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Illustrated by Olga Ley

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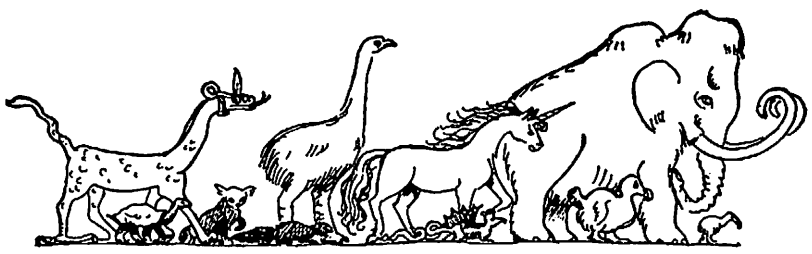
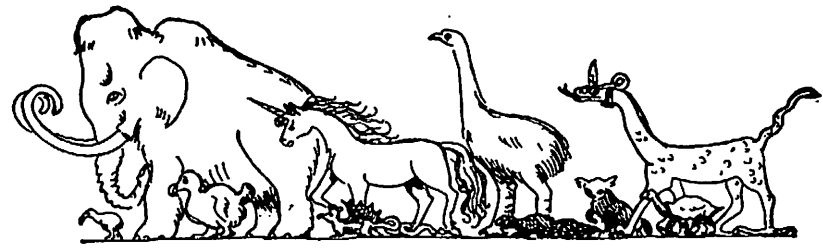




CHAPTER 1

The Legend of the Unicorn

OF ALL the mythical animals that have ever inhabited the pages of old books or decorated the walls of castles, the most charming and impressive—I am tempted to write, the most mythical—is indubitably the unicorn. Presumably part of its impressiveness lies in its aloofness: it does not voluntarily deal with people. The other fairy-tale fauna which gradually developed during the latter part of the Middle Ages always had some connection with humanity. Dragons guarded treasures and stole fair maidens. Basilisks killed anybody who happened to come near. Giants usually behaved like the overgrown louts they were. But the unicorn stood aloof. And the unicorn was the only one that was beautiful.

Under these circumstances it is almost sad to have to report that the story of the unicorn begins with a classical error, or at least what looks like an error several handfuls of centuries later.

The books of the Old Testament were of course originally written in Hebrew. In the third century B.C. it was felt that they should be translated into the universal language of educated people of the time, namely Greek. A group of scholars, later simply called the Seventy, went to work and in due time produced the version of the Bible which is now called the Septuagint. Of course there were the usual difficulties which accompany any translation. Idiomatic terms do not match in the two languages between which the transfer of ideas is to take place. Or else a word may have several meanings in one of the two languages and just one specific meaning in the other one. And so forth. In addition to these purely linguistic difficulties, which usually can be overcome with knowledge and persistence, one often runs into the problem of local facts of Nature. A plant which is

common in one country and has a common name may not exist at all in the other country. The same goes for animals.

The Seventy ran into one of these cases.

The Hebrew writers had spoken with some awe about an animal which they called *Re'em*. They knew it well; hence they had not bothered to describe it. They had not even stated its size. All one could gather from their statements was that the animal was exceedingly intractable in every respect. By implication it was also large, for the fiercest and most intractable small animal still fails to inspire awe. The Seventy needed a Greek word to substitute for *Re'em*. It is not reported how long they hesitated, but finally, possibly under the influence of dim recollections of more or less vague rumors, they used the Greek word *monokeros*. In English this means unicorn.

By so doing the Seventy established a precedent which later Bible translators had to follow. The Latin version, the Vulgate, said *unicornus,* the French Bible said *licorne,* and Dr. Martinus Luther in Germany wrote *Einhorn;* all meaning the same—one- or single-horned. And that is why Job 39:9–12, in the King James version of the English Bible, reads:

> Will the unicorn be willing to serve thee, or abide by thy crib?
>
> Canst thou bind the unicorn with his band in the furrow? or will he harrow the valleys after thee?
>
> Wilt thou trust him, because his strength is great? or wilt thou leave thy labour to him?
>
> Wilt thou believe him, that he will bring home thy seed, and gather it into thy barn?

This passage, incidentally, is not the only one in the Bible that mentions the re'em; there are seven altogether, three of them in the Psalms.

The translation of re'em into monokeros had one main result: for many centuries to come the existence of the unicorn could not be doubted; it was mentioned in the Bible.

Before we go on with the story of the unicorn legend it might be well to find out just what the re'em really was. For some time scholars of antiquity in general and of the Bible in particular thought that the writers of the original had meant the oryx antelope, of which the Arab name is *rim*. In fact, the oryx did have the reputation of being a formidable enemy, one that could by no means be trusted. The logic was sound but it collapsed just the same when an animal

called *rîmu* showed up in Assyrian texts. This time there were pictures to go with the texts and the pictures showed that the animal in question was *not* an antelope. It was a wild ox. Zoologists had little trouble identifying it; it was the *Bos primigenius* of zoological works, the wild and large ancestor of our domestic cattle: the urus.

None of the Seventy had presumably ever seen an urus, since it no longer existed where they lived at the time they lived. But it would have been possible for them to have seen one, because at the time they were making their translation the urus, now extinct, was still alive in the forests north of the Alps, in the immense and frightening Hercynian Forest which the Romans, Julius Caesar among them, later described with all the rhetorical flourishes of which they were capable.

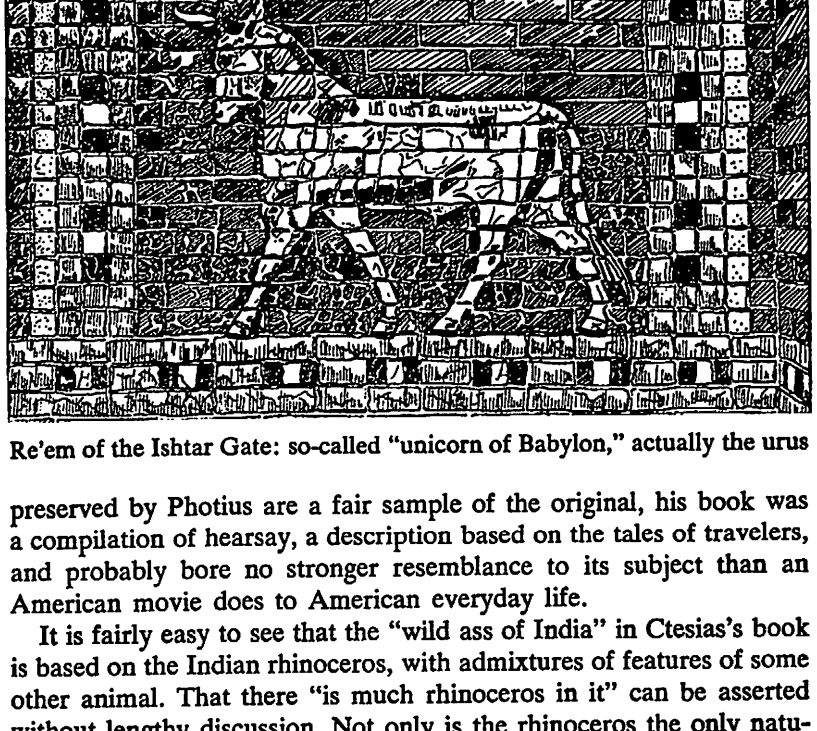
Now that the identity of the re'em is established it remains to trace the reverse of the linguistic decision of the Seventy. If the re'em was not the monokeros, what was the monokeros?

And here the story of the unicorn begins in earnest.

The unicorn made its first appearance in the writings of Ctesias, Greek historian and one-time body physician of the Persian King Artaxerxes II. Ctesias returned from Persia around the year 398 B.C., and while residing at Cnidus wrote two works. One of these was a history of Persia in twenty-three books, of which all but fragments have been lost. The other was a book on India, which is still known to us in the form of a condensed abstract made some thirteen hundred years later by one Photius, then Patriarch of Constantinople. Part of this abstract runs as follows:

> There are in India certain wild asses which are as large as horses, and larger. Their bodies are white, their heads dark red, and their eyes dark blue. They have a horn on the forehead which is about a foot and a half in length. The dust filed from this horn is administered in a potion as a protection against deadly drugs. The base of this horn, for some two hands'-breadth above the brow, is pure white, the upper part is sharp and of a vivid crimson; and the remainder, or middle portion, is black. Those who drink out of these horns, made into drinking vessels, are not subject, they say, to convulsions or to the holy disease [epilepsy]. Indeed, they are immune even to poisons if, either before or after swallowing such, they drink wine, water, or anything else from these beakers. . . .

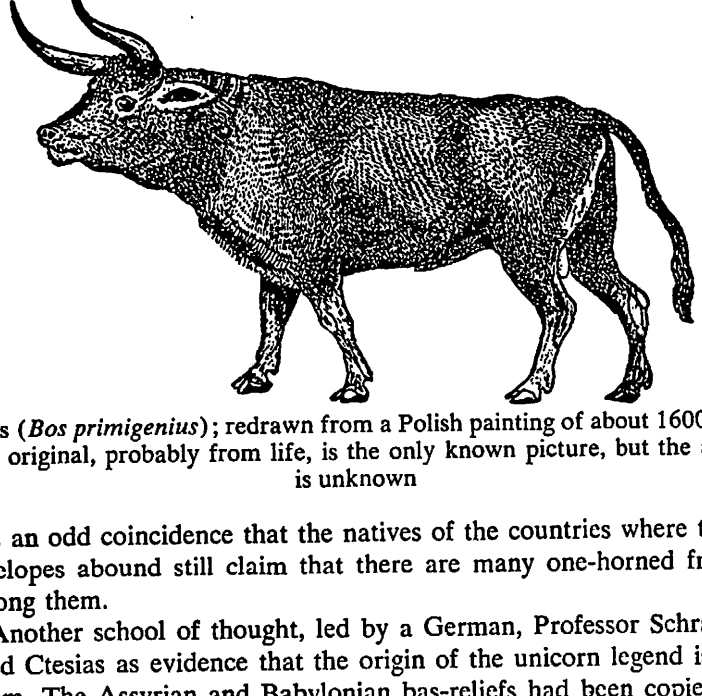
This report, a few lines that grew into a library of hundreds of volumes, needs a little explanation. Ctesias, in writing about India, wrote about a country he had never seen for himself. If the parts



Re'em of the Ishtar Gate: so-called "unicorn of Babylon," actually the urus

preserved by Photius are a fair sample of the original, his book was a compilation of hearsay, a description based on the tales of travelers, and probably bore no stronger resemblance to its subject than an American movie does to American everyday life.

It is fairly easy to see that the "wild ass of India" in Ctesias's book is based on the Indian rhinoceros, with admixtures of features of some other animal. That there "is much rhinoceros in it" can be asserted without lengthy discussion. Not only is the rhinoceros the only naturally one-horned animal, but also it has other features that agree with Ctesias's story. He mentioned somewhere else, for example, that this animal is swift of foot and that its speed increases while running. This applies to the rhinoceros. It also corresponds with facts of rhinoceros lore that the horn was said to be of pharmaceutical value. Rhinoceros horn was and still is considered a powerful drug in the Far East, and wealthy and elderly Chinese literally pay its weight in gold because they hope to regain their manhood by taking pulverized rhinoceros horn internally. Beakers of rhinoceros horn were frequent even in ancient times. And some of them were adorned with the three colors Ctesias described as the natural colors of the horn. It is probable that there was some mystic value attached to this color scheme, although we do not know now what or why. Those features of Ctesias's "wild ass" that are not traceable to the rhinoceros probably came from an antelope of some sort. The black buck of India suggests itself, and



Urus (*Bos primigenius*); redrawn from a Polish painting of about 1600 A.D. The original, probably from life, is the only known picture, but the artist is unknown

it is an odd coincidence that the natives of the countries where these antelopes abound still claim that there are many one-horned freaks among them.

Another school of thought, led by a German, Professor Schrader, cited Ctesias as evidence that the origin of the unicorn legend is the re'em. The Assyrian and Babylonian bas-reliefs had been copied by the Persians on the walls of the Royal Palace in Persepolis, where Ctesias no doubt saw them. Professor Schrader pointed out that these bas-reliefs show the urus in very strict profile, so strict, in fact, that only one horn is visible. Dr. Othenio Abel and Professor C. Antonius strengthened Professor Schrader's arguments by calling attention to the fact that these famous bas-reliefs—aside from being somewhat heraldic in design—are not absolutely accurate in detail. Although there is no mistaking the general appearance of the urus, small details are either missing or wrong, because the artists no longer had live models at their disposal. The Babylonian bas-reliefs date from the time of King Nebuchadnezzar (around 600 B.C.), when the urus had already been extinct in Mesopotamia for about a century. By the time the Persians copied them on the walls of the Royal Palace, the urus was already something of a fabulous monster. Its size, strength and fierceness made it particularly suited to attracting myths within a short time. When Ctesias the Greek came to Persia, in all probability there was a sufficient supply of fables on hand to be related to travel

ing foreigners. Also, it can be safely assumed that Ctesias was only superficially acquainted with the languages he heard spoken around him in Persepolis.

In spite of all this I do not think that Ctesias was noticeably influenced by the Persian reliefs. The next important sources of the unicorn legend after Ctesias point another way. These sources are Roman: Aelian, who wrote in Greek although he lived in Italy; Pliny the Elder; and Julius Solinus.

Aelian spoke of inaccessible mountains in the interior of India and of the strange beasts that could be found there. Among them, he said, "is the unicorn, which they call *cartázonos*. This animal is as large as a full-grown horse, it has a mane, tawny hair, feet like an elephant, and a tail like a goat. It is exceedingly swift." At first glance descriptions of this kind seem to be merely *caprices zoologiques,* with the unicorn growing more and more fantastic. Actually Aelian was only trying to describe the rhinoceros, its heavy feet, its small tail, and its other characteristics. The name *cartázonos* is probably a Greek corruption of the Sanskrit word *kartajan,* Lord of the Desert, or, better, Lord of the Wilderness.

Pliny, with his habit of military precision, came still closer to the original when he wrote:

> The Orsaean Indians hunt an exceedingly wild beast called monoceros, which has a stag's head, an elephant's feet, and a boar's tail. The rest of the body is like that of a horse. It makes a deep lowing noise, and one black horn two cubits long projects from the middle of the forehead. This animal, they say, cannot be taken alive.

We are apt to smile when we read this description nowadays. But if compared word for word with a good photograph of an Indian rhinoceros it is not so bad at all. It is the words chosen that make us smile; the facts are not so wrong.

The climax of all unicorn descriptions was reached by Julius Solinus in his *Polyhistoria.* This Roman found a worthy translator in Arthur Golding (1587), who rendered the original as:

> But the cruellest is the Unicorne, a monster that belloweth horrible, bodyed like a horse, footed like an elephant, tayled like a Swyne, and headed like a Stagge. His horn sticketh out of the midds of hys forehead, of a wonderful brightness about foure foote long, so sharp, that whatsoever he pusheth at, he striketh it through easily. He is never caught alive; kylled he may be, but taken he cannot bee.

Dr. Odell Shepard, who has traced the literary history of the unicorn in his delightful book *The Lore of the Unicorn* (Boston: Houghton Mifflin, 1930), remarks of this passage: "Whatever rhetoric can do to make the unicorn impressive Solinus has done." And Golding did everything to preserve the flavor of the original Latin.

Soon after Solinus the history of the unicorn "goes wild." The Semitic literature delighted in exaggerating its size to impossible dimensions. The Arabs said that the unicorn loved to pierce elephants with its horn (later, in medieval Europe, similar stories made their appearance, sometimes about the unicorn, sometimes about the rhinoceros), but that it never succeeded in shaking the carcass from its horn. Thus, after three or four dead elephants had accumulated on its horn, the unicorn lost its mobility and fell prey to the roc. The Jews competed with the Arabs in unicorn tales worthy of Baron von Münchhausen or Paul Bunyan and quoted the Talmud about its size, which was so incredible that Noah could not find room for it in the Ark, so that it had to swim for the entire duration of the Flood and could only occasionally rest the tip of its horn on the Ark.

Travelers to those magic countries in the East did not forget to look for the unicorn. And if they really found it—that is, the real "unicorn," the rhinoceros—they were often bitterly disappointed. Instead of a glorious and colorful wonder animal, they saw a rather ugly monster. Marco Polo could not conceal his disappointment when he wrote:

> They have wild elephants, and great numbers of unicorns, hardly smaller than elephants in size. Their hair is like that of a buffalo, and their feet like those of an elephant. In the middle of the forehead they have a very large black horn. You must know that they do not wound with their horn but only with their tongue and their knees. For on the tongue they have very long sharp spines, so that when they become furious against someone, they throw him down, and crush him under their knees, wounding him with their tongue. Their head is like that of a wild boar, and is always carried bent to the ground. They delight in living in mire and mud. It is a hideous beast to look at, and in no way like what we think and say in our countries, namely a beast that lets itself be taken in the lap of a virgin. Indeed, I assure you that it is quite the opposite of what we say it is.

Small wonder that such a disappointing sight usually caused disbelief that the rhinoceros was the unicorn. This elephantine and ugly creature could not be the same as that glamorous one! They had to be different animals—both with one horn, it was true, but otherwise as different as night and day. The rhinoceros had to be

overcome by brute strength while the unicorn yielded to much more subtle measures.

This was the strangest and most curious development in unicorn lore. It was Christian mythology that had slowly but surely made the unicorn a slave to virgins. According to ancient tradition it could not be captured, but the new Christian legend found an exception. Yes, it could be captured, but not by a man. A virgin must go into the forest where the unicorn roams and wait there patiently. Then, after a little while, the unicorn would come and put its horn into the lap of the virgin, lose its power and fierceness, and fall asleep. Then the hunters who had hidden themselves in trees would come and take the royal beast prisoner. The medieval myth has, strange to say, baffled learned commentators for a substantial number of decades. They wrote in endless circles around it, not one of them having the courage to look in the right direction. After all, what is white, dark at the base and tipped with red, and loses its power in the lap of a virgin? Maybe a symbolism can be so obvious that it is not recognized, but I harbor considerable doubts about it.

But while the legend of the unicorn went off into erotic fantasies in one direction, it simultaneously veered into very practical matters in another. From the days of Ctesias the horn of the unicorn—called "alicorn" to avoid the cacaphonous term "unicorn horn"—had been taken to be an antidote against any kind of poison an assassin might concoct. It worked "unfailingly" in several ways. If the poison had already been swallowed, scrapings of alicorn had to be taken internally. It was safer to form the alicorn into a beaker so that any poison mixed into liquids would be eliminated in advance. Or if the alicorn were used to touch food it would reveal the presence of poison in some manner, thus guarding the feasting king or nobleman. Naturally many people, from the merchant prince who was merely rich to the real prince who wielded power, wanted to possess an alicorn, or parts of one, since they were most frequently the ones whom a rival or an enemy might want to poison. Naturally the price of alicorn climbed accordingly, and quite soon it reached a simple mark: "weight for weight, alicorn for gold."

It was inevitable under these circumstances that alicorn was falsified.

Some traders were unscrupulous enough to try to pass the horn of a rhinoceros as alicorn; superstition doubled back on itself in this case. There were also horns of black bucks and other antelopes on

the market. In Northern Europe *unicornum verum* and *unicornum falsum* were strictly distinguished. The former, "true alicorn," was usually found in the earth—actually mammoth tusks—while the false alicorn came in quantities from the North—actually the tusk of the narwhal, a marine mammal. In fact, practically all the unicorn pictures in ancient books show a horn evidently based on the tusk

Gesner's "unicorn of the seas," actually the narwhal (*Historia Animalium*, vol. III, 1555). The "horn" is mistakenly drawn on top of the head, instead of as a tusk protruding from the mouth.

of the male narwhal. That the female does not possess this tusk makes its function seem very mysterious. If it were a weapon or useful as a tool, both sexes would show it. It seems really to be as much an ornament in nature as it became on the king's table or in the apothecary's shop.

A few skeptical Italians during the Renaissance were the first to attack the supposed medical virtue of alicorn. They fought against every pharmacist who had one chained to the counter in his store. The apothecary was very proud of his alicorn, but not too proud, of course, to refuse a sale if the heap of gold coins on his counter grew large enough.

Popular belief in alicorn remained strong for a long time and it put some learned men into difficult situations from time to time. The very learned Konrad Gesner of Zürich, who lived during the sixteenth century, was the municipal physician of his town, salaried to care for those who could not pay. But he also had private patients who, if they were wealthy enough, insisted on having alicorn prescribed for them if nothing else helped.

Gesner fully agreed with his Italian colleagues that alicorn was worthless. But a patient who is sick, and possibly in pain, is hard to convince. So Gesner, from time to time, did prescribe alicorn, but in

writing about this he made the sly remark that in such a case he "neither forgot nor neglected" to prescribe other medicines simultaneously. It took a very long time for alicorn finally to disappear from the stock lists of pharmacies; the last of the "must" lists issued for London pharmacies to contain alicorn was printed in 1741.

All this time the belief in the animal had slowly faded. Even those who defended alicorn for its medical value (and for their profit) conceded that the animal from which the horns came might be almost or even completely extinct. One can almost see the apothecary foretelling the extinction of mankind very soon as a consequence. Fortunately he himself still had an alicorn but, of course, he was now more reluctant than ever to part with it.

The death blow to the unicorn—as far as the scientific world was concerned—fell in 1827 when Baron Cuvier declared that a single-horned animal with a cloven hoof was impossible, for such an animal would have a divided frontal bone and no horn could possibly grow upon the division. The existence of the rhinoceros does not contradict Cuvier, because the horn of the rhinoceros is not—as I should have stated earlier—a true horn. A true horn, like that of a cow, consists of a horny sheath covering a bony core which is connected with the bones of the skull. Now the "horn" of the rhinoceros does not show such a division into sheath and core; it consists, so to speak, of a bundle of immensely tough bristles glued together. Such a pseudo-horn need not follow Cuvier's rule.

It is true that Cuvier's later disciples, the paleontologists of around the year 1900, began to believe that they had found the original unicorn. In Russia and in Siberia bones and skulls of an extinct distant relative of the rhinoceros were discovered. This animal, *Elasmotherium sibiricum,* seemed to resemble the ancient reports even more than does the living rhinoceros. It was noticeably larger than the largest Indian rhinoceros; its horn was much longer and was actually situated in the middle of the animal's forehead. The famous Viennese geologist Melchior Neumayr wrote at this juncture in his *Erdgeschichte* (*History of the Earth,* Vol. II, 1895): "It is possible that in Siberia man and *Elasmotherium* actually lived together and that *Elasmotherium* was exterminated by man; at least one may explain in this way the ancient songs of the Tunguses, which tell that formerly there lived in their country a kind of terrible black ox of gigantic size and with only one horn in the middle of the forehead, so large that an entire sled was needed for the transportation of

this horn alone." But while Melchior Neumayr seems to have been intrigued by the idea that *the* unicorn had at long last been discovered, he was almost certainly mistaken. If he had known the literary history of the unicorn legend—no account existed in his day—he would also have known that *the* unicorn was simply the Indian rhinoceros and that no additional discovery was needed.

So far I have followed the traditional line of the story, from the Bible via the classical authors through the middle ages until the time when alicorn was finally discarded. This is what might be called the "Christian" line of the legend. But it has a Moslem line too, which can be followed quite easily nowadays, thanks to a work by Richard Ettinghausen.[1] Like the "Christian" line, the Moslem branch of the legend ultimately goes back to reports about the Indian rhinoceros, but it assumed a somewhat different shape. There is still some similarity in the fact that the emphasis on the horn was so strong that the horn and its bearer became two separate things, with the animal really occupying second place. The result was that the horns of other animals started intruding, but while the intruding horn of the Christian line was usually narwhal tusk, the intruding horn in Moslem story-telling was usually the tusk of the walrus.

Nor did the Moslem *karkadann* (the name most frequently used, confusing in itself as well as illuminating, because it is also the name for the rhinoceros) assume such a definite shape as the "Christian" unicorn. The karkadann often has the general outline of an antelope; only very rarely, and always quite late, does it resemble the rhinoceros. In between there are endless numbers of bovine, leonine, and canine karkadanns, with the canine shape somewhat predominating. This predominance has a linguistic explanation, relating to the way in which Semitic languages are written—that is, with consonants only. Vowels, if written at all, are represented by little dots and dashes below the consonants, the so-called diacritical marks. Now if in an old manuscript the diacritical marks are missing, a certain word may be read as either *gurg* or *karg*. The latter means "rhinoceros," while the former means "wolf," and is naturally the more familiar word. "To make the issue even more confusing," Richard Ettinghausen remarked, "the text is nowhere precise enough to enable the reader to choose between the two. In the stories of

[1] *Studies in Muslim Iconography, I. The Unicorn,* Freer Gallery of Art, *Occasional Papers,* Vol. I, no. 3, Smithsonian Institution Publication 3993 (Washington, D.C., 1950).

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*." The names mentioned in this quotation are those of the four Moslem heroes credited by folklore with having done the impossible: namely, killed a karkadann.

While there was virtually no cross influence between the Christian and Moslem lines of unicorn idolatry, the end was the same:

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. 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.
(Richard Ettinghausen)

Centuries after belief in the unicorn had died there was an unexpected aftermath to the whole. It was a very scientific aftermath, depending on the surgeon's knife. In March 1933 an American biologist, Dr. W. Franklin Dove, then of the University of Maine, performed a simple operation on a day-old male Ayrshire calf. To an outsider this operation must have looked as if it were the direct result of a careful reading of Odell Shepard's *Lore of the Unicorn*. Dr. Shepard mentioned that unicorned sheep exist in Nepal and are even sent to Europe on occasion. It was known that these unicorned sheep were being produced artificially, but the method and reason for such treatment were not clear. There were also reports that the Kaffirs sometimes produced unicorned cattle, and the Dinkas in Africa were also said "not only to manipulate the horns of their cattle as the Kaffirs do but to use this practice as a means of marking the leaders of their herds."

It seems possible, therefore, that what I may call the unicorn idea, the notion that one-horned animals exist in nature, arose from the custom of uniting the horns of various domestic animals by a process which is still in use but still mysterious to the civilized world. Here may be the explanation of the one-horned cows and bulls that Aelian says were to be found

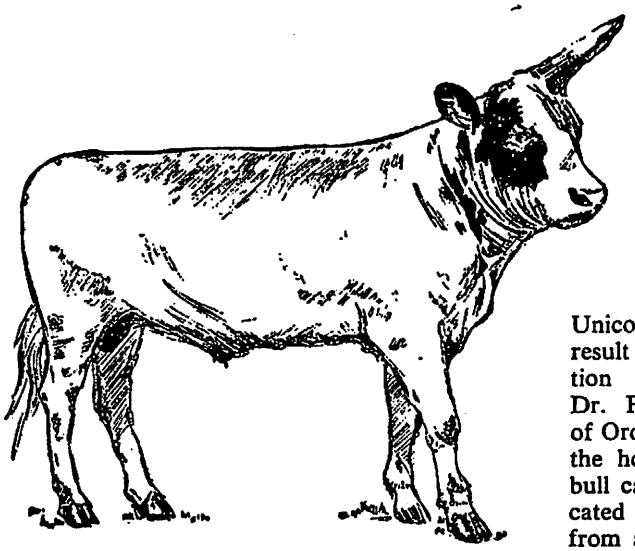
in Ethiopia and of the unicorned cattle reported by Pliny as living in the land of the Moors. The cows with single horns bending backward and a span long seen by Vartoman at Zeila in Ethiopia may have been of this sort. The one-horned ram's head sent to Pericles by his farm hands may have been that of the leader of their flock, and so a perfect symbol of that leadership in Athens which, according to Plutarch's interpretation, they wished to prophesy for their master. (Odell Shepard)

Dr. Dove did not know any of this when he planned his operation. But he suspected that Cuvier's statement about the impossibility of a cloven-hoofed unicorn might not be correct always and under all conditions. Cuvier's contention had been that the bony core of a true horn oculd not grow in the middle of the forehead of such an animal because the frontal bones are joined by a suture. Evidently a protuberance could not be expected to grow from such a spot.

Cuvier was right to a certain extent: horn cores do not grow from this spot under normal circumstances. But he was wrong to assert that they could not grow there. Dr. Dove found, and established experimentally, that the bony horn cores of cattle are not outgrowths of the frontal bones, as Cuvier had believed, but are formed from horn buds which originate in the soft tissue covering the frontal bones. In other words, the bony horn cores do not grow *from* the skull but *upon* the skull and do not fuse with the frontal bones until a certain stage of development is attained.

Anatomical conditions being thus, it is of course possible to transplant the horn buds. The operation performed by Dr. Dove did just that. It consisted of cutting the two horn buds, trimming them flat at their point of contact, and placing them together over the "seam" of the frontal bones. It was expected that they would grow into a single horn spike, sheathed by a single horn, and that this horn would grow to the skull of the animal in exactly the place always reported as the point from which the horn of the unicorn grew.

The experiment was a complete success; in some respects it was even more successful than anyone had dared to dream. Ordinarily this race of cattle has curved horns, but the horn of the artificial unicorn grew almost perfectly straight. Only near its tip did it curve slightly upward. Furthermore, this single horn that covered the single bony spike (which was solidly attached to the frontal bones in spite of the suture) was grayish-white at the base and tipped with black.



Unicorned bull: the result of the operation performed by Dr. Franklin Dove of Orono, Maine, on the horn buds of a bull calf of domesticated cattle (drawn from a photograph)

The most surprising result, however, was the behavior of this animal. As Dr. Dove reported in *The Scientific Monthly* (May 1936):

> True in spirit as in horn to his prototype he is conscious of peculiar power. Although he is an animal with the hereditary potentialities for two horns, he recognizes the power of a single horn which he uses as a prow to pass under fences and barriers in his path, or as a forward thrusting bayonet in his attacks. And, to invert the beatitude, his ability to inherit the earth gives him the virtues of meekness. Consciousness of power makes him docile.

If these sentences were written not in modern English, but in Latin, and if they were printed not in a modern scientific journal of the year 1936 but in a book of about the year 1550, one would probably select them as the shortest and most typical of all the descriptions of the fabulous monster.

The ancient descriptions usually fit the rhinoceros better than the unicorned ox. But at the same time the ancient authors were often emphatic in asserting that unicorn and rhinoceros were not the same. That they afterward proceeded to describe the one in terms fitting only the other is amusing, but excusable. One may be permitted to think that there have always been families that knew and practiced the secret of producing unicorns. One may also amuse oneself by trying to imagine the fanciful tales about long and most perilous voyages

invented and told to conceal the real origin of the high-priced animals. In short, one knows much of the story of the unicorn if one knows about the possibility of producing unicorned oxen by a simple operation and if one remembers that the single horn is not only the symbol of the leader of the herd but presumably *makes* the leader of the herd.

One more question is left open for discussion. Do we have reason to assume that the ancients could and did perform this operation, and that the Kaffirs, the Dinkas, and the natives of Nepal can and do today? The last three are known to have produced single-horned domestic animals, and the operation itself is simple. As for the ancients, we know the answer. Pliny, discussing the horns of oxen in the eleventh book of his *Natural History,* gave the recipe for the operation: "Incisions are twisted in several directions so that four horns sprout on the head." Though this concerns multi-horned animals the technique applies to unicorns as well. Pliny must have been unaware of the fact, or surely he would have mentioned it. But it is in any event likely that the people who knew how to manipulate horns also knew how to make a unicorn if they felt like it. After all, we now have proof that it can be done.

Somewhat to my surprise the reaction of some men of letters to Dr. Dove's experiment was quite acid. They did not like it. It seemed to them to spoil all their erudition. Actually, of course, it did not. The literary line of the development of the unicorn legend is still the same. The experiment merely proves definitely how some of the otherwise inexplicable facts mentioned by Odell Shepard should be explained.

The unicorn of the legend is still what it was. But in addition there were some people who could make unicorns. And sometimes they did.