact that more people became familiar with the animal so that information about its actual appearance could spread in the Muslim world. In this respect it will be remembered that from the late fourteenth century on there exist records of rhinoceros hunts by princes and rulers. The possibility of direct observation was artistically exploited when, in the late fifteenth century or even more so in the sixteenth century, the trend in Persian miniature painting turned toward realism. This explains the sudden appearance of a fairly well-observed rhinoceros in the otherwise undistinguished *Shāh-nāmah* of 1544 (951), while the manuscripts of the second half of the fifteenth century had still used the legendary type of the karkadann (pls. 26, 27, and 30).

This trend in Persian miniatures coincides with the rise of the Mughal empire as a leading Muslim power, which meant also the rise of a new school of painting preponderantly realistic in its nature. Most of the realistic renditions of the rhinoceros thus come from India, which is not only a home of the animal but, in the Mughal period, is also the source of remarkably lifelike portraits of animals. On the other hand, Persian artists often produced strange hybrids in which a new perception was curiously blended with traditional ideas.

In the eighteenth century, al-Qazwīnī manuscripts of inferior quality, and thus destined for the simple and impecunious, showed illustrations of the karkadann, in which a kind of dreary resemblance to the rhinoceros emerged.⁴⁵ The text, of course, still tells the old tales and superstitions, but the miniatures have now nearly caught up with the actual animal. The encounter with reality is, however, disenchanting. The ferocious and yet impressive character of the old monster has gone and all that remains is an immense and unprepossessing hulk of a body. No new ramifications of the age-old myth could possibly grow up around this sort of an animal.

distance away from the regions where the rhinoceros lives, is said to have made the most realistic representation of the animal in the early Muslim Middle Ages. The only conclusion to be drawn from all these facts seems to be that either the decoration of the bowl was changed when the piece was restored or that the bowl is not as old as was hitherto believed.

⁴⁵ See 9, fol. 112a; and 10, fol. 465a, old collation (pl. 14, lower).

LITERATURE CITED

References in the text are made by citing the bold-face numerals before each title.

MANUSCRIPTS:

[AUTHOR UNIDENTIFIED.]

1. *'Ajā'ib al-makhlūqāt wa-gharā'ib al-mawjūdāt* عجائب المخلوقات و غرائب الموجودات (in Persian). Written in the late sixteenth or seventeenth century A.D. following an older, fifteenth-century prototype. Walters Art Gallery, Baltimore, ms. W. 593.

IBN BUKHTĪSHŪ', ABŪ SA'ĪD 'UBAID ALLĀH B. JIBRĪL, and ARISTOTLE.

2. *Na't al-ḥayawān wa-manāfi'uhu* نعت الحيوان و منافع (in Arabic). Written in the thirteenth century A.D. British Museum, ms. OR. 2784.
3. *Manāfi' al-ḥayawān* منافع الحيوان (in Arabic). Written in 700 (A.D. 1300). Bibliothèque Nationale, Paris, ms. Ar. 2782.
4. *Ṭabā'ī al-ḥayawān wa-kharāṣṣuhu* طبائع الحيوان و خواصه (in Arabic). Written probably in the fourteenth century A.D. Princeton University Library, Robert Garrett collection, ms. No. 203 B.

IBN BUKHTĪSHŪ', ABŪ SA'ĪD 'UBAID ALLĀH B. JIBRĪL (?).

5. *Manāfi'-i ḥayawān* منافع حيوان (in Persian). Written in Mārāgha in 694 or 697 or 699 (A.D. 1294 or 1297 or 1299). The Pierpont Morgan Library, New York, ms. M. 500.

MARVAZĪ, SHARAF AL-ZAMĀN ṬĀHIR.

6. *Ṭabā'ī al-ḥayawān* طبائع الحيوان (in Arabic). Probably written in Iran by an Iranian in the first half of the twelfth century. India Office Library, ms. Delhi, Arabic 1949.
7. *Ṭabā'ī al-ḥayawān* طبائع الحيوان (in Arabic). Thirteenth century? British Museum, ms. Add. 21.102.

AL-QAZWĪNĪ, ZAKĀRĪYĀ' B. MUHAMMAD.

8. *'Ajā'ib al-makhlūqāt wa-gharā'ib al-mawjūdāt* عجائب المخلوقات و غرائب الموجودات (in Arabic). Written in the second half of the fourteenth century. (The so-called "Sarre manuscript.") Private collection.

9. *'Ajā'ib al-makhlūqāt wa-gharā'ib al-mawjūdāt* عجائب المخلوقات وغرائب الموجودات (in Turkish). Written by Muhammad b. Muhammad in 1121 (A.D. 1709). Walters Art Gallery, Baltimore, ms. W. 659.
10. *'Ajā'ib al-makhlūqāt wa-gharā'ib al-mawjūdāt* عجائب المخلوقات وغرائب الموجودات (in Persian). Finished 5th Dhu'l-Qa'da of the year 31 of the reign of Shāh 'Ālam (A.D. 1789). Freer Gallery of Art, No. 07.625.

BOOKS AND ARTICLES:

Abhinishkramanasūtra.

11. *The romantic legend of Sākya Buddha from the Chinese-Sanskrit.* By Samuel Beal. London, Trübner & Co., 1875.

ACKERMAN, PHYLLIS.

12. *The talking tree.* In *American Institute for Persian Art and Archaeology, Bulletin*, vol. 4, No. 2, pp. 67-72. New York, December 1935.
13. *Three French Renaissance tapestries.* In *Gazette des Beaux-arts*, 6th ser., vol. 29, pp. 207-212. New York, 1946.

AELIANUS, CLAUDIUS.

14. *Claudii Aeliani De natura animalium libri XVII, Varia historia, Epistolae fragmenta*, et recognitione Rudolphi Hercheri . . . 2 vols. Lipsiae, in aedibus B. G. Teubneri, 1864-66. (Bibliotheca Scriptorum Graecorum et Romanorum Teubneriana [S.g.])

AGA-UGLU, MEHMET.

15. *A fragment of a rare Indian carpet.* In *Detroit Institute of Arts of the City of Detroit, Bulletin*, vol. 13, pp. 1-5. October, 1931.
16. *Persian bookbindings of the fifteenth century.* Ann Arbor, University of Michigan Press, 1935. (University of Michigan Publications. Fine Arts, vol. 1.)

Akhbār al-Şīn wa'l-Hind.

17. *اخبار الصين والهند 'Akhbār aṣ-Şīn wa-l-Hind. Relation de la Chine et de l'Inde, rédigée en 851.* Texte établi, traduit et commenté par Jean Sauvaget. Paris, Société d'Édition "Les Belles Lettres," 1948.
18. *Relation des voyages faits par les arabes et les persans dans l'Inde et à la Chine le IX^e siècle de l'ère chrétienne.* Texte

arabe imprimé en 1811 par les soins de feu Langlès publié avec des corrections et additions et accompagné d'une traduction française et d'éclaircissements par M. Reinaud . . . 2 vols. Paris, Impr. Royale, 1845.

19. *Voyage du marchand arabe Sulaymân en Inde et en Chine rédigé en 851*. Suivi de remarques par Abû Zayd Ḥasan, tr. par Gabriel Ferrand. Paris, Éditions Bossard, 1922. (Les Classiques de l'Orient, vol. 7.)

Alf laïla wa-laïla.

20. ألف ليلة وليلة (The Arabian nights). 4 vols. in 2. Cairo, 1354 H./ A.D. 1935.
21. *Die Erzählungen aus den tausend und ein Nächten* . . . 6 vols. Calcuttaer Ausgabe vom Jahre 1839 übertragen von Enno Littmann. Leipzig, Insel-verlag, 1923-28.
22. *The thousand and one nights; commonly called in England, The Arabian nights' entertainments*. A new translation from the Arabic, with copious notes, by Edward William Lane. Illustrated by many hundred engravings on wood, from original designs by William Harvey. 3 vols. London, Charles Knight and Co., 1839-41.
23. *The thousand and one nights; The Arabian nights' entertainments*. Tr. by E. W. Lane, ed. by Stanley Lane-Poole. 4 vols. London, George Bell and Sons, 1906.

'ALLĀMĪ, ABU 'L-FADL.

24. *The Aïn i Akbari*, by Abul Fazl 'Allami, tr. from the original Persian by H. Blochmann [and H. S. Jarrett]. 3 vols. Calcutta, printed by G. H. Rouse at the Baptist Mission Press, 1873-1894.

ANDERSSON, KARL JOHAN.

25. *Lake Ngami; or, Exploration and discoveries during four years' wanderings in the wilds of southwestern Africa*. New York, Dix, Edwards & Co.; London, Hurst & Blackett, 1857.

Anecdota Syriaca.

26. *Anecdota Syriaca*; collegit, edidit, explicuit Jan Pieter Nicolaas Land. 4 vols. Lugduni Batavorum, E. Brill, 1862-1875.

ARISTOTLE.

27. *Historia animalium*, tr. by D'Arcy Wentworth Thompson. Oxford, Clarendon Press, 1910. (The works of Aristotle, tr. under the editorship of J. A. Smith and W. D. Ross, vol. 4.)

28. *Parts of animals*, with an English translation by A. I. Peck and a foreword by F. H. A. Marshall . . . Cambridge, Mass., Harvard University Press; London, W. Heinemann, Ltd., 1937. (Loeb Classical Library. Greek Authors.)

ARNOLD, SIR THOMAS WALKER.

29. *Painting in Islam* . . . Oxford, The Clarendon Press, 1928.

ASADĪ, ṬŪSĪ, THE YOUNGER.

30. *Asadī's neupersisches Wörterbuch, Lughat-i Furs*, nach der einzigen vaticanischen Handschrift herausgegeben von Paul Horn. Berlin, Weidmannsche Buchhandlung, 1897. (Abhandlungen der Königlichen Gesellschaft der Wissenschaften zu Göttingen. Phil.-hist. klasse, n. f., Bd. I, Nr. 8.)

'AWFĪ. See Nizāmu 'd-dīn.

BABINGER, FRANZ.

31. *Stambuler Buchwesen im 18. Jahrhundert*. Leipzig, Deutscher Verein für Buchwesen und Schrifttum, 1919.

BĀBUR, EMPEROR OF HINDUSTĀN.

32. *The Bābur-nāma in English (Memoirs of Bābur)*, tr. from the original Turki text of Ṣāhiru'd-dīn Muḥammad Bābur Pādshāh Ghāzī by Annette Susannah Beveridge . . . 2 vols. London, Luzac & Co., 1922.

BACHER, WILHELM.

33. *Nizāmi's Leben und Werke und der zweite Theil des Nizāmischen Alexanderbuches* . . . Göttingen, Dieterichsche Universitätsbuchdr., 1871.

BAER, K. E. VON.

34. *Anatomische und zoologische Untersuchungen über das Wallross (Trichecus rosmarus) und Vergleichung dieses Thiers mit andern See-Säugethieren*. [St. Petersburg? 1838.] (Aus den Memoiren der Kaiserlichen Akademie der Wissenschaften besonders abgedruckt.)

BARTHOLD, W.

35. *Bulghār*. In *The Encyclopaedia of Islām*, vol. I, pp. 786-791. Leyden, E. J. Brill, Ltd.; London, Luzac & Co., 1913-38.

BASHKIROFF, A. S.

36. *The art of Daghestan, carved stones*. Moscow, Ranion, 1931. (Scientific Research Institute of Ethnical and National Culture of the People of the East in U. S. S. R.)

BEARD (or Bird?), HUBERT.

37. *هيورت بيرد* *Li-mādhā kāna li-wahīdi 'l-qarni jildun mu-ja'adun. لماذا كان لوحيد القرن جلد مجعد* In *al-Mustamī al-'arabī. The Arab Listener*, vol. 8, No. 12, p. 20, 1947.

BERG, BENGT.

38. *Meine Jagd nach dem Einhorn*. Frankfurt am Main, Rütten & Loening Verlag, 1933.

BERLIN. STAATLICHE MUSEEN, ISLAMISCHE ABTEILUNG.

39. . . . *Indische Miniaturen* . . . 2. aufl. [mit einer Einführung von Ernst Kühnel]. Berlin, 1937. (Bilderhefte der Islamischen Abteilung, Hft. 1.)

BESTIARY, *Latin*.

40. *The bestiary; being a reproduction in full of the manuscript Ii.4.26 in the University library, Cambridge, with supplementary plates from other manuscripts of English origin, and a preliminary study of the Latin bestiary as current in England*; edited for the Roxburghe Club by M. R. James. Oxford, printed for the Roxburghe Club, by J. J. Johnson at the University Press, 1928.

BESTIARY, *Latin*, 1921.

41. *A Peterborough psalter and bestiary of the fourteenth century*, described by Montague Rhodes James . . . Oxford, printed for presentation to the members of the Roxburghe Club [at the Oxford University Press, by F. Hall] 1921.

BIANCHI, T. X.

42. *Catalogue général et détaillé des livres arabes, persans, et turcs imprimés à Boulac en Égypte depuis l'introduction de l'imprimerie dans ce pays, en 1822, jusqu'en 1842*. Paris, Impr. Royale, 1843. (Reprinted from: *Journal Asiatique*, No. 14, 1843.)

BINYON, SIR LAURENCE, WILKINSON, J. V. S., and GRAY, BASIL.

43. *Persian miniature painting, including a critical and descriptive catalogue of the miniatures exhibited at Burlington House, January-March, 1931* . . . London, Oxford University Press, H. Milford, 1933.

AL-BĪRŪNĪ.

44. *Alberuni's India; an account of the religion, philosophy, literature, geography, chronology, astronomy, customs, laws and astrology of India about A.D. 1030*. An English ed., with notes and indices. By Dr. Edward C. Sachau . . . London, K. Paul, Trench, Trübner & Co., Ltd., 1910.

45. *Fragments arabes et persans relatifs à l'Inde*, recueillis par M. Reinaud. Nos. III-IV. *Extrait de l'ouvrage d'Albyrouny sur l'Inde*. In *Journal Asiatique*, 4^e sér., t. 4, pp. 221-300. Paris, 1844.

45a. *Kitāb al-jamāhir fi mā'rifat al-jawāhir* كتاب الجماهر في معرفة الجواهر Hyderabad, 1355 H.

BISHOP, CARL WHITING.

46. *Rhinoceros and wild ox in ancient China*. In *The China Journal*, vol. 18, pp. 322-330. Shanghai, 1933.

47. *The ritual bullfight . . .* In *Smithsonian Institution, Annual Report of the Board of Regents*, pp. 447-455. Washington, D. C., 1926.

BLANFORD, W. T.

48. *The fauna of British India, including Ceylon and Burma: Mammalia . . .* London, Taylor and Francis, 1888.

BLOCHET, EDGAR.

49. *Les enluminures des manuscrits orientaux—turcs, arabes, persans—de la Bibliothèque nationale . . .* Paris, Éditions de la Gazette des Beaux-arts, 1926.

BOND, SIR EDWARD A., ed.

50. *Russia at the close of the sixteenth century . . .* London, printed for the Hakluyt Society, 1856. (Works issued for the Hakluyt Society, No. 20.)

BORN, WOLFGANG.

51. *Ivory powder flasks from the Mughal period*. In *Ars Islamica*, vol. 9, pp. 93-111. Ann Arbor, Mich., 1942.

BOSTON. MUSEUM OF FINE ARTS.

52. *Les miniatures orientales de la collection Goloubew au Museum of Fine Arts de Boston*, par Ananda K. Coomaraswamy . . . avec un avant-propos de Victor Goloubew . . . Paris et Bruxelles, Les Éditions G. van Oest, 1929. (*Ars Asiatica*; Études et Documents Pub. par V. Goloubew . . . 13.)

BREHM, ALFRED EDMUND.

53. *Brehms Tierleben: Allgemeine Kunde des Tierreichs . . .* 4. Aufl. von Otto zur Strassen . . . 12 vols. Leipzig und Wien, Bibliographisches Institut, 1911-19.

BRIAN, DORIS.

54. *A reconstruction of the miniature cycle in the Demotte Shah Namah*. In *Ars Islamica*, vol. 6, pp. 97-112. Ann Arbor, Mich., 1939.

BRIGGS, GEORGE W.

55. *The Indian rhinoceros as a sacred animal*. In *American Oriental Society, Journal*, vol. 51, pp. 276-282. New Haven, Conn., 1931.

BRITISH MUSEUM. Dept. of oriental printed books and manuscripts.

56. *Supplement to the Catalogue of the Arabic manuscripts in the British museum . . .* by Charles Rieu . . . London, Longmans & Co., 1894.

BROCKELMANN, CARL.

57. *Geschichte der arabischen Litteratur . . .* 2 vols. Weimar [etc.], E. Felber, 1898-1902.

——— Supplementband . . . 3 vols. Leiden, E. J. Brill, 1937-39.

58. *Volkskundliches aus Alturkistan*. In *Asia Major*, Bd. 2, pp. 110-124. Leipzig, 1925.

BROOM, ROBERT.

59. *The first white rhino in captivity*. In *Natural History*, vol. 55, pp. 432-433. New York, 1946.

BROWN, WILLIAM NORMAN.

60. *Buddha's teachings, being the Sutta-nipāta or discourse-collection*. Edited in the original Pali text . . . by Lord Chalmers [a review]. In *American Oriental Society, Journal*, vol. 54, p. 218-219. New Haven, Conn., 1934.

BROWNE, EDWARD GRANVILLE.

61. *A literary history of Persia . . .* 4 vols. Cambridge, The University Press, 1928.

BUCHTHAL, HUGO.

62. *Early Islamic miniatures from Baghdād*. In *Walters Art Gallery, Journal*, vol. 5, pp. 19-39. Baltimore, 1942.

BUCHTAL, HUGO, KURZ, OTTO, and ETTINGHAUSEN, RICHARD.

63. *Supplementary notes to K. Holter's check list of Islamic illuminated manuscripts before A.D. 1350*. In *Ars Islamica*, vol. 7, pp. 147-164. Ann Arbor, Mich., 1940.

BUNT, CYRIL G. E.

64. *The lion and the unicorn*. In *Antiquity*, vol. 4, pp. 425-437. Gloucester, England, 1930.

BUZURG IBN SHAHRIYĀR, *al-Rām-Hurmuzī*.

65. *The book of the marvels of India*. From the Arabic by L. Marcel Devic [and] translated into English by Peter Quennell. London, G. Routledge & Sons, Ltd., 1928.

CAESAR, C. JULIUS.

66. *The Gallic war*, with an English translation by H. J. Edwards . . . London, W. Heinemann; New York, G. P. Putnam's Sons, 1939. (Loeb Classical Library. Latin Authors.)

CAIRO. MUSÉE NATIONAL ARABE.

67. *Catalogue général du Musée arabe du Caire; objets en cuivre*, par Gaston Wiet. Le Caire, Impr. de l'Institut Français d'Archéologie Orientale, 1932.

CAMMANN, SCHUYLER.

68. *The development of the Mandarin square*. In *Harvard Journal of Asiatic Studies*, vol. 8, pp. 71-130. Cambridge, Mass., 1944.

CASANOWICZ, I. M.

69. *Unicorn*. In *The Jewish Encyclopedia*, ed. Isidore Singer. New York and London, Funk and Wagnalls [c. 1916], vol. 12, p. 344.

CHARPENTIER, JARL.

70. *Poison-detecting birds*. In *London University, School of Oriental and African Studies, Bulletin*, vol. 5, pp. 233-242, 1928-30.

CHAU JU-KUA.

71. *Chau Ju-Kua: his work on the Chinese and Arab trade in the twelfth and thirteenth centuries, entitled Chu-fan-chi*. Tr. from the Chinese and annotated by Friedrich Hirth and W. W. Rockhill. St. Petersburg, Printing Office of the Imperial Academy of Sciences, 1911.

Ch'in ting hsi ch'ing ku chien. 欽定西清古鑑

72. Supplementary catalogue of ancient bronzes belonging to the Manchu dynasty. Supplement of the *Hsi ch'ing ku chien* 西清古鑑. Compiled under the direction of Princes of the First Order Chuang Yin-lu 莊允祿 and Kuo Hung-yen 果弘瞻 [n.p.] Chi ch'êng t'ü shu kung ssü, 1905. 24 pên. First published by order of Ch'ien Lung 乾隆 in 1749.

CLEVELAND MUSEUM OF ART.

73. *Islamic art; selected examples from the loan exhibition of Islamic art in the Cleveland Museum of Art*. Cleveland, 1944.

COHN, CARL.

74. *Zur literarischen Geschichte des Einhorn*s. Berlin, R. Gaertners Verlagsbuchhandlung, 1896-97. (Wissensch. Beilage zum Jahresbericht der elften städtischen Realschule zu Berlin-Osten, 1896.)

COOMARASWAMY, ANANDA KENTISH.

75. *Indian drawings, 2d series, chiefly Rajput* . . . [London, printed for the India Society at the Old Bourne Press, 1912.]

COSMAS *Indicopleustes*.

76. Κοσμά ἀιγυπτίου μοναχοῦ Χριστιανικὴ τοπογραφία. The Christian topography of Cosmas, an Egyptian monk. Tr. from the Greek, and ed., with notes and introduction, by J. W. McCrindle . . . London, printed for the Hakluyt Society, 1897. (Works issued by the Hakluyt Society, No. 97.)

AL-DAMĪRĪ, MUHAMMAD B. MŪSĀ.

77. *Ḥayât al-ḥayawân al-kubrâ الحيوان الكبير* 2 vols. Cairo, 1319 H.

78. *Al-Damîrî's Ḥayât al-ḥayawân*. A zoological lexicon. Tr. by A. S. G. Jayakar. Vols. 1-2¹. London, Bombay, 1906-08.

DE YOUNG, M. H., MEMORIAL MUSEUM, SAN FRANCISCO.

79. *Exhibition of Islamic art . . . February 24 to March 22, 1937*. [San Francisco, 1937.]

DILLEY, ARTHUR URBANE.

80. *Oriental rugs and carpets; a comprehensive study*. New York, London, C. Scribner's Sons, 1931.

DIMAND, MAURICE SVEN.

81. *A handbook of Muhammadan art*. 2d ed., rev. and enl. New York, The Metropolitan Museum of Art, 1944.

82. *Loan exhibition of ceramic art of the Near East*. New York, Metropolitan Museum of Art, 1931.

83. *A silver inlaid bronze canteen with Christian subjects*. [FGA 41.10.] In *Ars Islamica*, vol. 1, pp. 17-21. Ann Arbor, Mich., 1934.

84. *Unpublished metalwork of the Rasūlid sultans of Yemen*. In *Metropolitan Museum Studies*, vol. 3, pt. 2, pp. 229-237. New York, June, 1931.

AL-DIMASHQĪ, MUHAMMAD B. ABĪ ṬĀLIB, SHAMS AL-DĪN.

85. *Manuel de la cosmographie du moyen âge*, traduit de l'Arabe "Nokhbet ed-dahr fi 'Adjaib-il-birr wal-bah'r" de Shems ed-Din Abou-'Abdallah Moh'ammad de Damas, et accompagné d'éclaircissements par M. A. F. Mehren. Copenhagen, C. A. Reitzel [etc., etc.], 1874.

DIODORUS *Siculus*.

86. *Diodorus of Sicily*. With an English translation by C. H. Oldfather. 4 vols. London, W. Heinemann, Ltd.; New

York, G. Putnam's Sons, 1933-39. (Loeb Classical Library. Greek Authors.)

DODGSON, CAMPBELL.

87. *The story of Dürer's ganda*. In Fowler, Alfred, *The romance of fine prints*, pp. 45-56. Kansas City, The Print Society, 1938.

DOZY, REINHART PIETER ARNE.

88. *Supplément aux dictionnaires arabes*. 2e. éd. 2 vols. Leide, E. J. Brill [etc., etc.], 1927.

DRUCE, GEORGE C.

89. *Notes on the history of the heraldic jall or yale*. In *The Archaeological Journal*, vol. 68, pp. 173-199. London, 1911.

EBERHARD, WOLFRAM.

90. *Lokalkulturen im alten China*. Erster Teil. *Die Lokalkulturen des Nordens und Westens*. Leiden, E. J. Brill, 1942. (*T'oung pao*. Suppl. to t. 37, 1942.)

ÉCOCHARD, MICHEL.

91. *Notes d'archéologie musulmane*. 1. *Stéréotomie de deux portails du XII^e siècle*. A. *Portail de la Madrassa Moqaddamiya à Alep*. In *Bulletin d'Études Orientales*, t. 7-8, pp. 98-112. Le Caire, Impr. de l'Institut Français, 1937-38.

ELIAS, ELIAS ANTOON.

92. *Elias' modern dictionary: Arabic-English* - القاموس العصرى عربى-انكليزى 4th ed. Cairo, Elias' Modern Press, 1947.

ELLIOT, HENRY MIERS.

93. *The history of India as told by its own historians. The Muhammadan period*. Ed. by J. Dowson. 8 vols. London, Trübner and Co., 1867-77.

ENGEL-GROS, F.

94. *Catalogue des tableaux anciens, tableaux modernes, objets d'art et de haute curiosité, importantes tapisseries composant la collection Engel-Gros et dont la vente aura lieu à Paris, Galerie Georges Petit . . .* Paris, Impr. Georges, 1921.

Erh-ya. 爾雅

95. A thesaurus of terms and phrases, with commentary by Kuo P'ò 郭璞. Nanking, Chin-ling shu chü, 1895.

EUMORFOPOULOS, GEORGE.

96. *The George Eumorfopoulos collection; catalogue of the Chinese, Corean and Persian pottery and porcelain*, by R. L. Hobson . . . 6 vols. London, E. Benn, Ltd., 1925-28.

FAUNTHROPE, J. C.

97. *Jungle life in India, Burma and Nepal*. In *Natural History*, vol. 24, pp. 175-198. New York, 1924.

FERRAND, GABRIEL.

98. *Relations de voyages et textes géographiques arabes, persans et turks, relatifs à l'Extrême-Orient du VIII^e au XVIII^e siècles*. 2 vols. Paris, Ernest Leroux, 1913-14.

99. *Le Tuḥfat al-Albāb de Abū Hāmid al-Andalusī al-Ġarnāṭī édité d'après les Mss. 2167, 2168, 2170 de la Bibliothèque Nationale et le Ms. d'Alger*. In *Journal Asiatique*, t. 207, pp. 1-148 and pp. 193-304. Paris, 1925.

FERRANDIS, JOSÉ.

100. *Marfiles árabes de Occidente . . .* 2 vols. Madrid, Impr. de Estanislao Maestre, 1935, 1940. (Spain. Cuerpo Facultativo de Archiveros, Bibliotecarios y Arqueólogos.)

FIELD, HENRY, and PROSTOV, EUGENE.

101. *Excavations at Khwarazm, 1937-1938*. In *Ars Islamica*, vol. 6, pp. 158-166. Ann Arbor, Mich., 1939.

FIRDAWSĪ.

102. *Le livre des rois*, par Abou'lkasim Firdausi, publié, traduit et commenté par m. Jules Mohl . . . 7 vols. Paris, Impr. Royale, 1838-78. (Collection Orientale.)

103. *The Shāhnāma of Firdausī*, done into English by Arthur George Warner . . . and Edmond Warner . . . 9 vols. London, K. Paul, Trench, Trübner & Co., Ltd., 1905-25. (Trübner's Oriental Series.)

FONTURA DA COSTA, ABEL.

104. *Les déambulations du rhinocéros de Modofar roi de Cambaye, de 1514 à 1516*. Lisbon, 1937.

FRANKFORT, HENRI.

- 104a. *Cylinder seals; a documentary essay on the art and religion of the ancient Near East*. London, Macmillan and Co., 1939.

FRAZER, SIR JAMES GEORGE.

105. *The golden bough; a study in magic and religion*. (Abridged ed.) London, Macmillan and Co., Ltd., 1925.

GARRETT, ROBERT.

106. *Descriptive catalog of the Garrett collection of Persian, Turkish and Indic manuscripts . . . in the Princeton University library*, by Mohamad E. Moghadam and Yahya Armajani, under the supervision of Philip K. Hitti. Princeton, Prince-

ton University Press; London, H. Milford, Oxford University Press, 1939. (Princeton Oriental Texts, vol. 6.)

GEISS, ALBERT.

107. *Histoire de l'imprimerie en Égypte*. In *Institut d'Égypte, Cairo, Bulletin*, sér. 5, t. 1, pp. 133-157, 1907.

GIŪZAL'ĪAN, L. T. (Гюзальян, Л. Т.) I D'ĪAKONOV, M. M. (Дьяконов, М. М.)

108. *Iranskie miniatiūry v rukopisiakh Shakh-name*. *Leningradskikh sobraniĭ* Иранские миниатюры в рукописях Шах-намэ ленинградских собраний. Moscow, Leningrad, Gosudarstvennyi Ermitazh, 1935.

109. *Rukopisi Shakh-name v Leningradskikh sobraniakh* Рукописи Шах-намэ в ленинградских собраниях. Leningrad, Akademiia Nauk SSSR, 1934.

GODBEY, ALLEN H.

109a. *The unicorn in the Old Testament*. In *The American Journal of Semitic Languages and Literatures*, vol. 56, pp. 256-296. Chicago, 1939.

GÖBEL, HEINRICH.

110. *Wandteppiche . . .* 6 vols. Leipzig, Klinkhardt & Biermann, 1923-24.

GOEJE, MICHAEL JAN DE.

111. *Indices, glossarium et addenda et emendanda*. Lugdunum Batavorum (Leiden), 1879. (Bibliotheca Geographorum Arabicorum, vol. 4.)

GÖTZE, ALFRED.

112. *Frühneuhochdeutsches Lesebuch*. 2. verm. Aufl. Göttingen, Vandenhoeck & Ruprecht, 1925.

GOLDSCHMIDT, ADOLPH.

113. *Die Elfenbeinskulpturen . . .* unter Mitwirkung von P. L. Hübner und O. Homburger. 4 vols. Berlin, Cassirer, 1914-26.

GRIMM, JAKOB LUDWIG KARL, and GRIMM, WILHELM KARL.

114. *Kinder- und Hausmärchen*, gesammelt durch die Brüder Grimm. 3 vols. Berlin, Propyläen-verlag, 1910.

GUEST, GRACE DUNHAM.

115. *Shiraz painting in the sixteenth century*. Washington, D. C., Smithsonian Institution, 1949. (Freer Gallery of Art, Oriental Studies, No. 4.)

GUILLAUME LE CLERC.

116. *Le Bestiaire*. Das Thierbuch des normannischen Dichters Guillaume le Clerc zum ersten Male vollständig nach den Handschriften von London, Paris, und Berlin mit Einleitung und Glossar herausgegeben von . . . Robert Reinsch. Leipzig, O. R. Reisland, 1892. (Altfranzösische Bibliothek, Bd. 14.)

HARARI, RALPH.

117. *Metalwork after the early Islamic period*. In Pope, A. U., *Survey of Persian art*, vol. 3, pp. 2466-2529; vol. 6, pls. 1276-1396. London and New York, Oxford University Press, 1939.

HARPER, FRANCIS.

118. *Extinct and vanishing mammals of the old world*. Illustrated by Earl L. Poole. New York, American Committee for International Wild Life Protection, 1945. (Special publ., No. 12.)

HECKSCHER, WILLIAM S.

119. *Bernini's elephant and obelisk*. In *The Art Bulletin*, vol. 29, pp. 155-182. New York, 1947.

HELLER, EDMUND.

120. *The white rhinoceros*. Washington, D. C., Smithsonian Institution, 1913. (Smithsonian Miscellaneous Collections, vol. 61, No. 1.)

HENNIG, R.

121. *Der mittelalterliche arabische Handelsverkehr in Osteuropa*. In *Der Islam*, Bd. 22, pp. 239-265. Berlin, 1935.

HERZFELD, ERNST EMIL.

122. *Iran in the ancient East*. London, New York, Oxford University Press, 1941.
123. *Die Kunst des zweiten Jahrtausends in Vorderasien*. In *Archaeologische Mitteilungen aus Iran*, Bd. 8, Hft. 3, pp. 103-160, December 1937; Bd. 9, Hft. 1, pp. 1-79, January 1938. Berlin.

HOBSON, ROBERT LOCKHART.

124. *The later ceramic wares of China* . . . London, Ernest Benn, Limited, 1925.

HOLTER, KURT.

125. *Die frühmamlukische Miniaturenmalerei*. In *Die graphischen Künste*, n. f., Bd. 2, Hft. 1, pp. 1-14. Wien, 1937.

126. *Die islamischen Miniaturhandschriften vor 1350 . . .* Leipzig, Otto Harrassowitz, 1937. Sonderabdruck aus dem *Zentralblatt für Bibliothekswesen*, Jahrg. 54, Hft. 1/2, pp. 1-34.

HOPKINS, E. WASHBURN.

127. *Epic mythology*. Strassburg, Verlag von Karl J. Trübner, 1915. (G. Bühler. *Grundriss der Indo-arischen Philologie und Altertumskunde* 3, Bd. 1, Hft. B.)

HUBBACK, THEODORE.

128. *The Asiatic two-horned rhinoceros*. In *Journal of Mammalogy*, vol. 20, pp. 1-20. Baltimore, 1939.

Hudūd al-'Ālam.

129. '*The regions of the world*,' a Persian geography, 372 A.H.-982 A.D. Tr. and explained by V. Minorsky . . . London, Luzac & Co., 1937. (E. J. W. Gibb Memorial Series, n. s., vol. 11.)

IBN ABĪ UṢAIBĪ'Ā.

130. '*Uyūn al-anbā' fī ṭabaqāt al-aṭibbā'* عيون الإنباء في طبقات الأطباء' ed. August Müller. 2 vols. Cairo, A.D. 1882, and Königsberg i. Pr., Selbstverlag, 1884.

IBN AL-BALKHĪ.

131. *Description of the province of Fars in Persia at the beginning of the twelfth century A.D.* Tr. by Guy Le Strange. In *Royal Asiatic Society of Great Britain and Ireland, Journal*, pp. 1-30, London, 1912.

IBN AL-BALKHĪ.

132. *The Fārsnāma of Ibnu 'l-Balkhī*. Ed. by G. Le Strange and R. A. Nicholson. London, Luzac & Co., 1921. (E. J. W. Gibb Memorial Series, n. s., vol. 1.)

IBN BATṬŪṬA.

133. *Voyages d'Ibn Batoutah*. Texte arabe, accompagné d'une traduction par C. Defrémery et le Dr. B. R. Sanguinetti. 4 vols. & index vol. Paris, Impr. par autorisation du Gouvernement à l'Imprimerie Nationale, 1914-1927.

IBN FADLĀN.

134. *Ibn Fadlān's Reisebericht*, von A. Zeki Validi Togan . . . Leipzig, Kommissionsverlag F. A. Brockhaus, 1939. (Deutsche Morgenländische Gesellschaft, Abhandlungen für die Kunde des Morgenlandes, XXIV, 3.)

IBN HAWQAL.

135. *Viae et regna descriptio dittonis moslemicae, auctore Abu'l-Kâsim Ibn Haukal.* كتاب المسالك والممالك Ed. M. J. de Goeje. Lugdunum Batavorum (Leiden), E. J. Brill, 1873. (Bibliotheca Geographorum Arabicorum, vol. 2.)

IBN KHORDĀDHEH.

136. *Kitâb al-masâlik wa 'l-mamâlik (liber viarum et regnorum) auctore Abu'l Kâsim Obaidallah ibn Abdallah Ibn Khordâdheh et excerpte e Kitâb al-Kharâdj auctore Kodâma ibn Dja'far.* كتاب المسالك والممالك Ed. M. J. de Goeje. Lugdunum Batavorum (Leiden), E. J. Brill, 1889. (Bibliotheca Geographorum Arabicorum, vol. 6.)

INDIA. ARCHAEOLOGICAL SURVEY.

137. *Excavations at Harappâ, 1920-31 and 1933-34,* by Madho Sarup Vats . . . 2 vols. Delhi, Manager of Publications, 1940.

ISIDORUS, bp. of Seville.

138. *Etymologiae.* In Migne, Jacques Paul. *Patrologiae cursus completus . . . series latina,* vol. 82. Paris, Garnier Frères, 1878.

AL-IŞTAKHRĪ.

139. *Viae regnorum descriptio dittonis moslemicae auctore Abu Ishâk al-Fârisî al-Istakhrî.* كتاب مسالك الممالك Ed. M. J. de Goeje. Lugdunum Batavorum (Leiden), E. J. Brill, 1870. (Bibliotheca Geographorum Arabicorum, vol. 1.)

IVINS, WILLIAM MILLS.

140. *A neglected aspect of early print-making.* In *Metropolitan Museum of Art, Bulletin,* vol. 7, No. 2, p. 51-59. New York, October 1948.

JACOB, GEORG.

141. *Kleinere Mitteilungen zum Verständnis Qazwîni's.* In his *Studien in arabischen Geographien,* Hft. 4, pp. 151-176. Berlin, 1892.
142. *Die Waaren beim arabisch-nordischen Verkehr im Mittelalter* . . . Berlin, Mayer & Müller, 1891.
143. *Welche Handelsartikel bezogen die Araber des Mittelalters aus den nordisch-baltischen Ländern* . . . 2. aufl. Berlin, Mayer & Müller, 1891.

JAHĀNGĪR, EMPEROR OF HINDUSTAN.

144. *The Tūzuk-i-Jahāngīrī, or, Memoirs of Jahāngīr . . .* Tr. by Alexander Rogers . . . Ed. by Henry Beveridge . . . 2 vols. London, Royal Asiatic Society, 1909-14. (Oriental Translation fund, n. s., vols. 19, 22.)

AL-JĀHĪZ.

145. *Kitāb al-ḥayawān* كتاب الحيوان 7 vols. Cairo, 1323-1325 H. (A.D. 1905-1907).
146. *Kitāb al-ḥayawān* كتاب الحيوان Edited by 'Abd al-Salām Muhammad Hārūn. 7 vols. Cairo, Muṣṭafā al-Bābī al-Ḥalabī & Sons, 1938-45.

JAPAN. IMPERIAL TREASURY (Shōsōin).

147. *Shōsōin Gyomotsu zurōku* 正倉院御物圖錄 Illustrated catalogue of the Imperial treasures in the Shōsōin, vols. 1-12. Tōkyō, Imperial Household Museum, 1929-40. In Japanese with English notes.

JERDON, T. C.

148. *The mammals of India; a natural history of all the animals known to inhabit continental India.* London, John Wheldon, 1874.

JOHNSON, FRANCIS.

149. *A dictionary; Persian, Arabic and English . . .* London, W. H. Allen and Co., 1852.

KAHLE, PAUL.

150. *Die Schätze der Fatimiden.* In *Deutsche Morgenländische Gesellschaft, Zeitschrift*, Bd. 89, n.f. 14, pp. 329-362. Leipzig, 1935.

KNIGHTON, WILLIAM.

151. *The private life of an eastern king . . .* Ed. with an introduction and notes by S. B. Smith. London, New York, H. Milford, Oxford University Press, 1921.

KRAMERS, J. H.

152. *Djuḡhrāfiyā.* In *Encyclopaedia of Islām.* Suppl. vol., pp. 61-73. Leiden, E. J. Brill; London, Luzac & Co., 1938.

KRAUS, PAUL.

153. *Jābir ibn Ḥayyān, contribution a l'histoire des idées scientifiques dans l'Islam*, t. 1-2. Cairo, 1942-43. (Institute d'Égypte, Cairo. Mémoires, t. 44-45.)

KÜHNEL, ERNST.

154. *History of miniature painting and drawing.* In Pope, A. U., *Survey of Persian art*, vol. 3, pp. 1829-1897; vol. 5, pls. 812-

925. London and New York, Oxford University Press, 1938-39.
155. *Holz und Elfenbein*. In Sarre, F., and Martin, F. R. *Die Ausstellung von Meisterwerken muhammedanischer Kunst in München, 1910*, Bd. 3, pp. 1-3, Tafeln 246-257. München, F. Bruckmann a.-g., 1912.
156. *Jagdbilder aus Indien*. In *Atlantis*, Jahrg. 13, pp. 417-424. Berlin-Grünewald, 1941.
157. *Das Qazwini-fragment der Islamischen Abteilung*. In *Jahrbuch der Preussischen Kunstsammlungen*, Bd. 64, pp. 59-72. Berlin, 1943.
- KUSHI TAKUSHIN 久志卓真
158. *Shina Min-sho tōji zukan* 支那明初陶磁圖鑑 Tōkyō, Hōun sha, 1943.
- LAMM, CARL JOHAN, and GEIGER, AGNES.
159. *En Miniatur och en matta; en studie över sentimuridiska groteskmattor från Herat . . .* In *Stockholm, Nationalmuseumets Årsbok*, n.s. 1, pp. 26-51. 1930-31.
- LAMM, CARL JOHAN.
160. *Mittelalterliche Gläser und Steinschnittarbeiten aus dem Nahen Osten . . .* 2 vols. Berlin, D. Reimer, 1930, '29. (Forschungen zur Islamischen Kunst . . . Bd. 5.)
- LANE, FRANK WALTER.
161. *Nature parade*. 3d ed. London, Jarrolds, 1946.
- LANG, HERBERT.
162. *The white rhinoceros of the Belgian Congo*. In *New York Zoological Society, Bulletin*, vol. 23, pp. 66-92. 1920.
- LAUCHERT, FRIEDRICH.
163. *Geschichte des griechischen Physiologus*. Strassburg, 1889.
- LAUFER, BERTHOLD.
164. *Arabic and Chinese trade in walrus and narwhal ivory*. In *T'oung pao*, sér. 2, t. 14, pt. 1, pp. 315-364. Leiden, 1913. *Addenda* par Paul Pelliot, pp. 365-370.
 ——— *Supplementary notes on walrus and narwhal ivory*. In *T'oung pao*, sér. 2, t. 17, pp. 348-389. Leiden, 1916.
165. *History of the rhinoceros*. In his *Chinese clay figures . . .* pp. 73-173. Chicago, 1914. (Field Museum of Natural History, Publ. 177, Anthropological Series, vol. 13, No. 2.)
166. *Sino-Iranica; Chinese contributions to the history of civilization in ancient Iran*. Chicago, 1919. (Field Museum of Natural History, Publ. 201, Anthropological Series, vol. 15, No. 3.)

LONDON. INTERNATIONAL EXHIBITION OF PERSIAN ART, 1931.

167. *Persian art, an illustrated souvenir of the exhibition of Persian art at Burlington House, London, 1931.* 2d ed. [London], Hudson & Kearns, Ltd., 1931.

LUCAS, FREDERIC A.

168. *The unicorn and his horn.* In *Natural History*, vol. 20, pp. 533-535. New York, 1920.

LÜDERS, HEINRICH.

169. *Die Sage von R̥ṣyaśr̥ṅga.* In *Gesellschaft der Wissenschaften zu Göttingen. Phil.-hist. klasse. Nachrichten*, 1897, pp. 87-135; 1901, pp. 28-56.

LYDEKKER, RICHARD.

170. *The game animals of India, Burma, Malaya and Tibet; being a new and revised edition of The great & small game of India, Burma, & Tibet.* London, Rowland Ward, Ltd., 1907.

MACKAY, ERNEST JOHN HENRY.

171. *Chanhu-daro excavations, 1935-36 . . .* New Haven, Conn., Publ. for American School of Indic and Iranian Studies and Museum of Fine Arts, Boston, by American Oriental Society, 1943. (American Oriental Series, vol. 20.)

MACY, V. EVERIT.

172. *The V. Everit Macy collection including rare and important Persian and Mesopotamian pottery, Persian and Indian miniatures, Persian brocades and velvet carpets . . . to be sold at auction . . . January sixth, seventh, eighth at two o'clock.* New York, American Art Association, 1938. (Sale number 4360.)

MAḤMŪD AL-KĀSHGHARĪ.

173. *Dīwān lughāt al-Turk ديوان لغات الترك* 3 vols. Istanbul, Maarif Nezâreti, 1917-1919.

AL-MA'LŪF, AMĪN FAHD.

174. *Mu'jam al-ḥayawān معجم الحيوان* An Arabic zoological dictionary. Cairo, al-Muqtataf Press, 1932.

AL-MAQDISĪ (AL-MUQADDASĪ).

175. *Descriptio imperii moslemici. احسن التقاسيم في معرفة الاقاليم* Ed. M. J. de Goeje. Lugdunum Batavorum (Leiden), 1877. (Bibliotheca Geographorum Arabicorum, vol. 3.)

MARÇAIS, GEORGES.

176. *Les figures d'hommes et de bêtes dans les bois sculptés d'époque fâtimide conservés au Musée arabe du Caire. Etudes d'icono-*

graphique musulmane. In *Mélanges Maspero*, t. 3. *Orient islamique.* Le Caire, Impr. de l'Institut Français d'Archéologie Orientale, 1940, pp. 241-257. (Cairo, Institut Français d'Archéologie Orientale, Mémoires, t. 68.)

MARKWART, JOSEF.

177. *Ein arabischer Bericht über die arktischen (uralischen) Länder aus dem 10. Jahrhundert.* In *Ungarische Jahrbücher*, Bd. 4, pp. 261-334. Berlin, 1924.
178. *Osteuropäische und ostasiatische Streifzüge . . .* Leipzig, Dieterich'sche Verlagsbuchhandlung, Theodor Weicher, 1903.

MARSHALL, SIR JOHN HUBERT.

179. *Mohenjo-daro and the Indus civilization . . .* 3 vols. London, A. Probsthain, 1931.

MARTEAU, GEORGES, et VEVER, HENRI.

180. *Miniatures persanes tirées des collections de mm. Henry d'Allemagne, Claude Anet [e.a.] . . . et exposées au Musée des arts décoratifs juin-octobre 1912.* Préface et commentaire par Georges Marteau et Henri Vever. 2 vols. Paris, Bibliothèque d'Art et Archéologie, 1913.

MARTIN, FREDERIK ROBERT.

181. *Ältere Kupferarbeiten aus dem Orient.* Gesammelt von F. R. Martin. Stockholm, 1902.
182. *The miniature painting and painters of Persia, India and Turkey from the 8th to the 18th century . . .* 2 vols. London, Bernard Quaritch, 1912.

MARVAZĪ.

183. *Sharaf al-Zamān Ṭāhir Marvazī on China, the Turks and India.* With an English translation and commentary by V. Minorsky. London, The Royal Asiatic Society, 1942. (James G. Forlong Fund, vol. 22.)

AL-MAS'ŪDĪ.

184. *Les prairies d'or.* Texte et traduction par C. Barbier de Meynard et Pavet de Courteille. 9 vols. Paris, Impr. Impériale, 1861-1917.

MIGEON, GASTON.

185. *Exposition des arts musulmans au Musée des arts décoratifs.* Paris, Librairie Centrale des Beaux-arts, 1903.
186. *Mussulman art* [The Louvre Museum]. 2 vols. Paris, Albert Morancé, c. 1922.

MOELLER, MARIAN ESTABROOK.

187. *An Indo-Portuguese embroidery from Goa*. In *Gazette des Beaux-arts*, 6th ser., vol. 34, pp. 117-132. Paris, 1948.

MONIER-WILLIAMS, SIR MONIER.

188. *A Sanskrit-English dictionary, etymologically and philologically arranged with special reference to cognate Indo-European languages . . .* New ed., greatly enl. and improved. Oxford, The Clarendon Press, 1899.

MOSER, HENRI.

189. *Collection Henri Moser-Charlottenfels . . . Oriental arms and armour . . .* Leipzig, K. W. Hiersemann, 1912.

MÜLLER, AUGUST.

190. *Des spanisch-arabischen Reisenden Abû Hâmîd Kosmographie "Tuḥfat al-albâb" und ihre wissenschaftliche Ausbeute*. In Jacob, Georg, *Studien in arabischen Geographen*, Hft. 3, pp. 69-94. Berlin, 1892.

AL-MUSTAWFĪ, AL-QAZWĪNĪ, ḤAMD ALLĀH.

191. *The zoological section of the Nuzhatu-l-qulûb of Ḥamdullâh al-Mustawfî al-Qazwîni*. Ed., tr., and annotated by Lieut.-Col. J. Stephenson . . . London, The Royal Asiatic Society, 1928. (Oriental Translation Fund, n.s., vol. 30.)

AL-NADĪM.

192. *Kitâb al-Fihrist كتاب الفهرست*. Mit Anmerkungen herausgegeben von Gustav Flügel. Nach dessen Tode besorgt von Dr. Johannes Roediger und Dr. August Müller. 2 vols. Leipzig, F. C. W. Vogel, 1871-72.

NEW YORK. METROPOLITAN MUSEUM OF ART. COCHRAN COLLECTION.

193. *A catalogue of the collection of Persian manuscripts including also some Turkish and Arabic, presented . . . by Alexander Smith Cochran*. Prepared and edited by A. V. Williams Jackson and Abraham Yohannan. New York, Columbia University Press, 1914. (Columbia University. Indo-Iranian Series, vol. 1.)

NEW YORK. METROPOLITAN MUSEUM OF ART.

194. *A guide to an exhibition of Islamic miniature painting and book illumination*, by M. S. Dimand. New York, October 9 through January 7, 1933-1934. [Portland, Me., The Southworth Press, 1933.]

195. *A handbook of the loan exhibition of French tapestries, mediaeval, Renaissance and modern . . . November 21, 1947 to February 29, 1948.* New York, 1947.

196. *The unicorn tapestries at the Cloisters: a picture book.* New York, 1946.

NĪLAKAṆṬHA.

197. *The elephant-lore of the Hindus; the elephant-sport (Matangalila) of Nilakantha.* Tr. and explained by Franklin Edgerton. New Haven, Yale University Press, 1931.

NIZĀMU 'D-DĪN, MUḤAMMAD.

198. *Introduction to the Jawāmī' u'l-ḥikáyát wa lawāmī' u'r-riwáyát of Sadīdu 'd-dīn Muḥammad al-'Awfī . . .* London, Luzac & Co., 1929. (E. J. W. Gibb Memorial Series, n.s., vol. 8.)

NÖLDEKE, THEODOR.

199. *Beiträge zur Geschichte des Alexanderromans.* In *Akademie der Wissenschaften. Phil-hist. klasse, Denkschriften*, Bd. 83, Abh. 5. Wien, 1890.

200. *Das iranische Nationalepos . . .* 2. auf. Berlin, Leipzig, Vereinigung Wissenschaftlicher Verleger, 1920.

AL-NUWAIŘĪ.

201. *Nihāyat al-arab fī funūn al-adab* نهاية العرب في فنون الادب 13 vols. Cairo, Dār al-kutub al-Miṣriya, 1342-1357 H./A.D. 1923-1938.

OPPIAN.

202. *Oppian, Colluthus, Tryphiodorus*, with an English translation by A. W. Mair. London, W. Heinemann; New York, G. P. Putnam's Sons, 1928. (Loeb Classical Library. Greek Authors.)

PARIS. BIBLIOTHÈQUE NATIONALE. DÉPT. DES MANUSCRITS.

203. *Catalogue des manuscrits arabes.* Par M. le Baron de Slane . . . Paris, Impr. Nationale, 1883-1895.

PETERS, JOHN P. [etc.]

204. *Painted tombs in the necropolis of Marissa.* London, Palestine Exploration Fund, 1905.

PHILOSTRATUS, FLAVIUS.

205. *Apollonius of Tyana, the epistle of Apollonius and the treatise of Eusebius.* With English translation by F. C. Conybeare. 2 vols. London, William Heinemann; New York, G. P. Putnam's Sons, 1927. (Loeb Classical Library. Greek Authors.)

PHOTIUS, *Patriarch of Constantinople.*

206. *Myriobiblon sive bibliotheca.* In Migne, Jacques Paul, *Patrologiae cursus completus . . . series graeca*, t. 104. Paris, Garnier Frères, 1896.

Physiologus.

207. *Das "Buch der Naturgegenstände,"* herausgegeben und übersetzt von Karl Ahrens . . . Kiel, C. F. Haeseler, 1892.

Physiologus.

208. Ed. by F. Sbordone. Mediolani [etc.] in sedibus societates "Dante Alighieri-Albrighi, Segati, etc.," 1936.

PLINY THE ELDER.

209. *Natural history.* With an English translation by H. Rackham . . . 4 vols. Cambridge, Mass., Harvard University Press; London, W. Heinemann, Ltd., 1938-45. (Loeb Classical Library. Latin Authors.)

POLO, MARCO.

210. *The book of Ser Marco Polo.* Tr. and ed. by Sir Henry Yule. 3d ed. revised by Henri Cordier. 2 vols. London, John Murray, 1921.
211. *The travels of Marco Polo.* Tr. and ed. by William Marsden, re-edited by Thomas Wright. London, J. M. Dent & Sons, Ltd.; New York, E. P. Dutton & Co., Inc., 1946. (Everyman's Library, No. 306.)

POPE, ARTHUR UPHAM.

212. *The art of carpet making.* In his *Survey of Persian art*, vol. 3, pp. 2257-2430; vol. 6, pls. 1107-1275. London and New York, Oxford University Press, 1939.
213. *The ceramic art in Islamic times; a history.* In his *Survey of Persian art*, vol. 1, pp. 1446-1664; vol. 5, pls. 555-911. London and New York, Oxford University Press, 1938.

PRISSE D'AVENNES, ACHILLE CONSTANT THÉODORE ÉMILE.

214. *L'art arabe d'après les monuments du Kaire depuis le vii^e siècle jusqu'à la fin du xviii^e* . . . text and 3 vols. Paris, A. Morel et C^{ie}, 1877.

PSEUDO-CALLISTHENES.

215. *The history of Alexander the Great, being the Syriac version of the Pseudo-Callisthenes.* Ed. from five manuscripts with an English translation and notes by E. A. W. Budge . . . Cambridge, University Press, 1889.

AL-QAZWĪNĪ, ZAKĀRĪYĀ' B. MUHAMMAD.

216. *Die Abschnitte über die Geister und wunderbaren Geschöpfe aus Qazwīnī's Kosmographie . . . übertragen und mit Anmerkungen versehen von Jonas Ansbacher. Kirchhain N.-L., M. Schmersow, 1905. (Inaug.-diss., Erlangen.)*

217. *Zakariya ben Muhammed ben Mahmud el-Cazwini's Kosmographie. Erster Theil: Die Wunder der Schöpfung. Ed. by F. Wüstenfeld. 2 vols. Göttingen, Dieterichsche Buchhandlung, 1849.*

218. *Zakarija ben Muḥammed ben Mahmūd el-Kazwini's Kosmographie . . . übersetzt von H. Ethé. Halbbd. 1. Die Wunder der Schöpfung. Leipzig, Fues, 1868.*

REINHART, WERNER.

219. *Zur Identifizierung von "al-Chutww."* In *Der Islam*, Bd. 3, p. 184. Strassburg, 1912.

ROBINSON, THEODORE HENRY, HUNKIN, JOSEPH W., and BURKITT, FRANCIS C.

220. *Palestine in general history.* London, published for the British Academy by Humphrey Milford, 1929. (The Schweich Lectures of the British Academy, 1926.)

ROSS, MARVIN CHAUNCEY.

221. *Eine deutsche Walroszschnitzerei romanischer Zeit.* In *Pantheon*, Bd. 24, pp. 243-244. Munich, 1939.

RUSKA, JULIUS.

222. *Noch einmal al-Chutww.* In *Der Islam*, Bd. 4, pp. 163-164. Strassburg, 1913.

RUSSIA. АРКНЕОЛОГИЧЕСКАЯ КОММИССИЯ.

223. *Восточное серебро. Атласъ древней серебряной и золотой посуды восточнаго происхождения, найденной преимущественно въ предѣлахъ Россійской имперіи. Изданіе Императорской археологической комиссіи ко дню пятидесятилѣтія ея дѣятельности. С.-Петербургъ, 1909.*

ŞABRĪ SHARĪF pasha.

224. *Miniatures persanes, turques et indiennes; collection de son excellence Cherif Sabry pasha. [Avant-propos par] Gaston Wiet. [Le Caire, Impr. de l'Institut Français d'Archéologie Orientale, 1943] (Mémoires Présentés à l'Institut d'Égypte . . . t. 47.)*

SARRE, FRIEDRICH PAUL THEODOR.

225. *Erzeugnisse islamischer Kunst, Teil II. Seldschukische Kleinkunst (Sarre collection).* Leipzig, 1909.

226. *Die Erwerbung einer in Südrussland gebildeten Sammlung von Werken der Kleinkunst aus antiker, Völkerwanderungs- und islamischer Zeit.* In *Berliner Museen; Amtliche Berichte aus den preussischen Kunstsammlungen*, Bd. 29, pp. 65-71. Berlin, 1907/08.
227. *Der Kiosk von Konia . . .* Berlin, Verlag für Kunstwissenschaft, 1936.
228. *Die Kunst des alten Persien . . .* Berlin, Bruno Cassirer, 1922. (Die Kunst des Ostens . . . Bd. 5.)
229. *Ein neuerworbenes Beispiel mesopotamischer Reliefkeramik.* In *Berliner Museen; Amtliche Berichte aus den preussischen Kunstsammlungen*, Bd. 51, pp. 7-11. Berlin, 1930.
230. *Sammlung F. u. M. Sarre. Katalog der Ausstellung im Städelschen Kunstinstitut.* Frankfurt am Main, 1932.
231. *Die Tradition in der iranischen Kunst.* In *International Congress for Iranian Art and Archaeology, 3rd, Leningrad and Moscow, 1935. Memoirs*, pp. 227-228, pls. 103-106. Moscow & Leningrad, Akademiâ Nauk SSSR, 1939.
- SARRE, FRIEDRICH PAUL THEODOR, and HERZFELD, ERNST.
232. *Iranische Felsreliefs; Aufnahmen und Untersuchungen von Denkmälern aus alt- und mittelpersischer Zeit . . .* Berlin, E. Wasmuth, a.-g., 1910.
- SARRE, FRIEDRICH PAUL THEODOR, and MARTIN, F. R.
233. *Die Ausstellung von Meisterwerken muhamedanischer Kunst in München, 1910 . . .* 3 vols. München, F. Bruckmann, a.-g., 1912.
- SARTON, GEORGE.
234. *Introduction to the history of science . . .* 3 vols. in 5. Baltimore, publ. for the Carnegie Institution of Washington by the Williams and Wilkins Company, 1927-1948. (Carnegie Institution of Washington, Publ. No. 376.)
- SAUVAGET, JEAN.
235. *Alep; essai sur le développement d'une grande ville syrienne, des origines au milieu du xix^e siècle . . .* 2 vols. Paris, Paul Geuthner, 1941. (Haut Commissariat de l'État Français en Syrie et au Liban. Service des Antiquités. Bibliothèque Archéologique et Historique, t. 36.)
- SCHAPIRO, MEYER.
236. *On the aesthetic attitude in romanesque art.* In *Art and Thought*, pp. 130-150. Ed. by K. Bharatha Iyer. London, Luzac & Company, Ltd., 1947.

SCHMIDT, J. HEINRICH.

237. *Persische Seidenstoffe der Seldjükenzeit* . . . In *Ars Islamica*, vol. 2, pp. 84-91. Ann Arbor, Mich., 1935.

SCHÖNBERGER, GUIDO.

238. *Narwhal-Einhorn; Studien über einen seltenen Werkstoff*. In *Städel-jahrbuch*, Bd. 9, pp. 167-247. Frankfurt am Main, 1935/36.

SCHULZ, PHILIPP WALTER.

239. *Die persisch-islamische Miniaturmalerei* . . . 2 vols. Leipzig, Karl W. Hiersemann, 1914.

SELOUS, F. C.

240. *Mammals of other lands*. In *Nature Lovers Library*, vol. 5, p. 160. New York, The University Society, Inc., 1917.

SHEBBEARE, E. O.

241. *Protecting the great Indian rhinoceros*. In *The Field*, vol. 165, pp. 1229-1231. London, May 18, 1935.

SHEPARD, ODELL.

242. *The lore of the unicorn*. London, George Allen & Unwin, Ltd. [1930.]

SHORTRIDGE, G. C.

243. *The mammals of Southwest Africa; a biological account of the forms occurring in that region*. 2 vols. London, William Heinemann, Ltd., 1934.

SIRÉN, OSVALD.

244. *Chinese paintings in American collections*. 4 vols. Paris and Brussels, G. van Oest, 1927.

SIRICH, MARJORIE W.

245. *Gift of Persian miniatures (by the late Charles C. Webber and Mrs. Webber)*. In *Minneapolis Institute of Arts, Bulletin*, April 7, 1945. (Entire issue.)

SOWERBY, ARTHUR DE CARLE.

246. *Nature in Chinese art* . . . with two appendices on the *Shang pictographs*, by Harry E. Gibson. New York, The John Day Company [c. 1940].

STEIER.

247. *Nashorn*. In *Pauly's Real-Encyclopädie der classischen Altertumswissenschaft*, by A. Pauly and G. Wissowa, cols. 1780-1788. Stuttgart, Metzler, 1894-1935.

248. *Timotheus, No. 18*. In *Pauly's Real-Encyclopädie der classischen Altertumswissenschaft*, by A. Pauly and G. Wissowa, cols. 1339-1341. Stuttgart, Metzler, 1894-1935.

STEINDORFF, GEORGE.

249. *The magical knives of ancient Egypt*. In *Walters Art Gallery, Journal*, vol. 9, pp. 41-51, 106-107. Baltimore, 1946.

STEINGASS, FRANCIS JOSEPH.

250. *A comprehensive Persian-English dictionary . . .* London, K. Paul, Trench, Trübner & Co., Ltd., 1930.

STONE, GEORGE CAMERON.

251. *A glossary of the construction, decoration and the use of arms and armor in all countries and in all times*. Portland, Maine, Southworth Press, 1934.

STOTT, KEN.

252. *Too many lions*. In *Zoonooz*, vol. 21, No. 11, pp. 3-4. San Diego, November 1948.

STRABO.

253. *The geography of Strabo* with an English translation by Horace Leonard Jones . . . Based in part upon the unfinished version of John Robert Sitlington Sterrett . . . 8 vols. London, W. Heinemann; New York, G. P. Putnam's Sons, 1917-33. (Loeb Classical Library. Greek Authors.)

SULAIMĀN, THE MERCHANT. *See* Akhbār al-Šin wa'l-Hind.

SUTTANIPĀTA.

254. *The Sutta-niṣāta, a collection of discourses; being one of the canonical books of the Buddhists*, translated from Pāli by V. Fausböhl. 2d ed., rev. London, Humphrey Milford, Oxford University Press, 1924. (The sacred books of the East . . . vol. 10, pt. 2.)

AL-TAWHĪDĪ, ABŪ ḤAIYĀN ALI B. MUHAMMAD B. AL-'ABBĀS.

255. *Kitāb al-Imtā' wa'l-mu'ānasa* كتاب الامتاع والمؤانسة Edited by Aḥmad Amin and Aḥmad al-Zain. Cairo, 1939-44.

TENNENT, SIR J. EMERSON.

256. *The wild elephant and the method of capturing and taming it in Ceylon*. London, Longmans, Green and Co., 1867.

TEXTILE MUSEUM.

257. *Dragon rugs, a loan exhibition from American public and private institutions . . . October 18 through November 19, 1948*. Washington, D. C., 1948.

THOM, W. S.

258. *Rhinoceros shooting in Burma*. In *Bombay Natural History Society, Journal*, vol. 38, pp. 137-150. 1936.

Timotheus Gazaesus.

259. In Haupt, Moriz, *Opuscula*, Bd. 3, pp. 274-302. Leipzig, Solomon Hirzel, 1875-76.

TOGAN, AHMED ZEKI VALIDI.

260. *Die Nordvölker bei Birūnī*. In *Deutsche Morgenländische Gesellschaft, Zeitschrift*, Bd. 90, n.f. 15, pp. 38-51. Leipzig, 1936.

UMEHARA SUEJI 梅原末治

261. *Shina-kodō seikwa 支那古銅精華 or selected relics of ancient Chinese bronzes from collections in Europe and America . . .* 7 vols. Osaka, Yamanaka & Co., 1933-35.

VALIDI, A. ZEKI. See Togan, Ahmed Zeki Validi.

VAN BERCHEM, MAX.

262. *Inscriptions mobilières arabes en Russie*. In *Journal Asiatique*, 10^e sér., t. 14, pp. 401-413. Paris, 1909.

VAUGHAN-KIRBY, F.

263. *The white rhinoceros, with special reference to its habits in Zululand*. In *Annals of the Durban Museum*, vol. 2, pp. 223-242. Durban, Natal, 1917/20.

VESELOVSKIĪ, N. I. (Веселовский, Н. И.)

264. *Geratskiĭ bronzovyi kotelok 559 goda gidzhry (1163 g. po R. Khrist.) iz sobraniĭa grafa A. A. Bobrinskago*. Гератский бронзовый котелок 559 года гиджры (1163 г. по Р.Х.) пѣ собранія графа А.А. Бобринскаго. St. Petersburg, Tipografiĭa Imperatorskoĭ Akademiiĭ Nauk, 1910. (Materialy po Arkheologii Rossii izd. Imp. Arkheologicheskoiĭ Kommissiĭe, No. 33.)

VIENNA. ÖSTERREICHISCHES MUSEUM FÜR KUNST UND INDUSTRIE.

265. *Old oriental carpets . . . with text by Friedrich Sarre and Hermann Trenkwald, tr. by A. F. Kendrick*. 2 vols. Vienna, A. Schroll & Co., 1926-29.

VISSER, HERMAN FLORIS EDUARD.

266. *Asiatic art in private collections of Holland and Belgium*. Amsterdam, "De Spiegel" Publishing Co., 1948.

VON DER OSTEN, HANS HENNING.

267. *The ancient seals from the Near East*. In *The Art Bulletin*, vol. 13, pp. 221-241. New York, 1931.

VULLERS, JOHANN AUGUST.

268. *Ioannis Augusti Vullers lexicon persico-latinum etymologicum . . .* 2 vols. Bonnae ad Rhenum. impensis A. Marci, 1855-64.

WARD, ROWLAND.

269. *Records of big game with their distribution, characteristics, dimensions, weights and horn & tusk measurements.* 6th ed. London, Rowland Ward Ltd., 1910.

WARD, WILLIAM HAYES.

270. *The seal cylinders of western Asia.* Washington, D. C., Carnegie Institution, 1910.

WARNER, SIR GEORGE FREDERIC.

271. *Queen Mary's Psalter, miniatures and drawings by an English artist of the 14th century.* Reproduced from Royal Ms. 2B-VII in the British Museum. London, 1912.

WEBER, OTTO.

272. *Altorientalische Siegelbilder.* 2 vols. Leipzig, J. C. Hinrichs'sche Buchhandlung, 1920. (Der alte Orient, Bd. 17 & 18.)

WEBER, VICTOR FRÉDÉRIC.

273. "*Ko-ji hô-ten*"; *dictionnaire à l'usage des amateurs et collectionneurs d'objets d'art japonais et chinois . . .* 2 vols. Paris, L'auteur, 1923.

WELLMANN, M.

274. *Elefant.* In *Pauly's Real-Encyclopädie der classischen Altertumswissenschaft*, by A. Pauly and G. Wissowa, cols. 2248-2257. Stuttgart, Metzler, 1894-1935.
275. *Der Physiologus. Eine religionsgeschichtlich-naturwissenschaftliche Untersuchung.* In *Philologus*, Supplement Band, Bd. 22, p. 116. Leipzig, 1931.

WEST, EDWARD WILLIAM, ed. and tr.

276. *Pahlavi texts . . . Pt. I. The Bundahis, Bahman yast, and Shâyast Lâ-shâyast.* Oxford, The Clarendon Press, 1880. (The sacred books of the East . . . vol. 5.)

WIEDEMANN, EILHARD.

277. *Über den Wert von Edelsteinen bei den Muslimen.* In *Der Islam*, Bd. 2, pp. 345-358. Strassburg, 1911.

WILLIAMSON, THOMAS.

278. *Oriental field sports; being a complete, detailed, and accurate description of the wild sports of the East; and exhibiting, in a novel and interesting manner, the natural history of the elephant, the rhinoceros, the tiger, etc. . . .* 2 vols. Drawings by Samuel Howitt. London, H. R. Young, 1819.

WITTKOWER, RUDOLF.

279. *Miraculous birds*. 2. 'Roc,' an Eastern prodigy in a Dutch engraving. In *Warburg Institute, Journal*, vol. 1, pp. 255-257. London, 1937-1938.

WOLFF, FRITZ.

280. *Glossar zu Firdosis Schahname* . . . Berlin, Gedruckt in der Reichsdruckerei, 1935. 1 vol. and supplement.

YĀQŪT IBN 'ABD ALLĀH.

281. *Jacut's geographisches Wörterbuch aus den Handschriften zu Berlin, St. Petersburg und Paris*, auf Kosten der Deutschen Morgenländischen Gesellschaft herausgegeben von Ferdinand Wüstenfeld. 6 vols. Leipzig, in Commission bei F. A. Brockhaus, 1866-1890.

YULE, SIR HENRY, and BURNELL, A. C.

282. *Hobson-Jobson, a glossary of colloquial Anglo-Indian words and phrases* . . . New ed. edited by William Crooke . . . London, John Murray, 1903.

INDEX

- Abano, Pietro d' (quoted), 110.
Abū Ḥaiyān al-Tawḥīdī. *See* al-Tawḥīdī, Abū Ḥaiyān.
Abu 'l-Faḍl 'Allāmī. *See* 'Allāmī, Abu 'l-Faḍl.
Achlis, 100.
Aelian, 77, 91, 99, 113.
Aeolian flute-type horns, 64-66, 150; pl. 42.
Agatharchides, 77, 78.
Ahmad Ṭūsī, 35, 53, 60, 102.
'*Ajā'ib al-makhlūqāt* mss., 8, 14, 17, 65, 68, 156, 161; pls. 13-17, 22, 38, 40-44.
Al-Akfānī, 114, 141.
Akhhār al-Šīn wa'l-Hind, 11, 15, 20, 53, 54, 58, 94, 99, 100.
Albertus Magnus, *Saint*, 110.
Aleppo, sculpture from, 4, 51, 134, 135 136; pl. 6.
Alexander the Great (Iskandar), 8, 66; pls. 9, 24.
Alf laila wa-laila, 11, 30, 32, 53.
Alicorn, 110.
'Allāmī, Abu'l-Faḍl, 11, 13, 17.
Allegorical interpretation of Christian-Arabic version, 92-93.
Amalgamation of khutū horn with the horn of the karkadann, 151-152.
Anatolia, 4
Andersson, Karl Johan, 132.
(quoted), 79, 80.
Animal Kingdom, 49-50; pls. 36-38.
Animal types in the *Shāh-nāmah* manuscripts, 43, 47; pls. 9, 23-30, 35.
Animals:
 Fantastic, 1-3, 69-72.
 Fights of, 26-34, 67, 78-90, 147, 160-161; fig. 2; pls. 3, 17-22, 33.
 Flame-endowed, 105, 156; pl. 48.
 Horns, number of, 18-23, 27, 61, 62, 64, 67, 70, 79, 108.
 Hypnotized, 48.
 Majnūn surrounded by, 49; pl. 36.
 Representations in art:
 Bedsread from Goa, 97; fig. 3.
 Bucket, copper-inlaid, 3, 25; pl. 4.
 Candlesticks, 27.
 Canteen, silver-inlaid, 3; pl. 3.
 Carpets, 26, 27, 28, 32, 160; pls. 18, 21.
 Friezes, 26-29; pls. 3, 18, 19.
 Ivory boxes, 4, 24, 71, 122-130, 135; pl. 5.
 Manuscripts. *See* under names of museums and titles of manuscripts.
 Mirrors, Chinese, 105, 108, 156; figs. 4-5; pl. 48.
 Paintings, 10, 15, 48, 50, 59, 106, 155; pls. 7-18, 22-30, 32-38, 40-46, 48.
 Plaque, 4, 35, 51; pl. 6.

Animals—*Continued*Representations in art—*Continued*

Plates, silver-inlaid bronze, 26, 106, 160; pl. 18.

Sculpture, 17, 43, 67, 69, 74, 149; pl. 31.

Tiles, 26, 27; pls. 4, 18, 19.

Vessels:

Bronze, 26, 27; pls. 4, 18, 19.

Glass, 3, 17, 25, 28; pls. 1, 20.

Pottery, 74, 134, 136, 161; pl. 31.

Ankle-bone of the unicorn, 61.

'*Anqā*', 32-33, 151; pls. 8, 17, 18.

Antelope, 18, 38, 41, 61, 71, 155; pls. 3, 29.

"Apocryphal" unicorns, 68-70; pls. 17, 45.

Arab beliefs:

Concerning the unicorn, 59-62, 91.

Medicinal qualities of the unicorn, 109-110.

Arabian Nights. *See Alf laila wa-laila.*

Āras, 64.

Aristotle, 6, 8, 20, 64, 74, 75, 91, 94, 96, 100, 160.

Asadi, 20.

Asb-i ābī. *See Faras al-baḥr.*

Ass:

Indian, 74, 91.

Three-legged, 150.

Wild, 28, 67, 71; pl. 20.

'Awfī, 34, 61, 121.

Bābur, 11, 13, 17, 46, 89.

(quoted), 81.

Bābur-nāmah, 46; pl. 32.

Bahrām Gūr hunting, 37, 39-41, 162; pls. 25, 27.

"Baptistère de St. Louis," 26; pl. 19.

Beatty, A. Chester, mss. in collection, 9, 14, 50, 59, 61, 66, 157; pls. 14, 41, 43.

Berg, Bengt (quoted), 89.

Berlin. Staatliche Museen. Islamische Abteilung:

Indian miniature, 50.

Ivory box, 71.

Pottery fragment, 74, 134, 136; pl. 31.

al-Qazwīnī ms., 9, 50, 59, 61, 62; pls. 13, 41, 42, 44.

Bestiary, The, 84, 93.

Bezoar stone, 138.

Bible, The, 92, 160.

Bibliothèque Nationale. *See* Paris. Bibliothèque Nationale.

Bilqīs surrounded by the animals of Sulaimān, 47; pl. 34.

Bird friends of the rhinoceros, 23.

al-Bīrūnī, 11, 12, 19, 20, 21, 34, 63, 79, 114, 115, 117, 118, 119, 127, 128,

133, 138-141, 144, 146.

(quoted on color of horns), 115.

(quoted on the khalanj wood), 123.

al-Bīrūnī—*Continued*

(quoted on the rhinoceros), 12.

(quoted on the rhino-elephant fight), 90.

Blanford, W. T., 85.

(quoted), 86.

Blood stanching by horn, 61, 127.

Bodleian Library. *See* Oxford. University. Bodleian Library.

Boston. Museum of Fine Arts:

Manuscripts:

Demotte *Shāh-nāmah*, 8, 17, 41, 149; pl. 9.

al-Qazwīnī, 50; pl. 38.

Tile, 27; pl. 19.

Boxes, ivory, 4, 71, 72, 135; pl. 5.

Brazier, 26.

Brehm, Alfred Edmund, 85, 86.

British Museum, ms. in the collection, 6, 8, 9, 24; pl. 7.

Brooklyn. Museum, bedspread, 97; fig. 3.

Brown, W. Norman, 95.

Bucket in possession of R. Stora, 3, 25; pl. 4.

Buckle, silver, 53-55; pl. 39.

Bulān, 67.

Bundahishn, 149-150.

Buzurg ibn Shahriyār, al-Rām-Hurmuzī, 31.

Caesar, Julius, 45, 100.

Cammann, Schuyler, 54, 94, 104, 107, 108, 156.

Candlestick, 27.

Canteen, silver-inlaid, 3; pl. 3.

Carpets:

National Gallery of Art, U.S.A., 28, 160; pl. 21.

Oxford. University. Bodleian Library, 26, 32, 160; pl. 18.

Textile Museum, 160.

Cat with batlike wings, 24.

Cattle, African, 76.

Cervine rhinoceros, 105.

Cervine unicorn, 96, 97.

Chatuq, 116, 123.

Described by al-Kāshgharī, 122.

Chérif Sabry Pasha. *See* Sabry, Chérif, Pasha.

Chicago. University. Oriental Institute:

Sculpture from Persepolis, 43, 67, 74, 149; pl. 31.

Ch'i-lin (unicorn), 66, 68, 69, 70, 104, 106, 157; pls. 17, 45.

China's influence on the concept of the unicorn, 102-109.

Chinoiserie, 70, 104, 106, 156.

Cleveland. Museum of Art, ms., 7, 32; pl. 8.

Cochran manuscripts. *See* New York. Metropolitan Museum of Art.

Colic, cure for, 61.

Convulsions cured by rhinoceros horn, 133.

Cosmas Indicopleustes, 76, 85, 93.

(quoted), 59, 93.

Couch made of horn and ivory, 104.

Ctesias, 99, 100, 113.

Cups of rhinoceros horn, 111, 112, 131, 132, 133.

Daghestan, sculptured animals of, 17.

al-Damirī, 11, 13, 15, 17, 18, 21, 22, 53, 56, 59, 63, 65, 79, 102, 111, 147, 154, 161.

(quoted) 33, 35, 61.

Death of giant animals, 29-31.

Demotte *Shāh-nāmāh*:

Boston. Museum of Fine Arts, 8, 41; pl. 9.

Rockefeller, Mrs. John D., 39, 40, 41.

Design, Mosul, 27, 43, 45, 74; pl. 31.

Designs in horn. *See* Horns, striae or grooves.

al-Dimashqī, 11, 30, 79.

Diodorus Siculus, 76, 77.

Dragon, Chinese. *See* Lung.

Dyson Perrins collection, 49.

Edelstein, 158.

Elephant:

Attacked by animals, 26-32; pls. 3, 18, 19, 21, 22, 33.

Burial place, 83.

Death of, 30-31; pl. 22.

Enmity of karkadann, 29-31, 78-79, 88, 147; pls. 3, 18, 19, 22, 33.

Enmity to the snake, 47; pl. 35.

Gestation, 52

Legs, jointless, 100-101.

Pregnancy, strange, 16; pl. 16.

Encyclopedic surveys, 152-154.

Erh-ya, 91, 107.

Etymology of the rhinoceros, 7, 75, 94, 106.

Fākhita, 23.

Faras al-baḥr, 156; pl. 48.

Faras al-mā', 156; pl. 48.

Fêng-huang, 69, 70, 155.

Firdawsī, 18, 19, 37, 154.

Fletcher, Giles (quoted), 125.

Flute sounds of animals, 64-66; pl. 42.

Flying men, 25.

Freer Gallery of Art:

Canteen (41.10), 3; pl. 3.

Manuscripts:

al-Qazwīnī (07.625), 15, 59, 155; pls. 14, 16.

Shāh-nāmāh (30.10A), 39-40; pl. 25.

Mirror, Chinese (29.17, 38.8, 44-5), 105, 108; fig. 4; pl. 48.

Paintings:

Chinese (19.174), 106; pl. 12.

Freer Gallery of Art—*Continued*Paintings—*Continued*

Indian (07.625), 10, 15, 59, 155; pls. 14, 16.

(45.29), 50; pl. 37.

(48.8), 48.

Persian (30.10), 39-40; pl. 25.

(38.2), 71; pl. 46.

Turkish (48.17), 69; pl. 45.

Vessel, glass (33.13), 3, 17, 25; pls. 1, 2.

Friedmann, Herbert, 23.

Friezes, 26-29; pls. 3, 18, 19.

Ganay, Marquis de, ivory box, 4, 24, 136, 137; pl. 5.

Garrett collection. *See* Princeton University. Library.

Gazelle-horned animal, 95-97.

Geiger, Bernhard, 81, 94, 95, 149.

al-Ghaffārī, 127.

al-Gharnāṭī, Abū Ḥāmid, 11, 13, 15, 22, 53, 56, 63, 79, 91, 103, 114.

Giraffe, 15, 155; pl. 16.

Girdle ornaments, 53-55; pl. 39.

Glazer, Sidney, 42.

Goat:

Horns, 61, 62.

Identified with the karkadann, 96.

Golubew collection. *See* Boston. Museum of Fine Arts.

Griffins, 3, 4, 24, 28, 67, 152.

Grimms' *Fairy Tales*, 45.

Guillame le Clerc (quoted), 84.

Gurg. *See* Wolves.

Gushtāsp killing a monster, 36, 40, 162; pls. 24, 26.

"Hai-ma," pl. 48.

Ḥamd Allāh al-Mustawfi al-Qazwinī, *See* al-Mustawfi.

Hare-unicorn, 66; pl. 44.

Ḥarīsh, 18, 59-62.

Capture of, 60-61; pl. 40.

Description of, 18, 60, 62.

Habitat, 61.

Horn of, 60.

Identification with:

Antelope, 61; pl. 41.

Goat, 61-62; pls. 40, 41.

Snakes, 64; pl. 40.

Wolf, 62; pl. 41.

Karkadann, 96-97.

Medicinal properties of its body, 61.

Virgin-capture of, 61, 92, 95-96.

Harvard College Library, 10, 14, 59, 66.

Heeramanek, Nasli M., mss. in possession of, 48, 49; pl. 36.

Hemorrhoids, cure for, 131, 139, 142.

Heroes slaying the unicorn, 8, 36-37; pls. 9, 23-31.

Herzfeld, Ernst, 44, 67, 74; fig. 1.

Hildegard of Bingen, 110.

Hippopotamus. *See* Faras al-mā'.

Horns:

Antidotal virtue interchange, 136-137.

Arab beliefs concerning, 55, 110.

Color of, 62, 115, 139.

Commercial value, 53-58, 117, 139.

Curve in, 21-23.

Description of, 64-65, 99, 114-120, 139.

Detector of poison, 109, 112, 122.

Flute type, 64-66, 150; pl. 42.

Iconography, 3-5, 18-20; pls. 1-20, 22-38, 41-46.

Knot in, 21, 57.

Magical values, 57, 61, 110, 133, 160.

Marine variety, 117-120, 127-128, 138-142; pl. 47.

Movable, 76.

Number of, 18-23, 27, 61, 62, 64, 67, 70, 79, 91, 108.

Poison, antidotal quality, 99, 111, 112, 114, 132.

Poison-detecting quality, 57, 109, 111, 112, 114, 122-123, 131, 132, 134.

Portuguese beliefs (quotation), 99.

Regions of export, 176.

Shape of, 18-23, 64, 108, 115, 134-136.

Sharpening, 76, 77, 79.

Size of, 18-23, 98, 110, 139.

Strength of, 78.

Striae or grooves, 53, 64, 101, 102, 135, 138, 140, 145.

Use of (by man), 53-58, 67, 77, 98, 102-103, 110, 112, 115, 121-127.

Use of (by animal), 67, 92-93.

Host of Sulaimān, 47; pls. 34, 35.

Hsi, 106, 107.

Hsieh-chai, 66, 104, 106, 107, 157; pl. 43.

Hsin T'ang shu (quoted), 54.

Hudūd al-'Ālam, 11, 55, 114, 116, 118, 119.

Hunting:

Karkadann, 35-46.

Rhinoceros, 36, 45-46; pls. 32, 33.

Unicorn, 36-37, 60, 92-93; pls. 9, 23-31.

Hybrids, 17, 47, 67, 162; pls. 34, 44.

(quotation), 15.

Ibn al-Balkhī, 11, 44, 68, 74, 149.

(quoted), 67.

Ibn al-Faqīh, 22.

Ibn al-Šūrī, 152.

Ibn al-Wardī, 11, 57, 110, 132.

(quoted), 131.

- Ibn Baṭṭūṭa, 11, 12, 13, 21, 144.
(quoted), 11, 21.
- Ibn Bukhtīshū', 8, 18, 20, 53, 59, 76, 97, 110.
- Ibn Faḍlān, 11, 13, 35, 45, 53.
- Ibn Ibshīhī, 15.
- Ibn Khallikān, 152.
- Ibn Khordādhbeh, 11, 14, 15, 20, 48, 53, 55.
- al-Idrīsī, 15, 53, 152.
- Isfandiyār hunting, 36, 39-41, 162; pls. 23, 28-30.
- Isidore of Seville, 84.
- Iskandar. *See* Alexander the Great.
- Island of Wāqwāq, 50; pl. 38.
- Ivory, 4, 24, 71, 122-130, 135; pls. 5, 47.
- Jahāngīr, 89, 124; pl. 33.
(quoted), 46.
- al-Jāhiz, 11, 13, 15, 20, 24, 30, 52, 62, 63, 74, 85, 88, 97, 143.
(quoted), 29, 33, 144.
- Jamshīd, throne of, 31, 67.
- Japan, Imperial Treasury (Shōsōin), 53-55; pl. 39.
- al-Jawhari, 17, 59, 62, 96, 154.
- Jazīrat al-Tinnīn, 66.
- Kahler, E., 47; pl. 35.
- Kardunn. *See* Karkadann.
- Karg:
Iconography, 37-40; pls. 23-30.
Identification with:
Antelope, 40, 41, 158; pls. 24, 29.
Lion, 17-18, 67; pls. 1, 2, 9, 24.
Wolf, 37-39; pls. 8, 23, 25, 28.
Representations in mss.
Freer Gallery of Art (30.10), 39-40; pl. 25.
Kevorkian, H. (in possession of), 41; pls. 27, 28.
Myers, George Hewitt, 40; pl. 24.
New York. Metropolitan Museum of Art, 41, 158; pl. 29.
Paris. Bibliothèque Nationale, 40; pl. 26.
Princeton University. Library, 41; pl. 30.
Teheran. Gulistān Palace Museum, 39; pl. 23.
- Karkadann:
Antidotal qualities of its horn, 111, 113, 130, 136.
Attacking other animals, 26-34, 78-79, 88, 147, 160-161; pls. 3, 18-22.
Chinese prototype, 107.
Descriptions by:
al-Bīrūnī, 12.
Ibn Faḍlān, 13.
Marvazī, 75.
Enmity to man, 35.

Karkadann—*Continued*

Features, additional, 52-58, 91.

Fierceness of, 29, 58.

Gestation, 52, 148.

Habitat, 23, 143.

Hoofs of, 64.

Horn of:

Amalgamation with the *khutū* horn, 151-152.

Antidotal property, 136-138, 161.

Commercial value, 115.

Description, 18-23, 64, 108, 115.

Hunting the, 35-46.

Identification with:

Antelope, 18, 38, 41, 43, 61, 71, 97, 155; pls. 7, 13.

Bovine animals, 13, 14, 97, 149, 159; pls. 10, 11, 13, 15.

Buffalo, 12, 13, 107, 155; pl. 14.

Calf, 23; pl. 15.

Camel, 13.

Donkey, 132.

Elephant, 16, 22; pls. 14, 16.

Giraffelike animal, 47, 155; pl. 34.

Gurg. *See* Wolf, below.

Ḥarish, 18-19, 62; pl. 41.

Horse, 13, 15, 16, 17, 91, 105, 155, 156; pls. 18-20.

Khutū, 114-120, 136.

Lion, 17-18, 67; pls. 1, 2, 9, 24.

Rhinoceros, 12, 13, 18, 27; pls. 18, 30.

Sharav, 19-20, 31, 34, 62, 97; fig. 3; pl. 13.

Stag. *See* Antelope.

Wolf, 37-38, 43, 62; pls. 23, 25, 28.

Zebu, 14; pl. 11.

Legs, jointless, 15, 99; pl. 14.

Life span, 52.

Love for the ring dove, 23; pl. 15.

Means of torture in China, 63, 103.

Meat, lawfulness of, 17, 58.

Medicinal values, 110, 131.

Physical appearance, 3-5, 8, 12-27, 47, 79, 108, 155-159; fig. 5; pls. 1-10, 13-15, 17-38.

Poison-detecting value, 57.

Pregnancy, strange, 15-16, 97, 143, 147, 148.

Reproductions in:

Brazier, 26.

Candlestick, 27.

Carpets, 27, 32, 69, 160; pls. 18, 21.

Manuscripts:

'*Ajā'ib al-makhlūqāt*, 8, 14, 17, 30; pl. 22.

Demotte *Shāh-nāmāh*, 8, 39, 40, 41, 59, 66; pl. 9.

Manāfi'-i ḥayavān, 9, 13, 20, 21, 32, 52, 59, 60, 69, 71, 107; pl. 10.

Karkadann—*Continued*Reproductions in—*Continued*Manuscripts—*Continued*

Mu'nis al-aḥrār, 6-7, 32, 156; pl. 8.

Nizāmī mss., 41, 47, 48, 49; pls. 34, 36.

al-Qazwīnī mss.:

Beatty, A. Chester, 14, 157; pl. 14.

Berlin, Staatliche Museen, 9, 19, 31, 59; pl. 13.

Freer Gallery of Art (07.625), 15, 59, 155; pl. 14.

Kevorkian, H. (in possession of), 9, 19, 22, 59; pl. 13.

New York. Metropolitan Museum of Art, 32; pl. 17.

Princeton University. Library, 10, 22; pl. 15.

"Sarre manuscript," 9, 22, 62; pl. 13.

Platter, bronze, 26, 27; pl. 18.

Tile, 26; pls. 18, 19.

Tray, 26, 27.

Vessels, 26, 28; pls. 19, 20.

Reproductiveness, 52.

Scientific and artistic problem, 143-162.

Size, 13, 15.

Tamed, 47-51; pls. 14, 22, 34, 35.

Thorny tongue, 63, 103, 148.

Voice, 16, 35.

al-Kāshgharī, Maḥmūd (quoted), 67, 122.

al-Khāzinī, 138.

Kevorkian, H. (in possession of):

Manuscripts:

Nizāmī, 47; pl. 34.

al-Qazwīnī, 9, 16, 59, 61, 62, 66; pls. 13, 41, 42.

Shāh-nāmah, 41; pls. 27, 28.

Vessel, enameled glass, 28; pl. 20.

Khalanj wood, 102, 123.

Khutū, 114-120, 136, 144.

Identified with the rhinoceros, 130-132, 134.

Khutū horn:

Amalgamation of, with horn of the karkadann, 151-152.

Color of, 117-120.

Commercial trade, 121-124.

Poison-detecting quality, 114, 122-123, 131, 138.

Knife handles, 56, 57, 116, 117, 121-127, 131-132, 139, 146; pl. 47.

Knight, William (quoted), 88.

Kolben (quoted), 133.

Konya, sculptured animals of, 4, 26; pl. 3.

Kühnel, Ernst, 46.

Ku-tu-hsi, 118, 120, 122-123, 130, 133, 134, 136.

Antidotal qualities, 134.

Laufer, Berthold, 9, 54, 59, 96, 100, 101, 103, 107, 116, 118, 122, 130, 133.

(quoted), 102, 103, 112, 122.

Leningrad. Ērmitazh:

Shāh-nāmah mss., 42, 43.

Silver-inlaid bronze plate from Kāshgar, 26; pl. 18.

Lī Hsūn (quoted), 145.

Lī Shih-chên (quoted), 112.

Lion, 69; pl. 45.

Lion attacking an antelope, 71.

Lion-unicorn, 40, 105; fig. 4; pl. 24.

Lohan, 106; pl. 12.

Lorey, Eustache de, plate, 27.

Lung, 69, 70, 105; pl. 45.

Lure of the Shādhahvār's horn, 64-66, 157; pl. 43.

Macy, V. Everit, collection, 161.

Madrasa Muqaddamiya, Aleppo, 4, 35, 51; pl. 6.

Majnūn surrounded by animals, 49; pl. 36.

Manāfī-i ḥayawān, 8, 9, 11, 13, 14, 20, 21, 22, 30, 32, 52, 60, 61, 69, 71, 107, 133,
148, 156; pls. 10, 11, 40, 46, 48.

Maqāmāt, 27, 32, 147; pl. 18.

Marvazī, 11, 12, 15, 17, 20, 54, 56, 63, 75, 122, 130, 131, 148.

(quoted), 12, 45, 52, 75.

al-Mas'ūdī, 11, 15, 53.

Mātānga-lilā, 88.

Meat, lawfulness of, 17, 57-58, 95.

Mīhr 'Alī, ivory carver, 126; pl. 47.

al-Mī'rāj, 66-67; pl. 44.

Mirrors, Chinese, 105, 108, 156; figs. 4, 5; pl. 48.

Mohenjo-daro, sculptured animals of, 84, 95.

Monsters, 41, 66, 105; fig. 4; pl. 31.

Mu'nis al-aḥrār ms., 6-7, 32, 156; pl. 8.

al-Mustawfī, 14, 18, 21, 22, 30, 34, 53, 63, 65, 96, 110, 111.

(quoted), 29, 56, 57, 61.

Myers, George Hewitt, ms., 40, 105, 106; pl. 24.

al-Nadīm, 11, 53, 55, 144-145, 146.

Narwhal, 110, 118, 120, 121, 125, 135, 140; pl. 47.

Na't al-ḥayawān wa-manāfī'uhū, 6, 8, 9, 24; pl. 7.

National Gallery of Art, U.S.A., carpet, 28, 160; pl. 21.

Necklaces, 55.

New York. Metropolitan Museum of Art:

Brazier, 26.

Candlestick, 27.

Luster tile (40.181.10), 27.

al-Qazwīnī ms., 24, 32, 68, 104, 158; pl. 17.

Shāh-nāmah ms., 41, 108-109, 158; pl. 29.

Tray (91.1604), 27, 160.

Vessel, bronze, 27.

Nizāmī mss.:

Dyson Perrins collection, 49.

Heeramaneck, N. M. (in possession of), 48, 49; pl. 36.

Kevorkian, H. (in possession of), 41, 47; pl. 34.

Sabry, Chérif, Pasha, collection, 49.

Noah and the rhinoceros, 48.

Nöldeke, Theodor, 150.

al-Nuwairī, 11, 27, 31, 35, 79, 88, 111, 146.

Onager. *See* Ass, wild.

Oppian, 76.

Ornaments, 53-55; pl. 39.

Oryx, 64, 91, 97.

Ostrich, 155.

Oudh, 89.

Ox, 14, 71, 91; pl. 11.

Oxford. University. Bodleian Library, mss.:

Maqāmāt, 27, 32, 147; pl. 18.

Shāh-nāmah, 50.

Pai-tsê, 66.

Pamplona. Cathedral, ivory box in, 4, 24; pl. 5.

Paris. Bibliothèque Nationale, mss.:

Manāfi' al-hayawān, 8, 59.

Shāh-nāmah, 40; pl. 26.

Paris. Musée du Louvre, 26; pl. 19.

Peacock, 58.

Pelliot, Paul, 111.

Persepolis, sculptured animals of, 43, 67-69, 74, 149; pl. 31.

Phoenix. *See* Fêng-huang.

Physiologus, 60, 65, 76, 92, 96, 100, 150.

Pierpont Morgan Library, ms., 9, 14, 59, 60, 61, 71, 93, 107; pls. 10, 11, 40, 48.

Plates, silver-inlaid bronze, 26, 27; pl. 18.

Plato hypnotizes the animals, 48, 65.

Pliny the Elder, 76, 77, 91, 103.

Poison:

Antidote against, 99, 109, 111, 114, 131, 132.

Means of detection, 109, 111, 112, 116, 122, 123, 132, 133, 134.

Polo, Marco, 103.

Pottery:

Garrūs, 161.

Mesopotamian, 74, 134, 136; pl. 31.

Persian, 161.

Princeton University. Library, mss.:

al-Qazwīnī (No. 82G), 10, 14, 23, 62, 64, 66, 104, 135, 158; pls. 15, 40, 42, 43.

Shāh-nāmah (No. 56G), 41; pl. 30.

Ṭabā'ī' al-hayawān wa-khawāṣṣuhu, 8.

Pseudo-Callisthenes, 149, 150.

Ptolemy, 75.

Qaṭ'ā, 61.

al-Qazwīnī, 11, 15, 16, 18, 21, 23, 30, 32, 52, 63, 98, 110, 131, 152, 154, 155, 158.
(quoted), 29.

Manuscripts:

Beatty, A. Chester, collection, 9, 14, 50, 59, 61, 66, 157; pls. 14, 41, 43.

Berlin. Staatliche Museen, 9, 50, 59, 61, 62; pls. 13, 41, 42, 44.

Boston. Museum of Fine Arts, 50; pl. 38.

Freer Gallery of Art (07.625), 10, 15, 59, 155; pls. 14, 16.

Harvard College Library, 10, 14, 59, 66.

Keuorkian, H. (in possession of), 9, 16, 59, 61, 62, 66; pls. 13, 16, 41, 42.

New York. Metropolitan Museum of Art, 24, 32, 68, 104, 158; pl. 17.

"Sarre manuscript," 9, 14, 24, 62, 63, 64, 65, 66, 135, 156; pls. 13, 16, 41, 42, 44.

Walters Art Gallery, Baltimore, 8, 10, 14, 16, 17, 48, 65, 156, 161; pl. 22.

Quinsy, cure for, 61.

Rhino-birds, 23.

Rhinoceros:

Antagonism to the elephant, 78-82.

Attacking man, 35-36.

Calf, care of, 63.

Commercial use of, 53-57.

"Communicating with the sky," 145.

Description by:

al-Birūnī, 12.

Classical World, 74-78.

Cosmas Indicopleustes, 59.

Li Hsün, 145.

Timothy of Gaza, 75.

Domesticated, 48.

Elephant-rhinoceros fight, 27, 30, 78-90; fig. 2; pls. 18, 33.

Fierceness of, 147.

Habitat, 87.

Horns, 72, 78, 91, 160.

Hunting the animal, 36, 45-46; pls. 32, 33.

Hypnotized, 48.

Identification with:

Bovine animals, 48, 106, 108; pl. 12.

Horse, 17, 91; pls. 18-20.

Khutū, 130.

Stag, 18, 97.

Legs, jointless, 15, 100.

Magical remedies, 57.

Meat, lawfulness of, 57-58, 95.

Prickly tongue, 103.

Representations in art:

Carpets, 27, 146; pl. 18.

Fresco, 78.

Mirrors, 108; fig. 5.

Rhinoceros—*Continued*Representations in art—*Continued*

Paintings, 157; pls. 12, 32, 33.

Statuette, 151.

Species:

African, 35, 79, 80, 146.

Indian, 86, 87, 146.

Siberian, 20.

Tamed, 48, 49; pls. 14, 36.

Voice, 35.

Zoological opinion, 85-86.

Rhinoceros horn:

Magical powers, 99, 132, 133, 160.

Sharpening of, 77.

Size, 98.

Strength, 78.

Striae, grooves, etc., 53, 102, 135, 145.

Use (by man):

Cups, 111-112, 131, 132, 133.

Ornaments, 53-55, 146; pl. 39.

Sword hilts, 115.

Throne decoration, 103.

Valuation, 53-58.

Ring dove, 23; pl. 15.

Rockefeller, Mrs. John D., ms., 39, 40, 41.

Rosenthal, Franz, 60, 65, 75, 114.

Ṛṣyaśṛṅga, legend of, 95-96.

Rukh, 19, 33-34, 83.

Sabry, Chérif, Pasha, ms., 49, 151-152.

Sarre, Friedrich, 4, 26, 43, 44, 67; pl. 3.

"Sarre manuscript," 9, 14, 24, 62, 63, 64, 65, 66, 135, 156; pls. 13, 16, 41, 42, 44.

Sauvaget, Jean, 5.

Sculpture, stone, 43, 67-68, 74, 109; pls. 3, 31.

Sea-horse, 156; pl. 48.

Sea-Serpent Island. *See* Jazīrat al-Tinnīn.

Shādhavār, 64, 65, 104, 157; pls. 42, 43.

Shāh-nāmah mss.:

Boston. Museum of Fine Arts, 8, 17, 41, 149; pl. 9.

Freer Gallery of Art (30.10A), 39-40; pl. 25.

Kahler, E., 47; pl. 35.

Kevoorkian, H. (in possession of), 41; pls. 27, 28.

Leningrad. Ērmitazh, 42, 43.

Myers, George Hewitt, 40; pl. 24.

New York. Metropolitan Museum of Art, 41, 108-109, 158; pl. 29.

Oxford. University. Bodleian Library, 50.

Paris. Bibliothèque Nationale, 40; pl. 26.

Princeton University. Library (No. 56G), 41, 158, 162; pl. 30.

Shāh-nāmah mss.—*Continued*

- Rockefeller, Mrs. John D., 39, 40, 41.
 Teheran. Gulistān Palace Museum, 39; pl. 23.
 Sharav, 19, 62, 97; fig. 3; pl. 13.
 Attacking other animals, 31, 34.
 Shipley, Sir Arthur (quoted), 76.
Shu'ba, 21.
 Silkworm, 57.
Sīmurgh, 8, 32, 56, 69; pls. 8, 17, 18, 34-37.
 Sinād:
 Horn, 64.
 Identification with bovine animals, 63; pl. 42.
 Identification with the karkadann, 62-64.
 Pregnancy, strange, 16, 62; pl. 16.
 Tongue, thorny, 63.
 Sindbad, voyages of, 30, 31, 83.
 Sirānis, 65.
 Snakes, 62; pl. 40.
 Sohn-Rethel collection, 46, 89; pl. 33.
 Solinus, 77, 91.
 Spenser's *Faerie Queene* (quoted), 45.
 Sphinxes, 3, 24, 28.
 Stone, George Cameron, 127.
 Stora, R., 3, 25; pl. 4.
 Stott, Ken (quoted), 80, 87.
 Strabo, 100.
 Sulaimān and the animals, 47; pls. 34, 35.
 Symbolism of the animals, 157.

 Talking tree, 50-51, 151; pls. 6, 38.
Talmud, The, 59.
Tang hui yao (quoted), 54.
Ta'rih-i Mubārak-Shāhī (quoted), 45.
al-Tawhīdī, Abū Haiyān, 11, 18, 92, 96.
 (quoted), 60.
 Teheran. Gulistān Palace Museum, ms., 39; pl. 23.
 Tell Asmar seal, 83, 84; fig. 2.
 Textile Museum. Washington, D. C., 160.
 Thrones of horn and ivory, 104.
 Thunberg, Karl Peter (quoted), 132.
 Tiles, 26, 27; pls. 18, 19.
 Timothy of Gaza, 75, 84.
 Togan, Zeki Validi, 60, 118.
 Torture in China, 63, 103.
 Trade routes, 128-129.
 Tramontana, 80, 81.
 Trays, 26, 160.
 Turks, influence of, 121-124, 134.

'Ubaid Allāh ibn Jibril ibn Bukhtīshū', 6, 11.

Unicorn:

- "Apocryphal," 67-70; pls. 17, 45.
- Description, 3-5, 6, 8, 10, 17, 70, 109-142; pls. 1-6.
- Horn, 120; pl. 47.
- Hunting the animal, 36-37, 60, 92, 93.
- Iconographic problem, 3-5; pls. 1-6.
- Identification with a kid, 92.
- Literature cited on, 163-191.
- Lore, influenced by, or found in:
 - Ancient Orient, 73-74; pl. 31.
 - Bible and Christian literature, 92-93.
 - China, 68, 101-109.
 - Classical world, 74-91.
 - India, 81, 94-101; fig. 2.
 - Medieval world, 109-142.
 - Muslim civilization, 1-72, 91, 137-138.
 - Renaissance, 84.
 - Seljuk period, 74.
- Medicinal qualities, 57, 61, 109-111, 113, 130, 133.
- Unicorn-elephant fight, 3, 28, 84; pls. 3, 18, 19, 21, 22.

Varieties of:

Classical:

- Horse, 91.
- Indian ass, 74, 91.
- Oryx, 64, 91, 97.
- Rhinoceros, 74-93.

Far Eastern:

- Ch'i-lin, 66, 68, 69, 70, 104, 106, 157; pls. 17, 45.
- Hsi, 107.
- Hsieh-chai, 66, 104, 106, 107, 157; pl. 43.
- Ku-tu-hsi, 118, 120, 122-123, 130, 133, 134, 136.
- Pai-tsê, 66.

Marine, 120-121.

Muslim:

- Antelope, identified with, 18, 38, 41, 43, 61, 71, 97, 155; pls. 7, 13, 26, 27, 29.
- Buffalo, identified with, 12, 13, 107, 155; pl. 14.
- Bulān, 67.
- Camel, identified with, 13.
- Chatuq, 116, 122.
- Ḥarish, 18-19, 60-62; pl. 41.
- Horse, identified with, 13, 15, 16, 17, 155, 156; pls. 18-20.
- Karg, 37-41; pls. 23-30.
- Karkadann, 13-17, 47-72.
- Khutū, 114-120, 136, 144.
- Lion, identified with, 17-18, 62, 67; pls. 1, 2, 9, 24.
- al-Mī'rāj, 66; pl. 44.
- Shādhahvār, 64, 65, 104, 157; pls. 42, 43.

Unicorn—*Continued*Varieties of—*Continued*Muslim—*Continued*

Sharav, 19-20, 31, 34, 62, 97; fig. 3; pl. 13.

Sinād, 62-64.

Wild ass, 28, 67, 71; pl. 20.

Wolf, identified with, 37-41, 43, 62; pls. 23, 25, 41.

Virgin-capture of, 60, 92.

"Water-conning," 150.

University of Chicago. *See* Chicago. University.

Valle, Pietro della, 121.

Venice, Treasury of San Marco, 120; pl. 47.

Vessels:

Bronze, 3, 25, 26, 27; pls. 4, 18, 19.

Glass, 3, 17, 25, 28; pls. 1, 20.

Pottery, 74, 134, 136, 161; pl. 31.

Silver-inlaid canteen, 3; pl. 3.

Virgin and the unicorn, 60-61.

Walrus, 125, 129.

Walrus tusk, 120, 121, 124, 135; pl. 47.

Walters Art Gallery, Baltimore:

Ivory knife handle, 56; pl. 47.

Manuscripts:

'Ajā'ib al-makhlūqāt, 14, 17, 48, 65, 156, 161; pl. 22.

Bābur-nāmah, 46; pl. 32.

al-Qazwīnī, 8, 10, 14, 16, 17, 48, 65, 156, 161; pl. 22.

Wang Pi-chih, 102.

Wāqwāq island, 50, 55.

"Water conning," 150.

Water horse. *See* Faras al-mā'.

Widener collection. *See* National Gallery of Art, U.S.A.

Williamson, Capt. Thomas, 82.

Winged cat, 24.

Winged equine beasts, 44; fig. 1.

Winged griffon, 70.

Winged karkadann, 24-25, 26-27, 32, 47, 156, 159; pls. 1-5, 7-9, 17-21, 25, 31, 35.

Winged lion, 3, 25; pls. 1, 2.

Winged men, 25.

Winged rabbit, 25.

Winged unicorn, 3, 4, 8, 28, 43; pls. 1-5, 7-9, 17-20, 25, 31, 35.

Wisū, 128.

Wolves, 37-41, 43, 62; pls. 23, 25, 28, 41.

Yaḥmūr, 71; pl. 46.

Yak, 103.

Yale (mythical animal), 76.

Yāqūt, 152.

Zafar-nāmah, 45-46.

al-Zamaksharī, 17, 58, 147.

(quoted), 58.

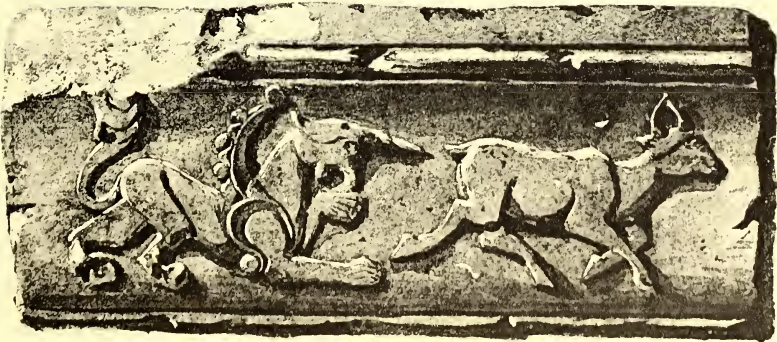
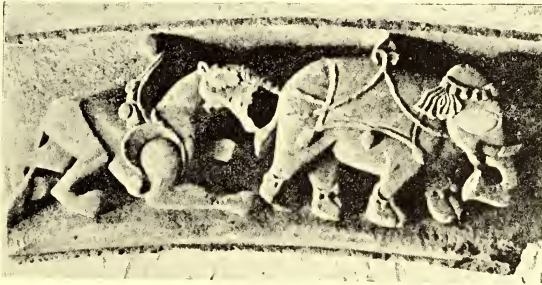
Zebu, 14; pl. 11.



Enameled glass vessel. Freer Gallery of Art, No. 33.13.



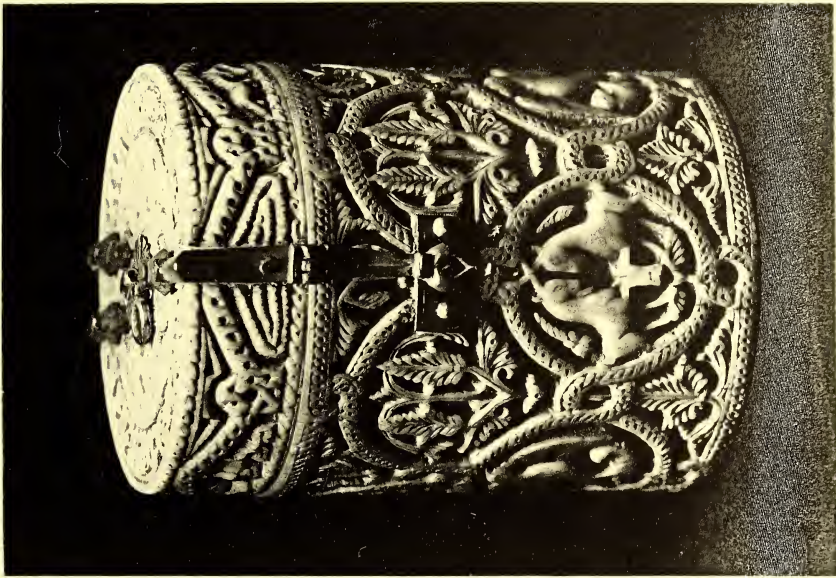
Unicorns on glass vessel of plate 1.



Upper: Details of a bronze canteen. Freer Gallery of Art, No. 41.10.
Middle and lower: Sculptures from Konya (after 225, fig. 12, and 227, pl. 17).



Detail of decoration on a bronze bucket. Courtesy of R. Stora, New York.



Left: Detail of ivory box. Pamplona, Cathedral. Right: Ivory box. Courtesy of the Marquis de Ganay, Paris.



Plaque, Madrasa Muqaddamiya, Aleppo. Photograph courtesy of M. Jean Sauvaget.



صورة كوردان أو دابة أو سمكة وما
 شاكل ذلك: وأهل الصين يخذون منه
 مناطق يبلغ قيمته المنطقه منه ما يدرين

٤٤

"Kardunn" from a *Na't al-hayawān* manuscript. Courtesy of the Trustees of the British Museum.



Miniature from a *Mu'nis al-ahrār* manuscript. Photograph courtesy of the Cleveland Museum of Art.



"Iskandar Battling a Karkadan." Courtesy of the Museum of Fine Arts, Boston.



“Karkadan” from a *Manāfi’-i ḥayavān* manuscript. Photograph courtesy of The Pierpont Morgan Library.

زود بارشود و باینکه ماده از نو قوی تر باشد و نوبت سال دهنه مایه و ماده بازده سال و آلوده در کوشک و کندمیزد

بسیار داد

طردنگار

۰۰۳۰۶

خاصیت

گوشتکاو غلیظست دود هضم نسود تولد سودا کند و جوز بر اما سها همد متخلل کرد اند و اگر بوزخم کین مردم
همد نیک شود و دزد بنسازد دماغ او باز و غن کراخته کرد آمد و بر مفاصل طلی کند دزد سالن کرد اند مغزکاو



کراخته کرد اند با
ر و غن غار غن
جوز و تر و دست
ندان نه هین کرد اند
سساند مغز کوساله
بار و غن کراخته
کرد اند و زرد داد
سک باشد اما سها
رحمی را و نرم کند
به با و باعد سخته

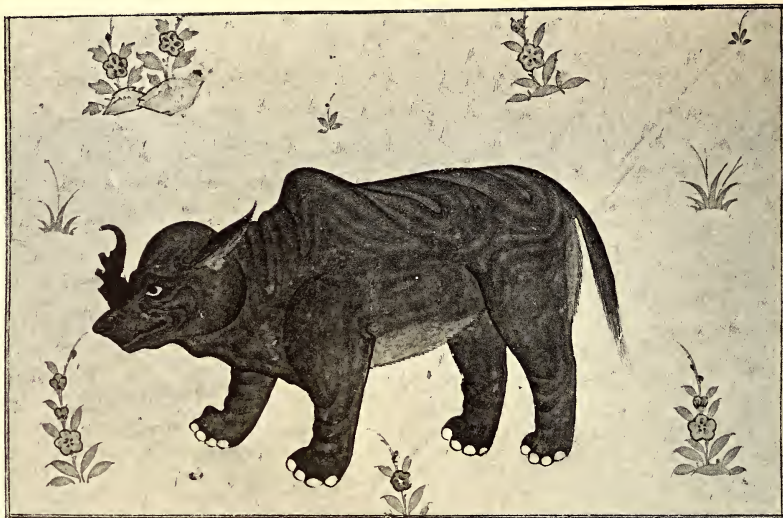
"Domestic Oxen" from a *Manāfi-i hayavān* manuscript. Photograph courtesy of The Pierpont Morgan Library.



Lohan on a rhinoceros. Freer Gallery of Art, No. 19.174.



Representations of the karkadann. Upper left: Photograph courtesy of Islamische Abteilung, Staatliche Museen, Berlin. Upper right: Courtesy of H. Kevorkian, New York. Lower: Photograph courtesy of the owner.



Representations of the karkadann. Upper: Courtesy of A. Chester Beatty, Esq., London. Lower: Freer Gallery of Art, No. 07.625. *folio 465 verso*



از روی ترسند و پند گویند که مفضلان بزد و سگسال در
کوچ کرده است میان قرون و خا و غیر از کلاک این جمیع

Left: Island scene with a karkadann. Right: The lure of the ring dove. Courtesy of Princeton University Library.



سیاحه والحاله وقالیناس ان شد من هذا البر على حد صاحب التولج سمع وزعم انه جربه
حوان على صفة الفيل الآنة اصفر جسمًا منه واعظم من الثور. و اذا اراد الانثى الولادة فيخرج الولد ذات
من الرحم قبل ان يلقيه ويرعى فاذا القته هرب من الام محامد ان يلحيه بلسانها فان لسانها شبه الثوب.

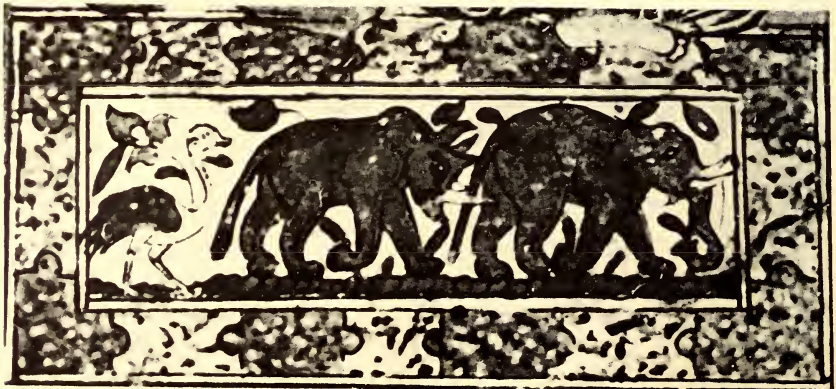


54.92 recto

Upper: "Shutur-gāv-palang." Freer Gallery of Art, No. 07.625. Lower: "Sinād." Courtesy of the owner.



Right title page of an al-Qazwini manuscript. Courtesy of the Metropolitan Museum of Art.



The karkadann pursuing an elephant. Upper: On a tile. Photograph courtesy of Islamische Abteilung, Berlin. Middle: On a bronze plate. Hermitage, Lenin-grad. Lower: On a carpet. Courtesy of the Bodleian Library, Oxford.



The karkadann pursuing an elephant. Upper: On a bronze. Photograph courtesy of D. S. Rice.
Lower: On a tile. Courtesy of the Museum of Fine Arts, Boston.



Enameled glass vessel. Photograph courtesy of H. Kevorkian, New York.



Mughal carpet. Photograph courtesy of the National Gallery of Art, Washington (Widener collection).

کند و میرد آنکه روز کار در از غنچه نوحه کند تا چو دیگر را بدو چو در شکم مادر سپرد
 از فرخ مادر برین کند و مادرش طعام می دهد و بجای از میشود جانور سیت
 مملکت بهبایم مانند سب و سرو و دنبال کا و سباع مانند که دیت و پای
 شیر دارد و گردن سب و یک سرو دارد و محکم از پستانه می و ای را آمده و با



پیل در آویزد و پیل را بر سپرد دارد و با فیل عداوت دارد و جنگ کند
 و سرو می دارد و معقف در شت فیل آویزد همچنان مانند تا هر دو هلاک
 شوند و اگر گردن از عمر آن دور باشد و حدت می سوزند و است و گویند

The death of the elephant. Photograph courtesy of the Walters Art Gallery, Baltimore.



Isfandi-yār killing two karg monsters. Teheran, Gulistān Palace.

زبلا و بهنای اندام اوی
 خرابان از این شمشیر گرفتند
 دیگاران از کراسته میاز
 زهکش می بستند بزم
 نو در می بکند در این
 راجه دایره خسته بکند
 زارنج کل ستوری شاه بیهت
 امرا زنده رشتان داد حکاک
 که اندازند زنده برون برون
 توفیق بود آری در رو این
 بر از خشم دایره زنگار
 زرش بر ورده سرخساک
 برون نشان باغی کشت کرد
 مواجسته بجز بجای کان
 سکار از شاه شاه او زرش



بزرگداشت کمال زلفهای
 چه نمود کز کشت خرم و زلف
 بپرشت او خجدا بر اینان
 جواز در دیدن خرم اوی
 به شکر کنت شلمان
 نکوست کشتن آکوه و سنگ
 بشکست چرخ کبیر راه
 خنجر داغ یازان کاک
 کلخ کمر کزین بود
 کار بزه کوه در چران
 ماند همان تا بفر کک
 کمان کانی کزنده بکند
 بتی تبار بزم چون تکر
 جدا گشت کور اسر بفرمان
 سر کز است به بید گشت

بهرام گور کشتن گاو و گوسفند و بز و گاو
 فوارانها با زار بزم هر دو
 ز موزاسکان و کور و زرش

Bahrām Gūr killing a karg. Freer Gallery of Art, No. 30.10, reverse.



Gushtāsp killing a karg. Bibliothèque Nationale, Paris.



Bahrām Gūr killing a karg. Courtesy of H. Kevorkian, New York.



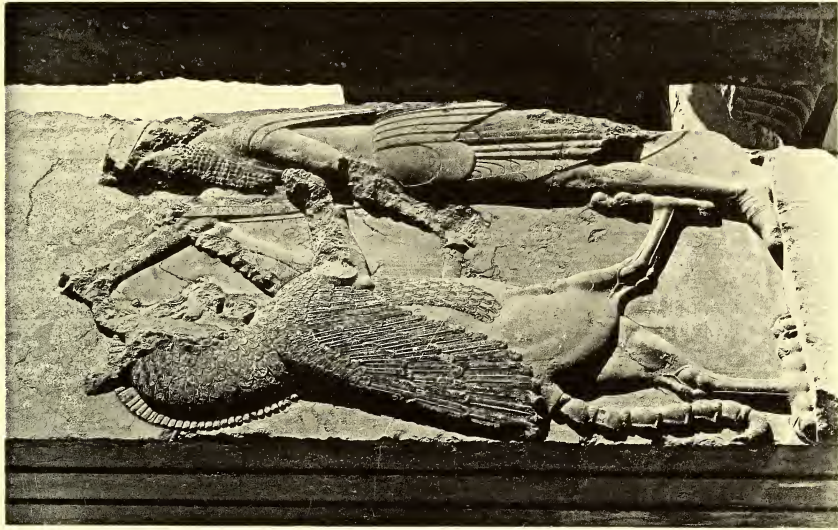
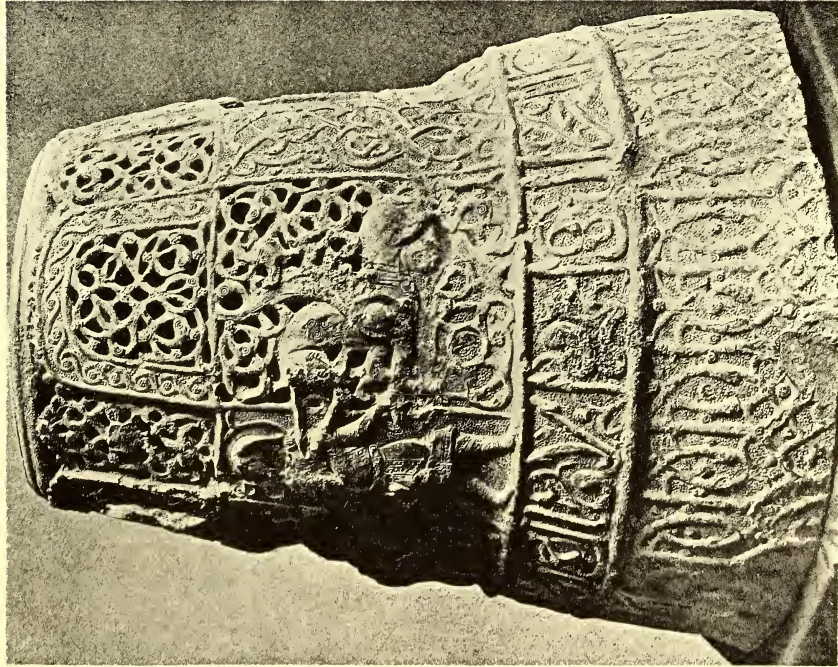
Isfandiār killing karg monsters. Courtesy of H. Kevorkian, New York.



Isfandiār killing karg monsters. Courtesy of the Metropolitan Museum of Art.



Isfandiār killing karg monsters. Courtesy of Princeton University Library.



Left: Pottery vessel. Photograph courtesy of Islamische Abteilung, Berlin. Right: Persepolis, Palace of Darius. Courtesy of the Oriental Institute, University of Chicago.



Bābur on a rhinoceros hunt. Photograph courtesy of the Walters Art Gallery.



Jahāngīr on a rhinoceros hunt. O. Sohn-Rethel collection, Düsseldorf (after 156, p. 418).



Bilqīs surrounded by animals. Courtesy of H. Kevorkian, New York.



Sulaimān's host. Courtesy of Dr. E. Kahler, Princeton.



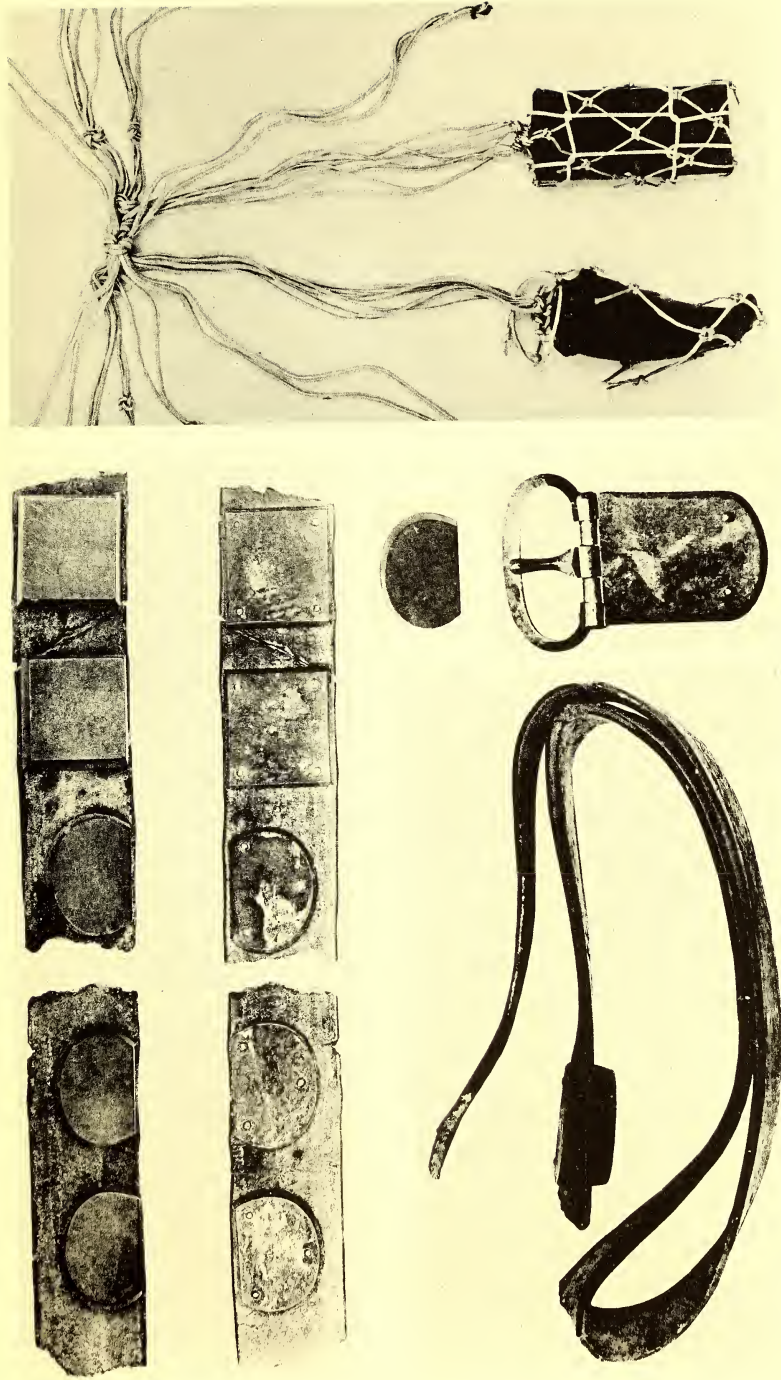
Lailā visiting Majnūn. Photograph courtesy of N. Heerameneck, New York.



The animal kingdom. Freer Gallery of Art, No. 45.29.



The Island of Wāqwāq. Courtesy of the Museum of Fine Arts, Boston.



Left: Girdle with plaques of rhinoceros horn and silver buckle. Right: Pendant ornaments in form of containers made of rhinoceros horn. Nara, Shōsōin (after 147, vol. 7, pl. 33; vol. 1, pl. 20; vol. 7, pl. 51).



جرس و خاصه سناو

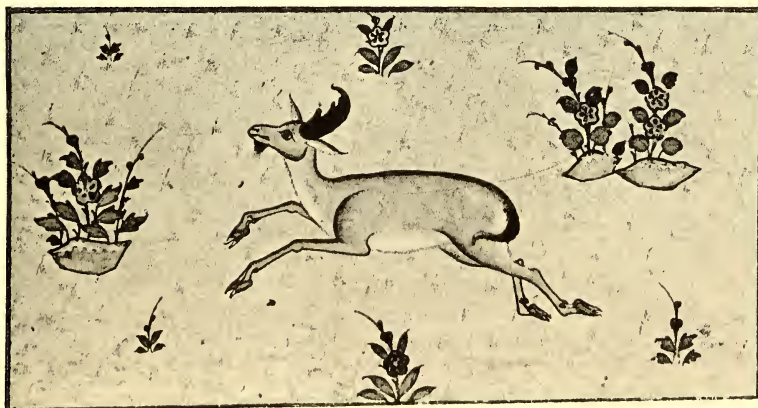
جرس جانور کاست قوت ناک و نکلرود و در میان بر سر و داد راست قایم او بزهد جانوران نبرد و بکومتد



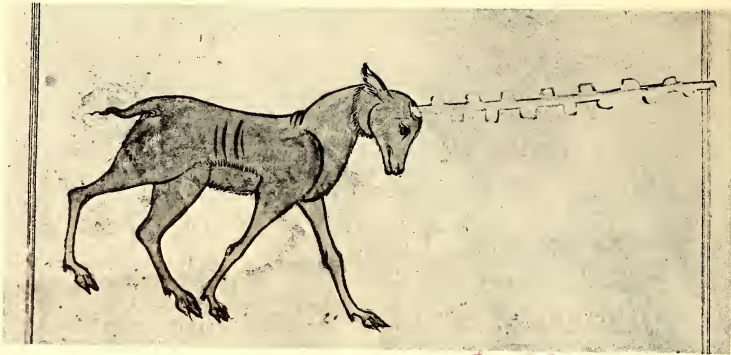
Upper: Snake harish. Courtesy of Princeton University Library. Lower: The capture of the harish. Photograph courtesy of The Pierpont Morgan Library.



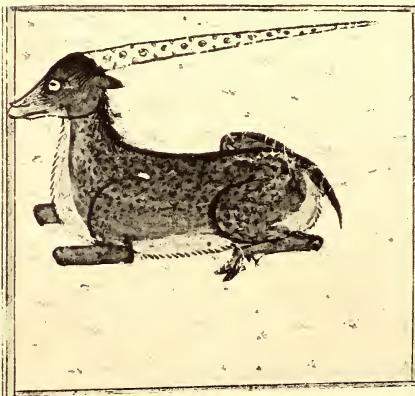
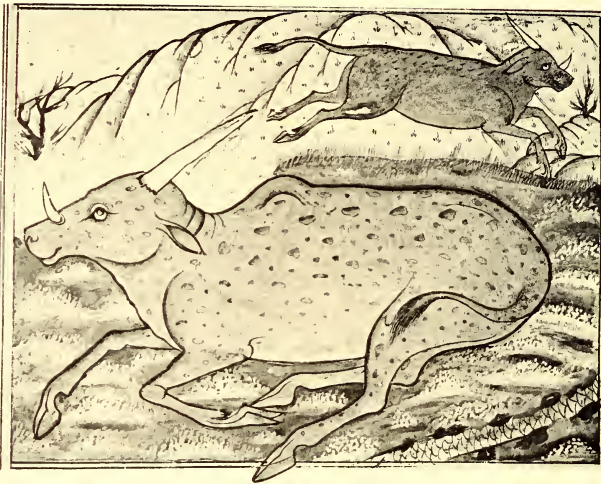
54.90 recto



The harish in al-Qazwini manuscripts. Upper: Courtesy of the owner. Middle left: Photograph courtesy of Islamische Abteilung, Berlin. Middle right: Courtesy of H. Kevorkian, New York. Lower: Courtesy of A. Chester Beatty, Esq., London.



54.93 verso



Upper: "Shādhahvār." Photograph courtesy of the owner. Middle: "Sinād." Courtesy of Princeton University Library. Lower left: "Shādhahvār." Courtesy of H. Kevorkian, New York. Lower right: "Shādhahvār." Photograph courtesy Islamische Abteilung, Berlin.



The lure of the shādhahvār's horn. Upper: Courtesy of Princeton University Library. Lower: Courtesy of A. Chester Beatty, Esq., London.



54.61 recto

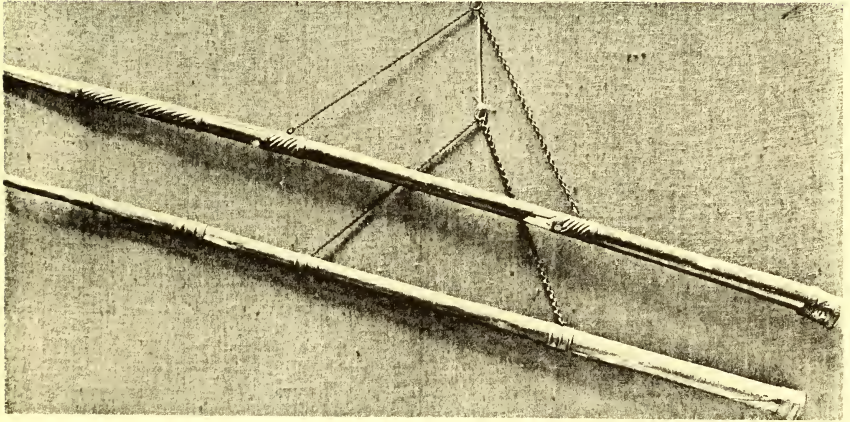
The Mi'raj in al-Qazwini manuscripts. Upper: Photograph courtesy of Islamische Abteilung, Berlin. Lower: Courtesy of the owner.



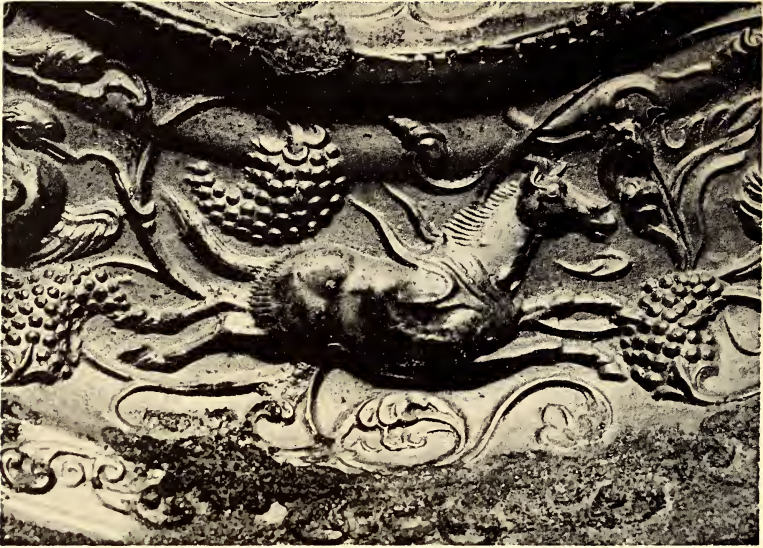
Dragon, lion, and chi-i-lin. Freer Gallery of Art, No. 48.17.



“Yahmūr,” from a *Manāfi’-i ḥayawān* manuscript. Freer Gallery of Art, No. 38.2.



Upper: Detail of lower "Unicorn horn" shown below. Middle: "Unicorn horns." Treasury, San Marco, Venice (after 238, figs. 211 and 212). Lower: Knife with handle of walrus ivory. Photograph courtesy of the Walters Art Gallery.



Upper: "Hai-ma" on bronze mirror. Freer Gallery of Art, No. 44.5.
 Lower: "Asb-i ābi" from a *Manāfi' -i hayavān* manuscript. Photograph
 courtesy of The Pierpont Morgan Library.

SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01575 4989

