NATURAL HISTORY OF THE ANCIENTS

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GLEANINGS

FROM THE

NATURAL HISTORY

OF THE

ANCIENTS.

BY THE

REV. W. HOUGHTON, M.A., F.L.S.

ILLUSTRATED.

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To

SIR JOHN LUBBOCK, Bart.,

M.P., F.R.S., F.L.S., ETC. ETC.

WHOSE VARIED ATTAINMENTS AND HIGH SCIENTIFIC CULTURE

ARE SO WIDELY KNOWN AND APPRECIATED,

I Dedicate

THIS WORK.

LIST OF ILLUSTRATIONS.

	PAGE
THOTH, LORD OF LETTERS (*Egyptian*)	14
SITTING IN JUDGMENT (*Egyptian*)	15
BABOONS CONVEYING A WICKED SOUL IN THE FORM OF A PIG BACK TO EARTH (*Egyptian*)	16
APES (*Egyptian*)	18
ELEPHANT AND MONKEYS, TRIBUTE OF THE MUZRI (*Assyrian*)	21
DOGS (*Egyptian*)	27
MASTIFF (*Assyrian*)	33
CLAY MODEL OF HUNTING DOG (*Assyrian*)	35
GREYHOUNDS IN CHASE (*Assyrian*)	37
A FOWLER (*Egyptian*)	42
CAR DRAWN BY OXEN (*Egyptian*)	57
BRANDING CATTLE (*Egyptian*)	59
OXEN (*Assyrian*)	60
CAR DRAWN BY OXEN (*Assyrian*)	61
SHEEP AND GOATS (*Assyrian*)	69
FISHERMEN (*Assyrian*)	74
BLACK OBELISK (*Assyrian*)	78
WAR HORSES (*Assyrian*)	87
KING'S CHARIOT (*Assyrian*)	88
ASSES (*Egyptian*)	93
MULE (*Assyrian*)	102
JUDGMENT SCENE (*Egyptian*)	108
GEESE (*Egyptian*)	121
HARE AND BIRDS (*Assyrian*)	137
HORSEMAN SURPRISED BY A LION (*Assyrian*)	160
MAN ATTACKING A LION (*Assyrian*)	162
HUNTING WILD BULLS (*Assyrian*)	174
MAN WITH OSTRICH AND GAZELLE (*Egyptian*)	196
NETTING FISH (*Egyptian*)	222
HEMICHROMIS	223
SCARABÆUS (*Egyptian*)	244

GLEANINGS

FROM THE

NATURAL HISTORY OF THE ANCIENTS.

PART I.

DOMESTICATED ANIMALS.

THE title of these lectures will, I hope, sufficiently explain their scope and nature. I call them Gleanings, because it is not at all my intention to enter into so large a field as the Natural History of the Ancients considered as a whole. Such a work, even were I competent to deal with it, would require not a few lectures only, but a whole encyclopædic volume, were an attempt made to give, even in abridgment, anything like a just conception of what should be comprised in so wide a term as the Natural History of

the Ancients. My task is a much lighter one. I will ask you to accompany me into some of these ancient Natural History fields, and to listen to me while I gather up, now from one quarter, now from another, some ears of corn that lie scattered before me—mere gleanings picked up almost at random, but still gleanings which will, I hope, be able to afford you some pleasure and instruction. It is always interesting to know something of the thoughts, feelings, opinions and customs of people who lived in ages long since past; it is profitable also to ourselves, lest we, living in an age of great intellectual activity and marvellous scientific discoveries, should be inclined to despise in any way the honest endeavours and well-intended labours of bygone generations.

Let me now define the limits within which, speaking generally, I wish to confine myself in these lectures. It is not my intention to bring before your notice anything

relating to plants concerning which ancient writers have discoursed. I shall keep entirely to the animals—the *zoological*, not the *botanical* department of Natural History. Then, again, I must explain what I mean by the use of the term "Ancients." Clearly, the word admits of a very wide application. We know that ancient people existed in many parts of the world ages ago, whose implements have been frequently, and remains occasionally, found imbedded in the soil, together with the remains of animals, some of which are now extinct. These ancient inhabitants have left us no written records, but we must not therefore conclude that they have left us altogether in the dark as to their habits and customs. The various kitchen-middens in different parts of Europe tell us often a most interesting story; flint implements, intermingled with split bones of animals of various kinds, and with different sorts of shells, as oysters, cockles, muscles, &c., testify to the existence of men of a remote date, and inform

us what animals they used as food, how they killed them, and how they extracted the marrow from their bones. Clearly, therefore, these inhabitants of a long distant past would come, in the literal sense of the word, under the category of "Ancients." But of these pre-historic ancients, and of the animals known to them, I do not propose to speak, excepting incidentally or by way of illustration. Excluding these, therefore, I shall confine my remarks to some of the animals known to the early inhabitants of Egypt, Palestine, Assyria, Greece, and Rome, from the oldest historic period down to about the middle of the third century of the Christian era. From these fields I propose to glean and to bind together a few zoological sheaves.

Let us first ask what are the sources of our information? They are principally these four:—I. Natural History; II. Literary History; III. Figures of animals on monuments, coins, gems, &c.; IV. Names of animals.

I. Natural History makes us acquainted

with the remains of animals found in pile-dwellings and kitchen-middens, which we know to have been associated with man; or with animal remains, simply buried in earth or peat, for instance, not necessarily associated with man. The value of the information derived from these four sources varies according to the nature of the evidence supplied in each case. Thus from Literary History we may get a better idea of an animal from a really good and full description than we should get from a bad figure on a monument or coin; and conversely, a bad figure may be better evidence as to the identity of an animal than a bad description. So, again, evidence supplied unconsciously by pre-historic accounts may be more valuable to us than descriptions of animals in Literary History, because in the latter case the authorities may make erroneous statements as to the occurrence, for instance, of certain animals in particular places; whereas in the former one—that, for instance, of the ancient

pile-dwellers of Switzerland — though they have left us no written record of themselves or their animals, have nevertheless supplied us with interesting facts by simply throwing away through the cabin-door into the water the bones of the animals which had supplied them with food with other remains. These bones, horn-cores, teeth, &c., which have survived to the present day, tell at once their story when placed in the hands of an experienced Palæontologist.

II. With regard to the Literary History portion of our subject, we have the Biblical records of the Old and New Testaments, giving us names of various animals known to or mentioned by the ancient Hebrews. The Assyrian records and bilingual lists contain the names of animals known to the early Accadians and Assyrians. The classical writers of Greece and Rome cover a wide extent both in time and material, and mention or discourse of a great number of animals; but there is nowhere anything like an attempt to give or

to frame a zoological system, properly so called, with the single exception of Aristotle among the Greeks: and even in his case we discover, as it were, mere gleams of a system, dawnings of science, but nothing more. Aristotle's "History of Animals," looked at historically, as has been well said—"looked at with reference to the works which for centuries succeeded it—is a stupendous effort; but looked at absolutely—that is to say, in relation to the science of which it treats—it is an ill-digested, ill-compiled mass of details, mostly of small value, with an occasional gleam of something better. There is, strictly speaking, no *science* in it at all. There is not even a system which might look like science. There is not one good description. It is not an anatomical treatise; it is not a descriptive zoology; it is not a philosophy of zoology; it is a collection of remarks about animals, their structure, resemblances, differences, and habits. As a collection, it is immense without a trace of organisation, and

the details themselves are rarely valuable, often inaccurate."

Without fully endorsing these remarks of the late Mr. G. H. Lewes, I must confess that, on the whole, I agree with him. Still, Aristotle's "Natural History," considering the time when he wrote, will ever remain a monument of extraordinary diligence. He had, perhaps, certain vague and indefinite views of classification which, though not very exact, are highly creditable to him: but he did not anticipate modern zoological science as some writers have asserted; he brought a great genius to bear on numerous points of zoology, but he lacked the true method of inquiry, careful reasoning, founded on a close and diligent observation of a great number of facts. He was, without doubt, one of the greatest men that ever lived, but the assertion that he "described species according to a comprehensive and luminous method which perhaps none of his successors have approached" is quite untrue. Well has it been

said that "those pay a very absurd homage to antiquity who would place the pretensions of the ancients upon an equality with those of the moderns: for the question does not regard the original powers of the mind, but the amount of accumulated knowledge in which these powers are to be exercised; and it would indeed be extraordinary if, inverting the analogy of individuals, the world should not be wiser in its old age than it was in its infancy."

III. The figures of animals on monuments, coins, gems, bronze dishes, and vases introduce us to several kinds, and where such representations are well given the animals proclaim themselves at a glance. But the figures may be badly executed. Perhaps the sculptor was unskilful; perhaps he drew from an indistinct recollection of an animal he had only once seen, or from mere description given him by another person. In such cases we may not be able to make out the animal intended, unless there be in the animal

itself some very striking characteristic, which, despite general defect of drawing, proclaims the creature: such, for instance, as the bull-like beast on the Assyrian black obelisk, whose horn, though placed much too high on its head, shows it to be intended for the one-horned rhinoceros. In closely allied species, where dissimilarities of external form are only slight, and where no striking peculiarity exists, figures will fail to give the necessary information, and we must be content with ascertaining the genus, or the family, or even the order to which an animal belongs.

IV. Let us pass on to the fourth source of information: that derived from words or animals' names—from Linguistic Palæontology, to use an expression I borrow from Professor Rolleston. Now here we often meet with extremely valuable information and assistance. Words, as has been well said, are fossil thoughts, and if the names of animals are well chosen, such fossil

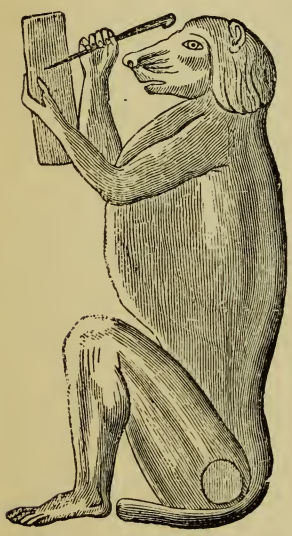
thoughts may contain the nucleus of much historical and zoological knowledge. A good description of an animal, whether by picture or by words, ought to give, above all, that animal's chief characters; it is possible sometimes to get a fair notion of an animal from its simple name. What an admirable name, for instance, is "flitter-mouse" for one of the commonest of our bats; the Latin porcupine is "the pig-like creature armed with spines;" the Greek rhinoceros is the animal "with a horn on its nose." The squirrel—in Greek σκίουρος, "shadow-tail"—must clearly have *sat* for his name-portrait, because when the little creature is *running*, the tail is carried in a lengthened form in a line with the axis of the body. In these few instances, you see the name itself gives a fair general description of each of the animals denoted thereby, in respect of some zoological characteristic of *form*. But sometimes the name may tell us the country from which a certain animal came—its original home, I

mean, speaking historically—and this kind of information is often very important. Let me give one or two instances by way of illustration. This method of naming animals prevailed much amongst the early Accadian inhabitants of the Babylonian plains. The Accadian name for "horse" is read thus into English—"The beast of burden from the East"—*i.e.*, Media and Armenia; the camel is the "beast of burden from the sea." Now I dare say you will think that to be a very bad description, because camels are creatures of the dry sandy plains rather than of the sea. Nevertheless, you will immediately allow that the name is perfectly correct and well chosen, for the sea is the Persian Gulf across which the Accadians of the Mesopotamian valley first brought the camel from its original home in Arabia—history thus, by one single well-chosen expression, confirming the opinion of zoologists that Arabia is the original home of the one-humped camel. In Accadian, one name for

wolf means "high-land"—*i.e.*, the mountain-district of Elam, though there was another name expressing the ravenous nature of this wild Carnivore which in English would read, "the beast that eats like a dog," or, in familiar words, "the ravening wolf."

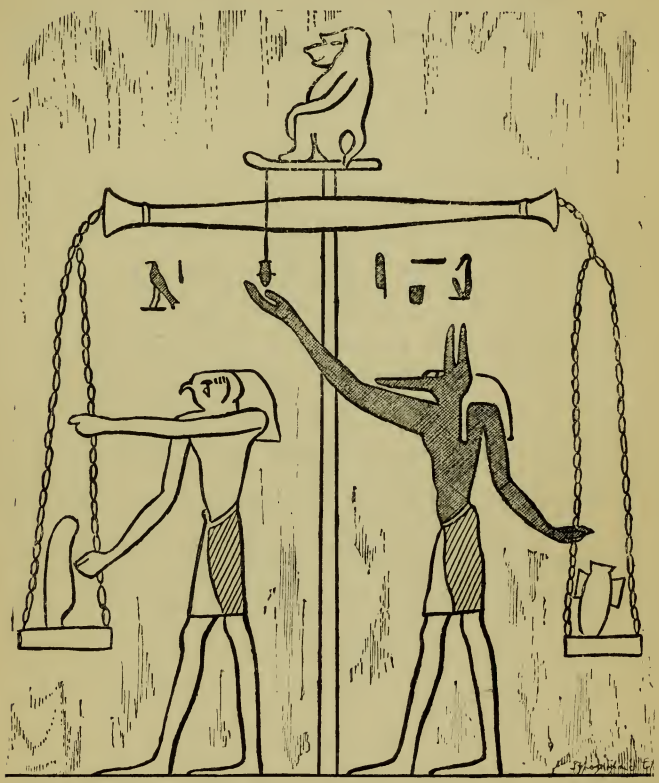
It is now quite time for me to end these prefatory—but as I think necessary, and I hope not uninteresting—remarks, and to speak of some of the animals known to the ancients. In some cases I shall be somewhat profuse, in others brief, according as space allows or interest attaches to my subject; and some animals I shall be compelled to pass over entirely. Let us first take the *Simiadæ*, the apes and monkeys, as known to some of the ancients. One of the most interesting of these animals is the Baboon (*Cynocephalus hamadryas*), which held a very conspicuous and honourable position in ancient Egyptian theology. This species is not now found in Egypt, but in former times it appears to have been the only species occurring in that

country; it is found now in Abyssinia and Arabia, sometimes being seen in large groups. Its height when erect is about four feet; the face is very dog-like and long; its shoulders are covered with dense shaggy hair, the rest of the body being comparatively smooth, reminding one of a French poodle-dog; the female is destitute of a mane. This baboon was sacred to Thoth, the "Lord of Letters," the Egyptian Mercury: indeed, sometimes it appears to have acted as deputy for the god himself, for he is represented with the title underneath, "Thoth, Lord of Letters." The Egyptians seem to have looked upon this creature as one exhibiting the admirable quality of justice, for not unfrequently it is depicted seated on the



"THOTH, LORD OF LETTERS."
(*Egyptian.*)

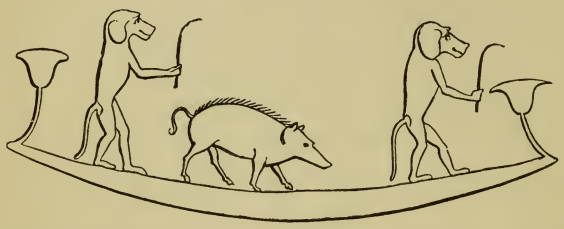
top of a balance, while Thoth registers the results of the weighing of the actions



SITTING IN JUDGMENT. (*Egyptian.*)

of the departed in the scales of justice. Sometimes the baboon is represented in a

boat conveying a wicked soul from the presence of Osiris, the judge, back to earth once more, as in the accompanying drawing; it was especially sacred at Hermo-



BABOONS CONVEYING A WICKED SOUL IN THE FORM OF A PIG BACK TO EARTH. (*Egyptian.*)

polis, though reverenced at Thebes and other places. In the Necropolis of ancient Egypt a spot was set apart as a cemetery for sacred apes. On the monuments the animal is generally represented in a sitting posture, and its mummied remains in the same position. On what account was the baboon held sacred among the Egyptians? I know not; but it is probable this ancient and remarkable people appreciated the docility and intelligence exhibited by these *Cynoce-*

phali when trained and educated as little ones, and honoured them accordingly. At all events, they would not be inappropriate animal-symbols of Egyptian wisdom which belonged especially to Thoth, the Lord of Letters. They were trained in ancient Egyptian days as they are even now in Cairo, where they are taught to amuse street people by dancing and performing other antics to the sound of the drum; but, as Sir G. Wilkinson humorously remarks, "constant application of the stick shows the little respect now paid in Egypt to the once revered emblem of Hermes" (iv. 131). In a country south of Abyssinia monkeys are still taught several useful accomplishments. "Among them"—I again quote Sir G. Wilkinson—"is that of officiating as torch-bearers at a supper party. Seated in a row on a raised bench, they hold the lights until the departure of the guests, and patiently await their own repast as a reward for their services. Sometimes a refractory subject fails in his accustomed duty,

and the harmony of the party is for a moment disturbed, particularly if an unruly monkey throws his lighted torch into the midst of the unsuspecting guests; but the stick and privation of food is the punishment of the offender, and it is by these persuasive arguments alone that they are prevailed upon to perform their duty in so delicate an office" (ii. p. 151).

APES. (*Egyptian.*)

Other monkeys, apparently some kind of *Cercopithecus*, sometimes occur on the monuments as tribute to Egyptian monarchs. Specimens of these monkeys were embalmed at Thebes and other places. Juvenal says that they were worshipped; they were, perhaps, treated with honour and respect, but were not deemed nearly so important, intelligent, and sacred as the baboon.

No species of monkey has existed in a native state in Palestine. Apes are mentioned in the Bible as amongst the commodities imported by Solomon from a foreign country. "Once in three years came the navy of Tarshish, bringing gold, silver, ivory, apes, and peacocks." Now here we have some notable instances of words explaining their meaning. The Hebrew Bible names for "ivory," "apes," and "peacocks" are not traceable to Hebrew or to any other Semitic root; *kôph*, Hebrew for "ape," is the Sanskrit *kapi*, the Greek κῆπος, the Latin *cebus*, and probably (the initial letter being lost) our English word "*ape*;" "ivory, in Hebrew is *shen habbim*" —"tooth of elephant," *habbim* being the Hebraised form of the Sanskrit *ibha*, "an elephant;"—the name of the peacock will be explained by-and-by. The ivory and apes introduced by Solomon into Palestine, therefore, came from India; and as "algum," or sandal-wood, another imported article, is still a native of the mountainous parts of Malabar

it is probable that this is the country whence all Solomon's importations took place, for the peacock was originally confined to India. Let me now draw your attention to the monkeys of the Assyrian monuments. On the black obelisk of Shalmaneser there occur figures of monkeys, together with that of the Indian elephant. A man is leading a large monkey; another follows, leading a similar species, carrying at the same time another monkey on his shoulders. These monkeys, as an epigraph tells us, were part of the tribute of Muzri, either in Armenia or Bactria, a country too cold for indigenous *Simiadæ;* hence we must suppose that the people of Muzri obtained their specimens from India, whence also they received the elephant. Notice the ridiculously human appearance of the monkey which the man is leading—a man's hands, a man's feet, and face fringed with whiskers. Observe also the contented look of the monkey on the man's shoulders: his calm and placid appearance proclaim him to be a tame monkey,

ELEPHANT AND MONKEYS, TRIBUTE OF THE MUZRI. (*Assyrian.*)

which very probably may be intended to represent the hoonuman of India (*Presbyter entellus*), a large monkey with a long tail, held in veneration in India, and easily and frequently domesticated. The human-like form of a monkey, of course, must strike every observer, and the Assyrians embodied the idea in their name for a monkey, which is *udumu*, under which form you will readily recognise the Hebrew word *adam*, "a man;" and you may compare with this the zoological expression of *anthropoid* ape, as applied to species still more human in character, as the orang, gorilla, and the chimpanzee. It is not easy to make out the precise species of monkeys mentioned in classical authors. Aristotle divides the *Simiadæ* into three tribes—the Pithecoi, Keboi, and Cynocephaloi: the cebos is a monkey with a tail, the pithecos is a tailless species; the cynocephalus is a dog-headed baboon, and corresponds with the genus of modern zoologists. Aristotle mentions the monkeys as uniting in their nature the characteristics of

man and four-footed animals; he notices the strong canine teeth of the cynocephalus, and its natural ferocity of disposition; the feet, he says, are like great hands, and are used as hands as well as feet; the internal parts of the body are like those of a man. The species of baboon mentioned by Aristotle, Pliny, and other authors would be the one I have already spoken of—the *Cynocephalus hamadryas*. Besides this baboon, other monkeys were known to or mentioned by Greek and Roman writers. The Romans had pet monkeys, for which they would give considerable sums of money. Perhaps the Barbary Ape (*Macacus innuus*), the monkey of Northern Africa and the rock of Gibraltar, and the Green Monkey (*Cercopithecus sabæus*), that common accompaniment of modern street organ-grinders, would be the kinds best known to the Romans. Pliny speaks of the remarkable affection which all kinds of monkeys show towards their young ones. "Mothers which have been tamed and have young ones carry them about and show

them to all comers, and exhibit great pleasure when they are fondled, and seem to appreciate the kindness thus shown to them." Hence, he says, they often smother their offspring with their embraces. Cicero (*De Div.*, i. 34) tells a story of a monkey which, on a solemn occasion, misbehaved himself, and acted in a manner which one might call profane. The Spartans once sent to consult the oracle of Zeus at Dodona, to inquire whether in a certain battle they would be victorious. The ambassadors arrived; the *sitella*, or vessel from which the lots were to be drawn, was filled with water, as was usual, and placed on the table; the lots—little tablets or counters of wood (*sortes*)—were arranged ready for throwing into the sacred urn; it was a solemn occasion Great was the anxiety of the Spartan ambassadors that the shaken counters would foretell a victory; when, lo! a pet monkey belonging to the King of the Molossi jumped on the table, upset the sacred urn with the water, as well as the feelings of the disconcerted priest

(*sacerdos*), and scattered the little counters in all directions, with all other oracular paraphernalia, causing the greatest consternation and disappointment! It was a bad omen ("maximum illud portentum"), and the *sacerdos*, or priest, solemnly pronounced that the Spartans must not now deliberate about victory, but about their own safety!

Dogs.—The dog, with its numerous domesticated varieties, appears as the companion of man from early times; it was a domesticated animal in Europe anterior to the earliest historical records. The Egyptians had several breeds; some were used only for the chase, others were house or pet dogs. The mastiff type is seldom represented on the monuments. This breed appears to have been introduced into Egypt, perhaps from Ethiopia: it is very similar to the large animal depicted on the marble slabs of Assyria, and used by that people for the chase. Another Egyptian dog bears a resemblance to the Dalmatian

hound; another was similar in form to the Esquimaux. Then there was apparently a breed which was especially used in the capture of the white antelope (Fig. c, p. 27). This dog bears some resemblance to a foxhound, and has pendant ears, a sure sign of long domestication; the name of the dog is accompanied by the figure or determinative of an antelope. These dogs were white, and from a letter written by Mr. Bartlett to Mr. Cooper, the late Secretary to the Society of Biblical Archæology, in 1875, it would appear that a similar dog is still employed for antelope hunting in North Africa. Mr. Bartlett writes: "I was glad to hear of the 'dog of the white antelope.' Last year I was at Hamburg on the arrival of a large collection of living animals from Africa, in which collection were many gazelles and other antelopes, together with sixteen or more giraffes. With this lot were many attendants, who brought with them two of the dogs used for the capture of gazelles and other of the antelopes:

DOGS. (*Egyptian.*)

these dogs are in form like the one figured on your paper."

Many of the dogs of the Egyptian monuments were pied, and most have more or less a greyhound form. The oldest dog seen on the monuments appears, Dr. Birch informs us, at the time of Cheops of the fourth dynasty. In the tombs of that period (B.C. 2,300), he appears as a house-dog attached to the chair of his master. This dog has a cord four times encircling the neck, tied in front; erect pointed ears and curled tail. This breed was used both as a house-dog and a dog of the chase. Clearly, this oldest dog of the Egyptian monuments must be referred to the Esquimaux type — one of wild, wolf-like form. The ancient Egyptians had their pet dogs, but, judging from the figures on the monuments, these pets were not in accord with modern European views of canine beauty. Fig. A on p. 27 is a specimen: a female of black and liver colour, with short thick legs, erect ears, and pointed

nose; in general form of body it resembles a turnspit. The older breed of the dogs, held ready to start or actually running, is constantly seen in the tombs till the close of the twelfth dynasty. This dog was indigenous to Egypt, is not seen brought as a foreign animal, and has remained till the present day. (Birch: *Bib. Arch. Trans.*, iv. p. 178.)

By some naturalists the dog is supposed to have been descended from the wolf or the jackal. Now it is worth mentioning that one of the names which the Egyptians used for a kind of dog was *unŝu* or *unŝau*, "wolves"—"a very singular one," as Dr. Birch remarks, "as favouring the derivation of the dog from the domesticated wolf." Dr. Birch gives a translation of a curious letter of a certain scribe of the nineteenth dynasty, in which he speaks of large packs of hounds—200 of the kind called *uau*, and 300 more *unŝu*: a pack of 500 in all. "They stand," he says, "daily at the door of his house at the time of his rising out

of sleep. They make a breakfast when the amphora is opened. He does not," he continues to say, "wish to have any of the little dogs or pups of the breed of Nahar Hu, the royal scribe, staying in the house, for it is an annoyance to me. Hour after hour, every time of his going out, in his going in the road, this dog must be kicked and flogged, making the thongs of the whip fall out one after another. The red long-tailed dog goes at night into the stalls of the hills. He is better than the long-faced dog. He makes no delay in hunting; his face glares like a god, and he delights to do his work; the kennel where he abides he does not make it;" that is, he does not stop anywhere in the pursuit of his prey (p. 182). These *uau* dogs, mentioned as hunting in packs with the *unŝu* dogs, were probably jackals which the Egyptians domesticated and used in the chase. The name *au or au-au* is probably the animal's cry *wow* or *bow-wow*. Perhaps the *unŝu* portion of the pack were some wild or

semi-wild animals that sometimes associated with, and perhaps crossed with the jackals.

The ancient Egyptians treated their dogs well. Unlike the Hebrews, with whom the name of dog was a term of reproach and contempt, this people looked upon it with veneration. The death of a dog was not only lamented as a misfortune, but was mourned for by every member of the household in which it occurred. (Wilkinson: *Anct. Egypt.*, iii. 33.)

Of the dog as mentioned in the Bible, I need say but little. The question asked by Hazael, "Is thy servant a dog, that he should do this thing?" expresses the feeling which the Jews entertained towards this animal. They made no use of the dog in the chase, nor did they employ it as a house-dog; its only use was as a protector of the flocks against wild beasts, and even in this capacity it was treated with contempt, as appears from a passage in Job, who complains: "Now they that are younger than I have me

in derision, whose fathers I would have disdained to have set with the dogs of my flock."

The only single instance of the dog being treated as a companion occurs in the Book of Tobit. Young Tobias, with a companion, is sent by Tobit his father into Media, to recover some money he had lent to Gabael. "So they went forth both, and the young man's dog with them" (v. 16; xi. 4).

The Assyrians employed dogs for various purposes: such as watching the house, guarding the flocks, and for the chase. The only two kinds of dog actually figured on the monuments are the mastiff and the greyhound, but the bilingual lists mention several other kinds: as the water-dog, the earth-dog—perhaps a kind of terrier—the dog of Elam, &c. Let me direct your attention to this drawing of the mastiff of the Assyrian monuments, an animal not unfrequently represented in bas-relief, and always with considerable artistic skill and truthfulness. The Assyrian mastiff was probably allied to

the Indian dog known to Alexander, mentioned by Herodotus, Aristotle, Xenophon, Strabo amongst the Greeks, and Pliny and

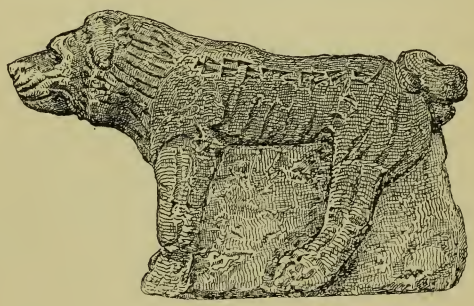
MASTIFF. (*Assyrian.*)

Solinus amongst the Latins. It was used in the chase of the wild ass, and perhaps in that of the lion and wild bull, though it is not so represented in the two last cases. Assurbanipal, son of Esarhaddon, kept a pack of

these large dogs, clay models of which are now in the British Museum. Each dog has his name in the cuneiform characters stamped upon him; the names, it is probable, were intended to express the *characters* of the dogs rather than their *names*. The translations run thus:—(1) "Causing evil to come forth," in allusion to the injury the dog meditated for his enemies; (2) "Biting his enemies;" (3) "Capturing enemies;" (4) "Judge of his running," as we say in the coursing-field of a greyhound "running sly;" (5) "Dust of his path, giving tongue." Here we have quite a picture of one of these muscular mastiffs tearing away, scattering the sand in his impetuous course, at the same time not running mute.

Among the Romans dogs were divided into three classes:—(1) House dogs (*Canes villatici*); (2) Shepherd dogs (*Canes pastorales s. pecuarii*); and (3) Sporting dogs (*C. venatici*). This last division was again subdivided into three groups:—(1) Pugnacious dogs of war

(*pugnaces* or *bellicosi*); (2) dogs that ran by scent (*nare sagaces*); and (3) swift dogs, that ran on sight of their game (*pedibus celeres*). The shepherd dogs were often provided with spiked collars round their necks as a protection against wolves and other enemies, as is



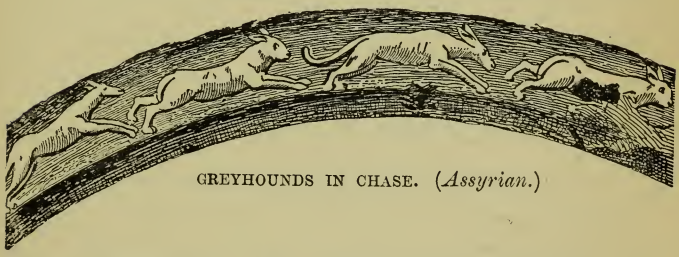
CLAY MODEL OF HUNTING-DOG. (*Assyrian.*)

the St. Bernard's dog of the present day. Speaking of the dogs used in war, Pliny says: "The people of Colophon and Castabala kept troops of dogs for war purposes, and these used to fight in the first rank and never retreat; they were the most faithful auxiliaries, and yet demanded no payment" (*N. H.*, viii. 61). The horsemen of Magnesia in the

Ephesian war were accompanied to the battle-field each with a war-hound, the dogs in a body attacking the enemy, being backed now by the foot-soldiers, now by the cavalry, and thus rendering great assistance. Ælian, who mentions these same Magnesian war-hounds, tells a story of a certain soldier's dog, which rendered so great assistance to his master at the battle of Marathon as to be honoured with an effigy on the same tablet with his lord (*De Nat. An.*, vii. 38).

Figures of the *Greyhound* occur occasionally among the Assyrian antiquities, as on a bronze dish now in the British Museum. The greyhound was not known to Xenophon, and coursing a thing probably unheard of in his time (B.C. 400). In the time of Arrian (born A.D. 90) we find that much attention had been given to the breeding of greyhounds, and that the art of coursing had attained great perfection in his day. Here is Arrian's account of a favourite greyhound he called *Hormê, i.e.*, impetuosity :—"I have myself bred a hound

whose eyes are the greyest of the grey; a swift, hard-working, courageous, sound-footed dog, and in her prime a match at any time for four hares. She is, moreover (for while I write she is still alive), most gentle and kindly-affectioned, and never before had any dog such regard for myself and fellow-sports-



GREYHOUNDS IN CHASE. (*Assyrian.*)

man Megillus; for when not actually engaged in coursing she is never far away from one or other of us. But while I am at home she remains within by my side, accompanies me on going abroad, follows me to the gymnasium, and while I am exercising myself there sits down near me. On my return she runs before me, often looking back to see whether I had turned anywhere out of the road; and as soon as she catches sight of me,

she shows symptoms of joy, and again trots on before me. If I am going out on any Government business she remains with my friend, and does exactly the same towards him; she is the constant companion of whichever of us is unwell, and if she has not seen either of us for only a short time, she jumps up repeatedly by way of salutation, and barks with joy as a greeting to us. At meals she pats us with one foot and then with the other, to put us in mind that she is to have her share of the food. She has also many tones of speech—more than I ever knew in any other dog—pointing out in her own language whatever she wants. Having been beaten when a puppy with a whip, if any one even at this day does but mention a whip, she will come up to the speaker, cowering and begging, applying her mouth to the man's, as if to kiss him, and jumping up, will hang on his neck, and not let him go until she has appeased his angry threats. Now really I do not think I ought to hesitate to record the

name of this dog, that it may be left to posterity that Xenophon the Athenian (he means himself) had a greyhound called Hormê, of the greatest speed and intelligence, and altogether supremely excellent."* The *Gauls* seemed to have paid great attention to greyhounds and coursing. Ovid calls the greyhound *Gallicus canis*, "the Gallic dog," and gives in a few lines an admirable description of the efforts of the dog to catch and the hare to elude in the course. I think it is probable that our greyhounds of to-day have proceeded from the celebrated Keltic breed. Arrian, like his prototype Xenophon, was a true sportsman. "Often," he says, "when following a course on horseback, I have come up to the hare just as it was caught, and have myself saved her alive; and then, having taken away my dog and fastened him up, have allowed the hare to escape. And if

* "Arrian on Coursing," &c., by a Graduate of Medicine. London: 1831; p. 78. A learned and excellent work. The Greek words here are — ὠκυτάτη καὶ σοψωτάτη καὶ ἱεροτάτη "swiftest, cleverest, and most divine."

I have arrived too late to save her, I have struck my head with sorrow that the dogs had killed so good an antagonist" (p. 109).

Cats.—The transition from the dog to the cat is natural, so now let us see what we can learn about our familiar domestic cat. Should you be surprised to learn that the cat was not kept as a house or barn mouse-killer by the ancient Greeks? For myself I do not think that the early Romans thus habitually employed it, though in the houses of the rich and noble the domestic cat may have been occasionally seen, but more in the character of a rare and curious animal than in that of a recognised mouse-killer. As far as we can learn, the ancient Egyptians were the first people to employ this generally useful animal; with them it was a great favourite when alive: it was honoured when dead. Herodotus speaks of the great concern which the Egyptians felt at the death of a cat: all the inmates of the house shaved their eye-

brows in token of sorrow; but if we may judge from this shaving process, as being any criterion of the amount of mental suffering inflicted, the dog was even more important than the cat, for at the death of a dog the whole head and body were shaved.

The domestic cat is figured on the Egyptian monuments, and is sometimes represented accompanying its master in fowling expeditions. Sir G. Wilkinson thought that the cat was on these occasions employed by the Egyptians as a retriever to bring the killed or wounded bird to the fowler. The natural aversion which the cat has to water, as embodied in the mediæval Latin adage—

"Catus amat pisces, sed non vult tingere plantas"—

may be, and has actually been, overcome, and cats have been occasionally trained to take the water; but in the scenes depicted in *Anct. Egyptians*, iii. 42, there is nothing to show that cats were ever trained to take the water like retriever dogs. In one scene a cat is

represented in the act of seizing a bird in a thicket—I suspect, more in her own interests than in those of her master; in the other

AN EGYPTIAN FOWLER.

scene a cat stands up on its hind legs, with its fore-feet on its master's knee, the master being in a boat in the water near a thicket; the cat is begging to be placed on land ap-

parently; but surely, if the cat had been trained to the water, it would be a very easy thing to jump out on her own account. As I said just now, the only people amongst the ancients who *habitually domesticated the common cat* appear to have been the Egyptians, from which country probably all the existing varieties originally came. I do not think the cat was known to the early Hebrews, or to the Assyrians, or to the Greeks, as a domestic mouse-killer; in India, too, as I have learned from Professor Max Müller, the domestic cat is comparatively recent. There is no common Aryan name for it as for mouse; the ordinary Sanskrit word for a cat is *mârjâra*, from a root meaning "to clean," in allusion to the animal's habit of licking herself at her toilette. The Romans, however, were acquainted with the cat as a mouse-killer even in early times. "In the 'Campana' tomb, Cervêtri" (see Mr. King's "Antique Gems and Rings," p. 273) — "which represents in its bas-reliefs and frescoes the atrium of the old

Lucumon's house, its present tenant — hung round, like the old English gentleman's hall, with implements of war and chase, 'pikes and bows, and old bucklers that have borne many shrewd blows'—painted on the ground-line is an unmistakable Egyptian cat, with a mouse in her mouth to make all sure. The Tyrrhene trade with Egypt must have introduced the sacred animal into the noble's house. Again, a mosaic lately found at Pompeii pictures to the life a splendid Persian (?) tabby plotting against a duck hung up in the larder." Here is evidence that the early people, the Etruscans—to whatever race they belonged, or whatever language they spoke—were acquainted with our mouse-killing cat. Of course, the Pompeian cat might be separated from the Etruscan one by hundreds of years; nevertheless, here we have evidence that the animal was domesticated occasionally, at any rate, by the Romans at some time previous to the destruction of Pompeii and Hercu-

laneum by the eruption of Mount Vesuvius in A.D. 79. But if the domestic cat had been a well-known and familiar house-dweller with the Romans, I think we must have had definite allusion to the fact in Latin authors. I dare say you may think that the Latin word *felis*, or *feles*, for "cat," is by no means uncommon; it is, however, of very rare occurrence. In the voluminous writings of Cicero, *felis* occurs but once, and there he is speaking of Egyptian cats (*Tusc. Disp.* v. 27). Among the varied literary contributions of Ovid, I believe he only mentions the word *felis* once, and there he is alluding to a mythological *felis* into which the sister of Phœbus was changed (Ovid, *Met.* v. 330). But Pliny, whose date is about a hundred years after Ovid, several times uses the word *felis;* and here and there, when he speaks of the silent stealthiness of the *feles*, of their creeping lightly towards a bird, of their sly and patient watching, of their sudden pounce upon a mouse, it is difficult not to

believe that he refers to the domestic animal; but when Pliny recommends the sprinkling of water, in which a weasel or a felis (*mustela aut felis*) had been boiled, over seeds to keep the mice away, who are scared by the smell, I think *felis* is rather a musteline than a feline animal.

With the ancient Greeks, however, we have clear evidence to show that their ordinary domesticated mouse-killer was the white-breasted marten (*Martes foïna*), as Professor Rolleston has abundantly shown (*Cambridge Journal of Anatomy and Physiology*, 1868). This marten was called γαλῆ by the ancient Greeks. "The argument to show that our white-breasted marten" (*Mustela foïna*) — I quote from Rolleston's paper — "was used for the same domestic purposes by the ancients as the *Felis domesticus* is by ourselves, may be briefly stated thus. An animal called γαλῆ by Aristotle (*Hist. An.*, ii. 3, 5; vi. 30, 2; viii. 27, 2; ix. 2, 9; ix. 7, 4), and repeatedly referred to by Aristophanes and

other Greek writers of the best ages, is spoken of as destroying mice, snakes, lizards, birds, and birds' eggs; as being the reverse of odoriferous; as being addicted to stealing; and also as being so common an animal as to be, like our cats, a convenient scape-goat for the blame due to the thefts of other non-quadrupedal animals; and, finally, as being like in its colour and pilage to the animal called in antithesis to it γαλῆ ἀγρία, the wild γαλῆ, but ordinarily ἴκτις, which is a little larger, loves honey, kills birds, and is very susceptible of being tamed. It is impossible to think that any great mistake can attach to the interpretation of statements so consentient, so numerous, and relating so eminently to matters of every-day life and constantly observable occurrence. We have two sets of resemblances and differences detailed to us as existing between two animals: the γαλῆ and the γαλῆ ἀγρία, or ἴκτις; these two sets of resemblances and differences are just those which exist between our white-

breasted marten and our yellow-breasted marten, and, as I believe it is impossible to find a second pair of animals to which this comparison will apply, I apprehend that the point is proved. Both the British martens are, as I know from my own observations and information gathered from persons in the habit of hunting them, great destroyers of mice, birds, and snakes." I now give a short quotation from the "Peace" of Aristophanes, in which you will see, as it were, a picture of the white-breasted marten in the house of an Athenian, the animal giving clear indications as to what brings it to the larder. A member of the chorus speaks and addresses his wife:—"Now, wife, roast me three quarts of kidney-beans, and mix some red wheat with them, and bring out the figs . . . and let some one fetch the thrush and the couple of finches; there were also some beestings in the larder and four pieces of hare's flesh, unless the marten (ἡ γαλῆ) has carried some off in the evening; at all events,

it was making a noise within—I don't know what about—and creating a disturbance" (*Pax.*, 1079, Ed. Bothe.)

To this day, it appears, the white-breasted marten is common in all the Cyclades, and in some of them has the old Greek name ἴκτις, which originally stood for the yellow-breasted species, the *M. abietum*, or pine marten. Although full-grown specimens of both these martens are excessively wild and sly, yet when taken young they are susceptible of great docility; and, as Bell remarks, "the remarkable elegance of this animal's form, the beauty of its fur, and the playfulness of its manners when thoroughly reclaimed, render it one of the most playful of pets."*

* Professor Rolleston has favoured me with the following letter:—"In the year 1871 (July 15) I bought for ten shillings, in the bazaar at Smyrna, a skin of a marten, under the instructive name of δέρμα τῆς καλίας, my old servant assuring me that the three words, κάλια, κουνάδι, and νυμφίτζα, were all alike names of this same animal; κάλια, which my servant would have proparoxyton, is of course as easily formed by corruption of γαλῆ as 'gat' is formed in Berkshire dialect out of 'cat.' The skin is in the University Museum, and testifies to the true interpretation of the passages in classical Greek, where the

Besides the cat, the ancient Egyptians appear to have occasionally domesticated the Ichneumon (*Herpestes ichneumon*), popularly, though erroneously, sometimes called Pharaoh's rat. There is no reason to doubt that this species is the ichneumon of Aristotle, Aelian, Strabo, and other writers, who have recorded marvellous stories about it. Aristotle (*Hist. An.*, ix. 7) says that when an ichneumon sees a serpent, it first of all invites other ichneumons to its assistance; all then roll themselves in mud as a protection against the bites of the snake. According to Diodorus, Strabo, and Pliny, the ichneumon is a

word γαλῆ occurs. The word νυμφίτζα, 'little nymph,' or 'little lady,' has been applied, I think, to the marten by the Greeks from a recognition of those same qualities of elegance, litheness, domesticability, and attachability, which have induced us to call the cat proper by the name of 'Tabby.' For the possession of these properties by the marten, Madame Jeannette Power gives interesting and irrefragable evidence in the *Annals and Magazine of Natural History* (ser. ii., vol. xx., p. 417; 1857). And in the north of England—as, for example, in the lake district—the marten has often been domesticated; and if it is not given too much meat, and is dieted on bread and milk as its staple food, it is found to be as easy to deal with as a ferret similarly treated."

dreadful foe to the crocodile, which it thus destroys:—Having rolled itself up in mud, it watches till the crocodile sleeps, which this creature is said to do with its mouth open! Upon this the little creature jumps into the gaping fauces of the Saurian, slips down its stomach, eats its way out, escapes unhurt, and kills its enemy!

The ichneumon is a very decided snake-eater, and on this account it was looked upon with great respect and veneration by the old Egyptians. Crocodiles' eggs, too, were its favourite food; and as this reptile was held in abhorrence by the people of Heracleopolis, the ichneumon was worshipped by them. "Its dexterity in attacking a snake," Sir G. Wilkinson writes, "is truly surprising. It seizes the enemy at the back of the neck, as soon as it perceives it rising to the attack: one firm bite sufficing to destroy it" (iii. 30; cf. *Lucan*, iv. 724).

The ichneumon is easily tamed, and is sometimes seen in the houses of Cairo, where,

in its hostility to rats, it performs all the duties of a cat; but from its indiscriminate fondness for eggs and poultry, and many other requisites for the kitchen, it is generally troublesome.

Another species (*Herpestes griseus*) the Mongoose of India and Nepaul, is recorded to have killed in about a minute and a half as many as a dozen full-grown rats, which were turned out in a room from which they could not escape.

It is an old belief—unsupported, however, by any evidence whatever—that after an ichneumon had been wounded in conflict by the fang of a poisonous serpent, it immediately has recourse to some herb, which it is said to eat, and which, it is asserted, acts as an antidote against the fatal effects of the bite. The ancient Greeks and Romans believed in similar antidotal herbs. Thus, if a viper had been devoured by a tortoise—an act of which no tortoise is ever guilty—the latter took care to eat the herb origanum, and

then no injury would be done to the testudinous stomach! A weasel does not attack a serpent without previously eating rue. The Indian mongoose (*H. griseus*), so celebrated in its combats with such deadly serpents as the cobra, is also said to have recourse to some curative plant after having been bitten. This seems to have been a very old belief, for it appears in Aryan mythology. Now in all stories about animals, and the strange and often impossible doings attributed to them, we must take into account the connection that in primitive times existed in the minds of men between animals and natural inanimate objects: as the sun, the moon, the clouds. Thus, the lion, from its strength and courage, was a symbol of the sun in the heavens; the bull, from its prolific capabilities in increasing its kind, was another symbol of the sun's powerful agency, under the influence of rain, in fertilising the earth. What the bull did in the terrestrial world, the sun did in the celestial. This relationship of ideas may be expressed

by the term *Mythological zoology;* bright clouds illuminated by the sun may represent white-fleeced flocks of sheep; the black scorpion, black clouds of night; the devouring wolf may ideally represent the dark night devouring the sun; the quail, the returning bird that comes with spring, may signify the returning "dawn of day." The Sanskrit name for a quail is *vartikâ*—*i.e.*, the returning bird; but the quail may be personified: and thus, in the Veda, *Vartikâ* occurs as one of the many beings delivered or revived by the Asvins — *i.e.*, by day and night. "Vartikâ is swallowed, but she is delivered by the Asvins;" "she is delivered by the Asvins from the mouth of the wolf." These and other similar sayings are, as Max Müller shows, mere legendary repetitions of the old saying, "The dawn or the quail comes." Vartikâ is figuratively and poetically represented as a person. Dawn is swallowed by the black wolf of night; but as she appears in the morning after the night, she is said to be

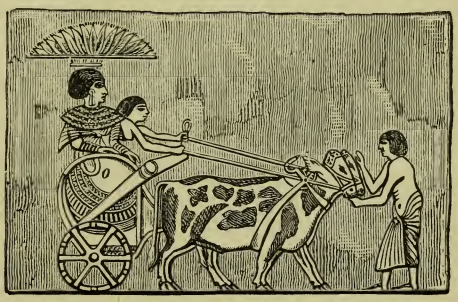
delivered by day and night from the wolf of night.

Of course, as Tylor remarks, imagination in mythological zoology may run to wild extremes. "No legend, no allegory, no nursery rhyme, is safe from the Hermeneutics of a thorough-going mythological theorist;" consequently, he must look to names and their etymological meaning as being "at once the guide and safeguard of the mythologist." But to return to the ichneumon and the restoring herb. The name of this little animal in Sanskrit is *nakula*, perhaps allied to the Latin *necare*, "to kill:" hence the killer of mice, snakes, &c. In Aryan mythology, a black scorpion is bitten by a very small ichneumon. The black scorpion signifies the clouds of night; the small ichneumon, here called the little golden one, probably represents the young rising sun—*i.e.*, the morning sun scatters the vapours of night, absorbing the poison of the black scorpion night; and as the ichneumon, in its conflicts with

venomous serpents, receives into its system some of the poison, it is necessary to get rid of this virus, and therefore mention is made of the salutary herb *gandha* — perhaps the *Ophioxlyon serpentinum*, so called from its twisted root and stems, with which the *nakula* cures itself of venomous bites. (Gubernatis, *Zool. Myth.*, ii., p. 52.) If it were possible to trace this idea to its source, it is probable that we have here also some inanimate nature-myth at the bottom of it. Let us pass from the mythical to the natural.

Cattle.—Different breeds of domesticated cattle are figured on the monuments of Egypt and Assyria. The Egyptian sculptures show a long-horned, a short-horned, and a humped breed; the two former are probably mere varieties of the common ox (*Bos taurus*). The humped ox seems to be a variety of the *Bos indicus*, which has a wide geographical range, being spread over the whole of Southern Asia, the east coast of Africa, from Abys-

sinia to the Cape of Good Hope. Another variety is represented on the monuments at Thebes, drawing a car with an Ethiopian princess seated therein. These animals are white and black in clouds, low in the legs, with the horns hanging loose, forming small



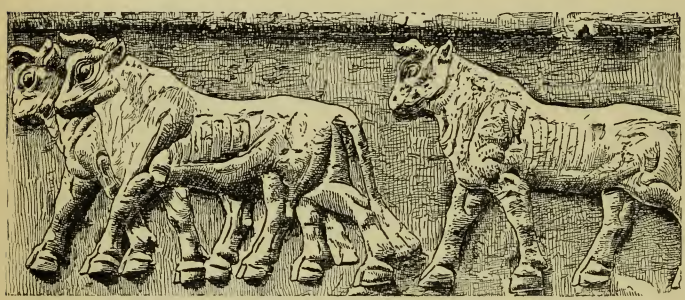
CAR DRAWN BY OXEN. (*Egyptian.*)

horny hooks, nearly of equal thickness to the point, turning freely either way, and hanging against the cheeks. The long-horned and the humped breeds are not now found in Egypt, but are common in Abyssinia and Upper Ethiopia. The humped cattle are figured on monuments of the seventeenth dynasty; they belong, it is thought, to a

species distinct from the *Bos taurus*, from which they differ in many particulars. The domestic cattle of the Assyrian sculptures show a strong breed, generally of one type, though the animals differed in length of horn; a hump, more or less developed, appears on the shoulder; the horns are more thick in proportion to their length than in the cattle of the Egyptian monuments, and the whole animal is more robust. Cattle formed one of the principal animal spoils taken by the Assyrians in their wars with other nations, and beef must have been largely consumed. Representations of killing oxen and sheep, of the various joints, as the leg, the loin, and shoulder, similar nearly to those of modern England, occur on the monuments. Amongst the ancients cattle were much used for agricultural purposes, as ploughing, threshing, treading in the newly-sown corn, and for drawing carts, &c.; the horse being reserved for hunting and war purposes. The early Accadians appear to have derived their

ANCIENT EGYPTIANS BRANDING CATTLE.

cattle from Phœnicia, and the district between Syria and the Euphrates; for the Accadian words for the domestic ox are *gut* and *khan*. I have told you how common it was for the Accadians to name their animals from the countries whence they obtained them.



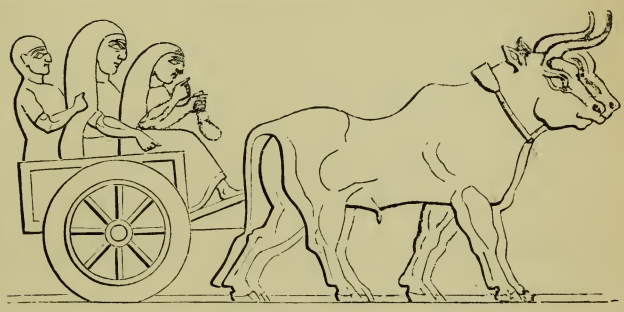
OXEN. (*Assyrian.*)

Now *gut* seems to point to a country called *Guti*, or Gutium, between Syria and the Euphrates; whereas *khar* is perhaps *Akharu*, "the west"—*i.e.*, Phœnicia. An ancient Accadian farmer's guide-book gives us specimens of short songs with which the ox-driver beguiled his labours as he ploughed, just as modern farm-lads cheer their monotonous walk in the

fields by whistling. Professor Sayce has given us the following specimens :—

(1.) "Before the oxen as they march all in the grain thou layest thee down."

(2.) "The knees are marching, the feet are not resting: thou hast nought of thy own, so serve me with thy labour."



CAR DRAWN BY OXEN. (*Assyrian.*)

(3.) "Heifer that thou art, be yoked to the cow; the plough's handle is strong, the share cuts deep; lift it up, lift it up." (*Babylonian Literature*, p. 59.)

The ancient Romans paid great attention to their cattle, which they divided into two classes: one was kept at home for farm-work; the other was pastured in wooded districts

away from home under the care of herdsmen, who used to remove the cattle from cool wooded lands—their summer quarters—to the warmer coasts in the winter. Much care was taken of the oxen after a day's ploughing, similar to that bestowed on horses at the present day. Here are Columella's instructions :—"After the ploughman has unyoked the oxen, he must rub them well, press the back with his hands, pull up the hide and not allow it to stick to the body, for that complaint is especially injurious to herds ;* he must rub down the neck, and if they are very warm, pour wine down their jaws ; two sextarii (*i.e.*, a quart) are sufficient for each beast. They must not be tied to their stalls before they have recovered from sweating and blowing. They may afterwards in proper time be fed, but it is not good to give them much food nor the whole of their portion ; they should be supplied with parts, and

* Compare our English expression "hide-bound."

gradually. After they have consumed their food they must be taken to water, and encouraged to drink freely by whistling to them; they must then be taken back and supplied with more food" (Col. ii., cap. iii.). We may form some idea of the Roman breed of cattle in the time of Varro, Columella, and other Latin writers on agricultural matters a little before the birth of Christ, from the qualifications a good animal ought to possess in the opinion of a competent judge. Columella's enumeration of the qualities a good labouring ox ought to exhibit is, as he tells us, taken from Mago the Carthaginian. Mago's date is uncertain; all that is known of him is, that he wrote voluminously on agriculture in the Punic language, that he is frequently mentioned by Latin authors, and always in terms of high praise: so that he must have been a standard authority on all farm matters. His work is said to have opened with this recommendation: that if a man really intended farming, he should at

once sell his town-house and reside altogether in the country. So great was his reputation at Rome, that, when Carthage was destroyed and the libraries scattered, orders were given to collect Mago's works, and to have them translated from the Punic into the Latin language. Fragments of this work have been preserved; and I now give Mago's opinion of the points of a good working ox :—

"The oxen that ought to be procured should be young, square, with large limbs, high, strong, black horns, forehead broad and curly, ears rough, eyes and lips black, nostrils turned up and wide, neck long and muscular, dewlap large, reaching nearly to the knees, chest broad, shoulders large, belly capacious, and, as it were, filling out, flanks extended, loins broad, back straight and even, or slightly curved inwards (*subsidente*), haunches round, legs compact and straight, but rather short than long, knees moderate, hoofs large, tail very long and hairy, the hair of the whole body thick and short, the colour red or dark-

brown, and the whole body very soft to the touch" (Col. vi. 1).

According to Varro, cattle of a black colour were considered the hardiest; then the red, then the dun, then the white, which were thought to be more tender. From this description, I am inclined to think that the domestic cattle of the Carthaginians and Romans—which appear to have been one and the same breed—were descended from *Bos primigenius* as the original type. This species had a wide range, and was domesticated in Switzerland during the Neolithic period; and I think it probable that the domestic cattle of the Assyrians and Accadians sprang from the same wild breed, which, in the times of some of the Assyrian monarchs—Tiglath Pileser and Assur-natsirpal—were abundant in those very districts, Syria and Phœnicia, whence the Accadian names (already mentioned) seem to inform us their domestic cattle came. The description given by the Roman agricultural writers of the domestic breed of cattle known

to them, does not at all suit the species—if a true species—*Bos longifrons*, which had small horns and legs, and was altogether a less robust breed. Bones and horn-cores of the *B. longifrons* have been found in barrows in different parts of England and Ireland, and we know that this species, which, from its remains having been found associated with those of the elephant and rhinoceros, must have existed from very early times, was domesticated during the Roman occupation of this country, and that this ox was the species which the Romans fed upon. Now if, as has been supposed, the Roman legions when they invaded Britain brought their cattle with them, then the remains of *Bos longifrons*, such as the skull, horn-cores, and bones, which have been found, ought to agree with the descriptions of the Latin agricultural writers, whose domestic cattle were evidently a large-bodied, long-horned, broad-headed, strong-limbed breed, which the *Bos longifrons*, at least in historical times, was not.

I think that the descriptions which the Carthaginian Mago, and the Roman writers, Varro, Columella, and Palladius have left us of the domestic cattle of their time, is corroborative of the opinion long ago expressed by Cuvier, Bell, and other naturalists, that the *Bos primigenius* is the original whence, generally, our domestic breeds have descended. Cæsar's "boves nostri," with which he contrasts the great *Bos primigenius*—the *urus* which he met with in the Hercynian forest—are, I think, to be referred to the breed cultivated in Italy in his time—the cattle of Mago and Varro, and not to the breed which Cæsar's legions found and fed upon when in Britain—viz., the *Bos longifrons*. Among the Romans, the cattle of Umbria, especially those fed near the clear waters and on the rich pastures of the Clitumnus, were considered the finest and handsomest breed in the whole of Italy; they were of white colour, and on account of their beauty were selected for sacrificial offerings on triumphal

and other great occasions. The cattle of Etruria and Latium were recommended for labour in the fields.

Sheep and Goats.—The ordinary sheep figured on the Assyrian monuments has long curved horns, often turned up at the tip. The variety represented is the same which is at present found in Palestine and the plains of Belkah, namely, the *Ovis aries appendiculata*, with white body, dark-brown head and neck, tail of moderate length, with a thin excrescence at the end like a pig's tail; then there is the broad fat-tailed sheep, another variety of the common sheep also found in Palestine. This fat tail amongst the ancient Hebrews was part of the "sacrifice of the peace-offering made by fire unto Jehovah;" "the fat thereof, and the whole fat tail, it shall he take off hard by the backbone" (Lev. iii. 9). This fat-tailed breed is the ordinary sheep of the East—it is the *Ovis orientalis* of Ludolf, who has figured this animal drawing its long fat tail in a little cart. This variety was known

SHEEP AND GOATS.* (*Assyrian.*)

to Aristotle and Herodotus. The former speaks of Syrian sheep with broad tails a cubit long; and Herodotus says a similar kind is found in Arabia. The story of sheep drawing their tails in a cart—first mentioned by Herodotus, (iii. 113), repeated by Leo Africanus in the fifteenth century, and again by Ludolf in the seventeenth—has sometimes been ridiculed as a traveller's story; but here the old Halicarnassian, as in many other instances, was right after all, and his critics are mistaken. "The necessity of carriages," writes Dr. Russell in his "History of Aleppo," "for the tails of the sheep mentioned by Herodotus, Ludolphus, and other writers, is real. I have seen some at Aleppo, brought from Egypt, and kept as curiosities, which agreed exactly with the figure given by Ludolphus" (ii., p. 149). The tail is simply a mass of fat, and in Palestine, as we learn from Tristram, it is used for grease, lamps, and cooking. The Arabs fry it in slices, and esteem it a delicacy, but it is very like fried tallow.

Of the sheep of the ancient Romans we may get some notion from Varro and Columella. In the selection of a ram, a necessary quality was that the fleece should be uniform in colour, either white, black, or reddish; but colours in the same individual were not to mix; the tongue and palate were to be free from dark spots, because such blemishes would be inherited by the offspring; in general appearance a ram should be noble looking and tall, the belly well covered with wool, the tail very long and thick in wool, forehead broad, horns twisted inwards, but it was better to cut them off altogether, in which case they would be harmless, which is not the case when the horns are erect and spreading. In severe weather, and in cold stormy districts, it was desirable that both rams and he-goats should have their heads well horned, as a protection against the weather (Col. vii. 2, 3). The Romans divided their sheep into two classes, like their cattle; one was home-fed, the other was bred in pastures away from home. They

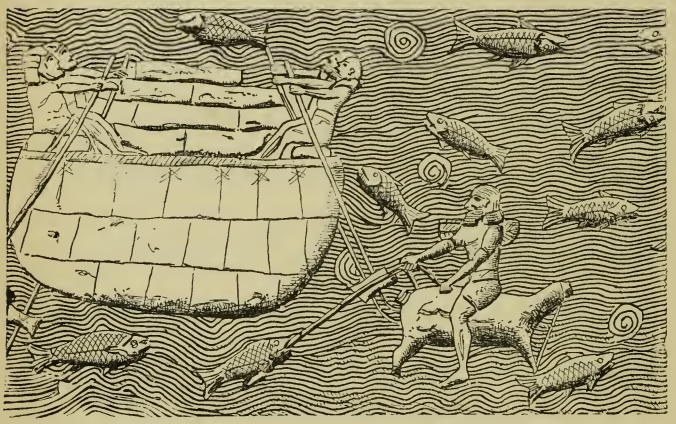
had also another division—(1) Those sheep which had their fleeces protected by skin coverings. (2) Those not so protected. The first division received most care, and were more nutritiously fed, kept very clean in stone-paved stalls; when they were allowed to go into the fields, care was taken to remove briars and thorns lest the wool should be damaged or the skin-jacket torn off; in hot weather the covering was frequently removed, and the wool combed and washed with wine and oil. The sheep reared in distant pastures were in the winter time removed to the low and warmer districts near the coast; in summer they were driven to the hills of central Italy. These flocks were often very numerous, consisting sometimes of 15,000; they were looked after by shepherds in the proportion of about one to a hundred sheep. In ancient times the fleece was *torn* from the sheep; hence you see the derivation of the Latin word *vellus,* "a fleece," from the verb *vello,* "I pluck." This custom was superseded in later

times by the shearing process (*tonsura*), though it still continued to be practised, here and there, even as late as the time of Pliny.

Whatever may be the original home of the stock, or stocks, whence our various domestic breeds of sheep have descended, it is certain that they were domesticated in prehistoric times, their remains having been found in the Swiss lake-dwellings, together with those of other domesticated animals, as the goat, dog, and horse; this breed is said to be small and lanky, with goat-like horns, different from any race of sheep hitherto recognised.

There is much less uncertainty as to the wild goat, from which the domestic varieties have descended; it is now generally thought that the Paseng, or *Capra ægagrus*, a species common all through Asia Minor and Persia, extending even to Scinde, is the original parent. The domestic goat of the Assyrian monuments is represented with very high horns and moderate-sized ears. This elevated

horn is distinctly mentioned in the Accadian name of a goat, *sik-ka, i.e.*, "horn-raising." The Assyrians used the flesh of the goat, especially of young animals, as food, and the milk was, of course, valued. The skins were



ASSYRIAN FISHERMEN.

used as bottles for carrying water or other fluids; inflated with air, a number fastened together served to float rafts; a goat-skin thus inflated also served as a swimming bladder or buoy. On the monuments may be seen figures of Assyrian fishermen sitting in the water crosslegged, each one riding on one of

these inflated skins, with fishing-line and baited hook, and fish swimming about them.

In parts of Egypt, as in the Mendesian nome, the goat was sacred, and even the goat-herds were respected, notwithstanding the abhorrence with which the Egyptians regarded every denomination of shepherd; but in some parts of Upper Egypt the goat was sacrificed. On the death of a he-goat all the Mendesians went into mourning. The Egyptians made use of goats in agriculture, for treading in the grain after it was sown, driving whole herds over the fields for this purpose; cattle, sheep, pigs, and asses were also similarly employed. In Palestine the large-eared goat, *Capra mambrica*, with thick recurved horns, and enormously developed pendent ears, is one of the several breeds found there. This species probably is that one to which the prophet Amos, himself a herdman, refers in the words, "As the shepherd taketh out of the mouth of the lion two legs, or a piece of an ear" (iii. 12).

The ancient Romans divided their goats into two classes—(1) Those which had fine hair and sawn-off horns. (2) Those with shaggy hair, whose horns were allowed to grow. A good he-goat, according to Columella, should have the following qualities:—It should show under the lower jaw two small warts, or flaps (*verruculæ*), hanging from the neck, and should have a large body, thick legs, full and short neck, flaccid and very heavy ears, a small thick head, and very long shiny hair. From this description the breed would seem to approximate the pendent-eared goat of Syria mentioned above. The Romans used either to shear or pluck the hair from the goats; their treatment differed but little from that of the sheep. In certain parts of England there is a common belief amongst farmers that goats are very healthy animals, and that their smell is beneficial to cattle, horses, and other animals; consequently it is not uncommon to see one or two goats pasturing with cows in the fields, and accompanying them

as they are being driven home for milking. Now it is curious that amongst the Romans a contrary opinion prevailed; there was a very prevalent belief that goats were never altogether free from fever or from a liability to take it; and so Varro, in his instructions about purchasing goats, says, "No sane person expects to buy sound she-goats, for they are never without fever;" "so," he adds, "when you go to buy, you must make your bargain in a few such words as, 'About these she-goats, are they in good health to-day? Can they drink? Can you say they are well at present? Can you warrant them thus far?'"

Camels.—Of the two species of camel, the one-humped Arabian, and the two-humped or Bactrian camel, the first-named is the species generally known to the ancients; though on the Assyrian monuments both species are represented. The Arabian camel is frequently mentioned in the Bible, but, strange to say, it is never depicted on the Egyptian monuments,

whether by painting or hieroglyphic writing, but we cannot therefore say that it was unknown to the people, for it is never safe to build much on the basis of negative evidence. For instance, we know that both fowls and pigeons were from early times kept by

BLACK OBELISK. (*Assyrian.*)

the Egyptians, but no figure of either bird occurs.

The camel is mentioned in the Bible among the presents given by Abraham to Pharaoh, and was therefore in all probability known to the Egyptians. Arabia appears to have been the original home of the one-humped camel, so far as we are able to go

back historically. I have already alluded to the Accadian name of the camel—"the beast of burden from the sea"—*i.e.*, the Persian Gulf. Similar testimony as to its Arabian home is supplied by the Hebrew Semitic word *gâmâl*, which is very probably from an Arabic root, *hamal*, "to bear a burden," whence *jamal*, "a camel." The Semitic word has passed with the animal itself into the numerous languages of Western Europe, and has extended in a south-east direction to Hindostan, where it appears under the Sanskrit form of *kramēla*, a word which, as Professor Max Müller has informed me, "is a late one in Sanskrit, formed in imitation of the Semitic word for camel, and artificially brought in connection with the Sanskrit root *kram*, 'to step.'" The whole evidence, as supplied by linguistic palæontology, thus points to Arabia as the camel's original home, so far as we have to think of the animal in historic times. I do not forget that a fossil species (*Camelus sivalensis*) was discovered some years ago by

the late Dr. Falconer and Sir P. Cautley in the Miocene tertiary deposits of the Sevalik hills of Hindostan; secondly, in Egypt, by Captain Horner and Lieutenant Newbold, in the drift of a pre-historic age. From the fossil remains of the skull, jaws, and teeth, which indicate an animal much larger than the existing species now in the British Museum, this camel seems to have been closely allied to the Arabian animal, whose parents—speaking palæontologically—it may have been.

In the Assyrian records camels are very often mentioned. In Assur-banipal's expedition against a certain king of Arabia, we find the occurrence of these animals in immense numbers. "Camels like sheep," the Assyrian king says that he took and distributed to his people. So great was their number, that after a battle a camel might be bought for half a shekel of silver only.

The camel is and long has been the subject amongst Eastern nations of several proverbial expressions, but I only stop to notice the one

mentioned in the New Testament as having been spoken by Christ—"It is easier for a camel to go through a needle's eye than for a rich man to enter into the kingdom of God." It is perfectly certain that the Greek word κάμηλος means "a camel," and nothing but a camel. It has been said that we ought to read κάμῖλος, "a cable," instead of κάμηλος, "a camel," and that in that case the metaphor of rope and needle's eye is exact, whereas the idea of a camel passing through the eye of a needle is a false metaphor. Unfortunately for objectors to the ordinary reading, there is no such Greek word as κάμῖλος, "a cable." The scholiasts on the Wasps of Aristophanes (1035) and Suidas are the only authorities for the existence of such a word, which must be rejected. Another suggested explanation is that a small gate at Hebron still exists, through which a loaded camel can with difficulty pass, and that this gate, or small arch, is called the Needle's Eye. There is no doubt, however, that the literal meaning

is the true one. Such proverbial expressions were common among the Jews when they were referring to anything unusual or impossible. Thus, to a person who had told some marvellous or incredible story, it was said, "Perhaps thou art one of the Pombeditha (a Jewish school at Babylon) who can make an elephant go through the eye of a needle." Again, in the Koran, "Until the camel shall enter the needle's eye," is an expression that occurs, and will serve to illustrate the foregoing remarks. The use of camels in war is mentioned by various writers, and is depicted on the Assyrian monuments. When Cyrus made war against Crœsus he adopted the following device. He took their loads off the camel's backs, such as baggage, provisions, &c., and mounted riders as horsemen upon them; these were put to form the front of his army, then the foot-soldiers came, and then the horse. As the armies met, the Lydian war-horses, seeing and smelling the strange and ugly-looking camels, took fright and

bolted: nothing could stop the terrified steeds. The riders leaped off, and fought on foot with determined bravery, but the army of Crœsus was conquered.

Both species of cattle are mentioned by Aristotle. "Camels," he says, "possess a part peculiar to themselves, called the hump. The Bactrian has two humps, the Arabian one." He speaks of camels being used in war, and says that to prevent their becoming footsore they are shod with shoes of undressed leather. Aristotle was aware of the camel being able to go for days without water. "It can remain without drinking for the space of four days, and then it drinks large quantities."

Aristotle is entirely wrong about the dentition of the camel, and it is clear that he never could have examined a camel's mouth, for he says that this animal has not teeth in both jaws, whereas there are in the upper jaw the usual molars—the first premolar, however, being placed a long way in front of the others

—two canines, and, exceptionally among the Ruminantia, two incisors. Pliny repeats Aristotle's errors.

The Horse.—Ancient records of this useful animal possess more than ordinary interest. Palæontological evidence leads us back to a long distant past, and presents us with gradations of altered structure, shown especially in the fore and hind legs and teeth, in which modifications are seen to have taken place in the remains of the fossil horses which demonstrate the extremely interesting fact that the modern horse has descended from an equine animal which originally possessed four or five toes, with the corresponding metacarpal and metatarsal bones. These remains, which have been discovered in Europe and in America, occur in tertiary formations of geologists, from the more recent Pliocene downwards, through the Miocene to the Eocene. The ordinary splint bones of the modern horse are mere rudiments of the metacarpal and metatarsal

bones which were more developed in the equine animal of the later Pliocene, and to each of which moreover was attached a finger or toe with three joints; gradations or modifications of structure in the remains of these successive strata occur in which it is proved that the geological ancestor of our modern horse possessed as many as five toes, with their corresponding wrist or ankle bones. The most ancient historical record is very recent indeed compared with the records of the latest tertiary formations; and even in the Swiss lake-dwellings of the stone period the remains of the horses which have been found present no osteological differences of structure between the animal of that period and the horse of to-day. But we must confine our remarks to the horse of history. Have our domestic breeds descended from several wild races, now everywhere extinct, or from one? Where was the horse's original home? Historical evidence, so far as it goes, would lead us to Media and Armenia as the birthplace.

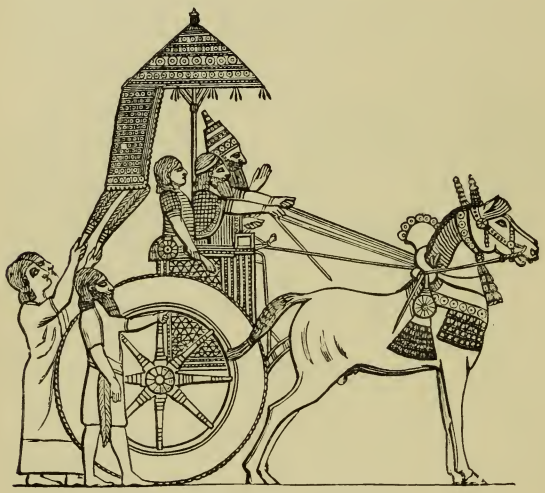
The Egyptian monuments anterior to the date of Amosis (about B.C. 1500) of the 18th dynasty, give no representations of horses, but it would not be safe to conclude from negative evidence alone that the horse was not introduced into Egypt anterior to the above date. Notwithstanding the esteem in which the horse was held by the ancient Egyptians, and its great utility, it was not a sacred animal, nor the emblem of any deity. The Hebrews, from their earliest history almost down to the time of Solomon, did not employ the horse for any purpose, though they were well acquainted with it, as it was extensively used by neighbouring nations, as the Canaanites, Egyptians, and Syrians. The first notice of the horse occurs in the time of David, who defeated Hadadezer, king of Zobah in Syria, and reserved for himself one hundred horses. Soon after this Solomon introduced into Judea great numbers. Amongst the Assyrians the horse was extensively employed. It is represented with much spirit on the Assyrian

monuments, and more frequently than any other animal. They were used in war and in the chase. As they are never represented drawing carts or carrying baggage, they were probably not used for these purposes, for

WAR HORSES. (*Assyrian.*)

which mules and asses were employed. The horse of the Assyrian sculptures is a noble animal; the head is small, and so are the ears; the eye often fiery, so far as can be expressed in cold marble, and full of life; the whole body compact, with well-developed

muscles; pasterns rather short, and forehand good. The horses of the Assyrian army were a terror to the Jews, and are often mentioned in the Bible as such. The horses of the Assyrian monuments are of a



KING'S CHARIOT. (*Assyrian.*)

comparatively late date, and the Assyrian name—*śuśu*—for "a horse," which is identical with the Hebrew, throws no light as to the country from which the people obtained their animals. The useful Accadian language, however, gives us a clue. We have already seen

that it was the custom of this Turanian race to call animals by the names of the countries from which they came. Now, in Accadian, the expression for a horse is "the beast of burden from the East," *kurra*. Whether the very early Accadians in their highland and wooded home of Elam ever used the horse, or what name they gave it, I do not know; but when they migrated southwards down into the Mesopotamian plains, they called the horse *kurra*, the animal which came from the "East," that is to say, from Media and Armenia. Ezekiel mentions the importation of horses from Armenia into Tyre. "They of the house of Togarmah traded in thy fairs with horses, horsemen, and mules" (xxvii. 14). Classical authors also bear testimony to the excellent qualities and great number of the horses of these countries, and to this day the pastures on the hills and plains of Armenia sustain fine breeds.

The Greeks and Romans—if one might form an opinion from the Greek and Latin

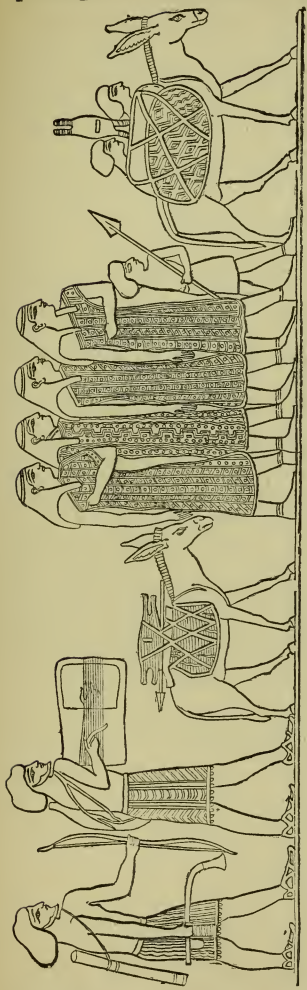
ἵππος (=ἴκκος) and *equus*, which are both to be referred to the Sanskrit *aśva*, "a horse," from the root *aś*, "to be swift"—probably brought their horses with them when they migrated westerly from their original Aryan home in Bactria. Be this, however, as it may, the horse has been long domesticated in Europe, and the Greeks and Romans bred large numbers, and paid much attention to them. They seldom employed horses in farm work, as we do at the present day; oxen took their place in this respect; they used them for racing, for military service, for carrying burdens, for draught purposes, and for hacks or roadsters. Great care was bestowed upon them, and colts were not broken in before their bones were well set, and they were three years old. The points of a good Roman horse we may learn from Varro and Columella:—"It should have a small head, black eyes, expanded nostrils, short and erect ears, a smooth neck broad and not long, a thick mane falling on the right side, and broad chest made up of a number of

nodular muscles, fore-arms large and straight, sides curved, spine ample (*duplex*), belly contracted, legs equal high and straight, knee round and small, not bending inwards, haunches round, hoofs hard, high and concave, coronets round of moderate size; the whole body should be full, tall, erect, active in appearance, and cylindrical" (Col. vi. 29, 1, 2, 3). Palladius—a late writer, about A.D. 350—has given us a list of colours which seem to have been as various in his day as they are now. The principal were, bay (*badius*), bright chestnut (*aureus*), whitish (*albineus*), red (*russeus*), chestnut-brown (*myrteus*), fawn (*cervinus*), pale-yellow or cream (*gilbus*), dappled (*scutulatus*), white (*albus*), speckled (*guttatus*), milk-white (*candidissimus*), black (*niger*), dark brown (*pressus*), pie-bald (*mistus nigro et albineo*), skew-bald (*mistus albineo et badio*), light grey (*spumeus*), spotted (*maculosus*), dun or mouse-coloured (*murinus*). Horses of one definite colour were preferred; still Palladius quite allowed that—to make use of an English

saying—"a good horse cannot be of a bad colour," for, he adds, "mixed colours are to be despised unless an abundance of good qualities excuse the fault of colour" (Pallad. iv. 13, 4, 5).

Ass.—Asses, like horses, have been long domesticated. Among the ancient Egyptians they were employed as beasts of burden, for turning mills, treading out ripe corn, and treading in newly-sown corn. "Like those of the present day," Sir G. Wilkinson says, "it is probable that they were small, active, and capable of bearing great fatigue; and considering the trifling expense at which these hardy animals were maintained, we are not surprised to find that they were kept in great numbers in the agricultural districts, or that one individual had as many as 760 employed in different parts of his estate" (iii., p. 34). The ass was sacred to Typho, "the Evil Being." According to Plutarch, the Coptites had the custom of throwing an ass down a

precipice; and the inhabitants of Busiris and Lycopolis carried their detestation of it so far as never to make use of trumpets, fancying that their sound is similar to the braying of an ass. Even the colour of the unfortunate ass—which in Egypt, as in ancient Palestine, was of a redder tint than is usual with the domestic ass of England—was looked upon as indicative of the Evil Being, and any unhappy man who was of a ruddy complexion, or had decidedly red hair, was thought to be related



ASSES. (*Egyptian.*)

to the Evil Being (Typho). There is no figure of the domestic ass on the Assyrian sculptures, but it is frequently mentioned in the records. It must have been known to the inhabitants of Mesopotamia in early times, before they became acquainted with the horse, because the usual determinative prefix to denote a "beast of burden," stands alone—without any additional word—as the representative of the ass. It is "*the* beast of burden," *par excellence* as it were. So here the Accadian language, which has hitherto helped us, fails to furnish any information or clue as to the original country whence the ass was introduced into Assyria and Armenia.

Four species of wild asses are known, and naturalists are generally agreed that the domestic ass of this and other countries has descended from the Abyssinian species, *Asinus tæniopus*, the specific name meaning "band-legged," in allusion to the dark bars across the animal's legs, which the Abyssinian

species exhibits, though only in a slight degree. We may rest satisfied with this being the parent-form, for it is well known that the common domestic ass very often shows, besides the usual dorsal and shoulder stripes, traces of bars across the legs, sometimes only faint, at other times very clear and distinct. I think that the domestic ass of the ancient Accadians and Assyrians came originally from Abyssinia. Thus, while the *horse* of the Egyptians in Africa came from the East, its home in Asia, the ass of the Assyrians in Asia came to them from its south-west home in Africa. When we remember how prevalent the custom among the Accadians was of naming an animal after its home, we may think it probable that they would have designated the ass as the "beast of burden from the South," had they remembered its original home. But this they have not done; the ass is simply "beast of burden." Hence, I think it probable that the domestic animal found its way from Africa to Western Asia in very early

times, and that neither record nor tradition as to its original home existed in the memories of the people when they named the ass "Beast of Burden." Amongst the Hebrews the ass was used for carrying burdens and baggage in war, for ploughing and for riding. Whether these animals were used for treading out corn, as in Egypt, we cannot determine, the Biblical records being silent; but Josephus says, "Asses are the same with us as they are with other wise men, viz., creatures that bear the burdens that we lay upon them; but if they come to our threshing-floors and eat the corn and do not perform the duties, they receive many stripes" (*Contr. App.* ii. § 7). The white asses mentioned in Judges v. 10, "Speak, ye that ride on white asses," were a large and handsome breed upon which judges and the great men of the land used to ride. Bagdad is still famous for its white asses, which are large and spirited, and have an easy steady pace.

The ancient Greeks and Romans paid a good deal of attention to the domestic ass.

Probably in no country in the whole world was so much care shown in breeding this animal as in Italy. In Greece Arcadia was celebrated, in Italy the district round Reâte, in Sabinium, for its breeds. This latter-named country was especially celebrated; animals bred there being occasionally imported even into Arcadia. Varro, the most practical and experienced of all the Roman writers on agriculture and domestic animals, held extensive property at Reâte—a district about fifty miles N.E. of Rome—and had domestic asses of very superior stock. "He who wishes to have a good breed," he says, "must first of all take care to select the sire and the dam of a full age; they must be strong, handsome in every point, large in body, be descended from a good stock, and come from those places whence the best are procured, such as from Arcadia and the Reâtine district." Varro recommends that the breed should be occasionally crossed with the *onagri* of Phrygia and Lycaonia, which he calls "wild," but

which he says are easily tamed, and when once domesticated never again show signs of their wild nature. From this it is evident that he is speaking, not of a wild race of ass properly so called, but of a domesticated breed which had been allowed to pasture for some time in a wild, or semi-wild, state. The price sometimes paid for a handsome and high-bred domestic ass by the Romans was enormous, but one cannot help suspecting some error in the numbers. As much as £500 of our money, Varro says, a good ass has fetched in his time, and in his own recollection, and a team of four splendid animals was sold for £3,300.

These, of course, were highly-bred animals, and probably were pedigreed like our modern race-horses and prize cattle, &c., and as with us, perhaps, so with the luxurious Romans of the Empire, these enormous sums were only occasionally paid by the very rich and noble, who did not scruple to give "a fancy price," however exorbitant, in order to secure the best

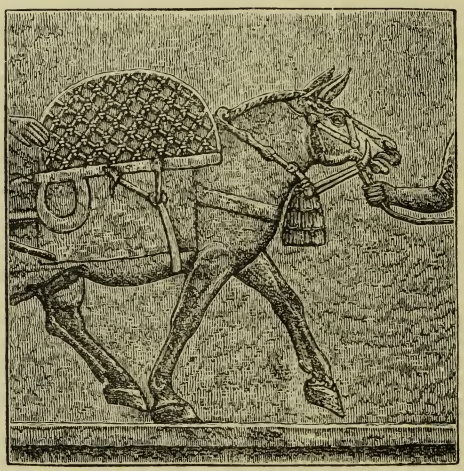
breed. The ordinary ass for agricultural purposes was a very different animal; it was "rough and ready," hardy in nature, capable of prolonged labour, and able to "do on a little." Coarse food, such as the leaves of trees, prickly shrubs, and doubtless our own familiar thistle, were sufficient for the agricultural animal, whose duties were to carry burdens, turn corn-mills, and to plough. The term "donkey," or "ass," applied to a stupid or an obstinate man was, doubtless, as common with the old Romans as with ourselves, for the expression is frequent in classical authors. The germ of the reputation which the ass has of being both a stupid and a petulant animal is by some supposed to have appeared first in Greece and Italy, and hence to have spread into other parts of Europe; but Gubernatis has given reasons to prove that although it was in Greece and Rome that the poor ass was thrown completely down from his rank in the animal kingdom, the first decree of his fall was pronounced in his Asiatic home. (*Zool.*

Mythol. i., p. 364.) We have already seen that among the ancient Egyptians a similar reputation prevailed. Of the Equidæ the ass appears to have been the first animal domesticated, then followed the horse, and afterwards —at what date it is not possible to say—the mule.

Mules.—No mention of mules occurs in the Bible before the time of David; it is true that in our English version the word occurs much earlier, namely, in Gen. xxxvi. 24—"This was that Anah that found the mules in the wilderness;" but the Hebrew word very probably denotes "hot springs," as the Vulgate version has it. After the first half of David's reign mules became common. Now the Levitical law forbade the coupling together of animals of different species (Lev. xix. 19), consequently we must either suppose that mules were imported, or that the Hebrews must have become less scrupulous in the matter. The mule is occasionally represented on the

Egyptian monuments, and it is probable that the Egyptians bred these animals and perhaps imported them together with horses into Judea in the time of Solomon when a friendship existed between the king of Egypt and the Hebrew monarch, who had married the former king's daughter. But as the mule was known to the Hebrews before Solomon's time—for David his father rode on one—it seems pretty certain that the Jews first became acquainted with these hybrids after David's victory over Hadadezer, king of Zobah, a district of Syria, and though no distinct statement is made that mules were employed in the king of Zobah's army, I think it probable they were. Now the appearance of mules would naturally soon take place after the introduction into the same country of the two parents—the horse and the ass; and as Armenia and Media seem to be the original home of the horse, historically speaking, and the ass, as we have seen, was in very early times known to the Accadian inhabitants of

the Mesopotamian valley, it seems probable that in Armenia or Media the mule first made its appearance. Ezekiel expressly tells us that from Armenia mules were imported into Tyre. "They of the house of Togarmah



MULE. (*Assyrian.*)

traded in thy fairs with horses, horsemen, and mules" (xxvii. 14). The mule of the Assyrian monuments shows an animal of excellent breed, the climate of the country being well suited to both parents; and as these animals were often used for riding, carrying baggage

in war and nets for deer-hunting, much attention would be bestowed on their breeding, which, judging from their so frequently forming part of the spoil of conquered nations, must have been extensively practised.

The Greeks and Romans also paid considerable attention to the breeding of mules; a good animal from Arcadia or the Reatine districts might be worth as much as £250 or £300. The Romans used the better bred mules for drawing their carriages; they were generally yoked in pairs; the commoner sort carried pack-saddles, and were employed in ploughing if the soil was not too stiff. The finer breeds were removed in droves for the summer season, from the plains of Rosea, near Reâte, to the mountains called Gurgures, which appear to be the high and central regions of the Apennines. When the male parent was an ass, the foal was called *mulus;* when a horse, the product was called *hinnus;* the former was more prized.

Pigs.—Among the Egyptians the domestic pig often formed a part of their farmyard stock; but, as with the Jews, it was a most unclean animal, hateful to the sight and touch. It is but rarely represented on the monuments. As pigs were held in such abomination, it may be asked for what purpose did the ancient people of Egypt keep them? One reason seems to be that these animals were very useful in treading in the corn after sowing; that they were so employed is evident, I think, from a Theban sculpture, and from the express testimony of Herodotus and Ælian, quoting Eudoxus.

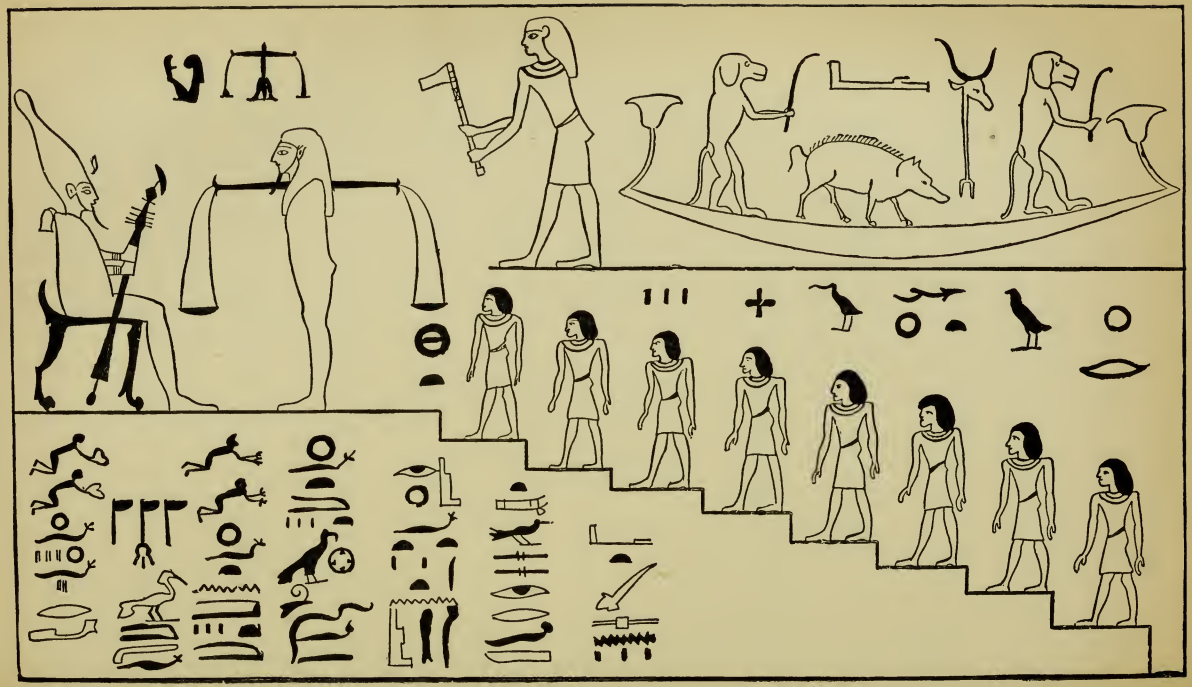
"In no country," says Herodotus, "do they gather their seed with so little labour; the husbandman waits till the river has of its own accord spread itself over the fields, and withdrawn again to its bed, and then sows his plot of ground, and after sowing turns his swine into it—the swine tread in the corn—after which he has only to wait for the harvest." Herodotus also says that pigs

were employed in threshing the grain. Ælian says that one reason why the Egyptians did not sacrifice pigs was because they were required to tread the grain into the ground, and thus secure it from the ravages of numerous birds. Sir G. Wilkinson thinks, however—and it would not be safe often to differ from so excellent an authority—that pigs were not so employed. He interprets the Theban sculpture as representing pigs driven on to marshy land to eat up the weeds and roots; but in the figures on the monument in question, a man is depicted with a knotted whip—just like our modern dog-whip—in his right hand, and a strong noose or muzzle on a stick over his shoulder, driving four bristly boars, each one being muzzled! There is, it is true, no accompanying figure of a seedsman scattering grain; but when we consider that several other animals were employed for treading in the corn, and that on the authority of Herodotus and Eudoxus pigs were thus employed, I see no reason to

doubt the matter. The muzzled boars were prevented from rooting up and eating the grain; how then could they eat up weeds or roots? The pig was thought to have first suggested to man the idea of ploughing, by rooting up the ground with its strong snout. But, notwithstanding any useful purposes the domestic pig might have served, it was considered by the Egyptians so singularly contaminating, that any person who had happened even to come in contact with it, was compelled to go immediately into the water, even with his clothes on. Swineherds, of course, therefore, were held in abomination, though of pure Egyptian blood. The only two occasions on which the pig was sacrificed, according to Herodotus, were on the festivals of the moon and Bacchus. The same authority tells us that he is perfectly well acquainted with the reason why the Egyptians sacrificed the pig on only these two festivals, but that he does not think it proper (εὐπρεπέστερος) to mention it. Very

naughty Egyptians after death were supposed to return to earth in the form of pigs. In a scene representing Osiris (the judge of the dead) in the office of weighing the actions of the good and bad, a wicked soul is seen in the form of a pig standing in a boat, navigated by two dog-headed baboons who are returning to earth again. All communications with the abodes of the blessed is figuratively cut off by a man with an axe in his hand, who has cut away the rope which bound the boat to the shore.

The ancient Jews, like the Egyptians, held the pig in the greatest abhorrence; they had a saying, "The pig's snout resembles ambulant dirt," while the eating of its flesh was equivalent to forswearing the Law, and to absolute apostacy from the faith. Even the Hebrew word for a pig (*chăzîr*) was detestable, and instead of pronouncing it they used an expression meaning "the other thing," "the thing;" the poor pig being something far too disgusting to mention by



JUDGMENT SCENE. (*Egyptian.*)

name. What opinion the ancient Assyrians held with respect to the pig it is not possible to say; no figure of the domestic animal occurs on the monuments, and I am not aware of any Assyrian word for a pig occurring in the records.

The Greeks and Romans, on the other hand, fully appreciated this most useful animal; they bred pigs largely, and ate the flesh with relish. "There is no animal," says Pliny (*N. H.*, viii. 77), "that affords a greater *variety* to the palate of the epicure; all others have their own peculiar flavour, but the flesh of the pig has nearly fifty different flavours."

The Romans in the time of Varro bred two varieties of the pig, and divided them into two classes; these were the *sues densæ*, which had many bristles and were usually black, and the *sues glabra*, which had few bristles, were nearly smooth and generally white; the former were considered the most hardy. An animal with a good-sized body, with small

head and legs and of one colour, was to be preferred. Pigs were kept in herds of one hundred or more in number, and were driven out in the morning to the woods and fields, where, in the season, they could find a plentiful supply of acorns, beech-mast, and other food. In hot summer weather, shade, water, and swampy ground were necessary. The swineherd usually carried a horn with him, and the pigs were early taught to assemble whenever he blew it. Varro says that "the swineherd ought to accustom sows with little ones (*nutrices*) to do *all* things at the sound of his horn;" in this way the pigs were summoned to their meals of barley which were spread out for them, not in a heap, but in a continued line, so that they could more easily feed. In the evening the swineherd was to be careful to blow his horn so that no losses might be sustained by the pigs wandering too far into the woods. There was an odd belief, mentioned by Aristotle, re-asserted by Pliny, that if a pig loses one

of its eyes, it nearly always dies immediately. The pig has often a curled tail, and Pliny says that it is worth noticing whether the tail curls to the right or to the left; because a pig with a right-handed twist of its tail was a more acceptable offering to the gods than a pig with a left-handed twist! The same chatty authority informs us that pigs have more sense than is generally supposed, for if they have been stolen and they can hear the sound of their keeper's voice, they will at once recognise it; that if they are in a vessel which is inclined to go under water from too great weight on the one side, they will go over to the other side to restore the balance!

The favourite parts of a pig were the womb (*vulva*) and the breast before it had been sucked. The head, the liver, and the abdomen were also approved of; and sausages were always a favourite dish. The Romans salted the hams, as we do; they often imported their hams and sausages — which,

however, were not made of pork alone—from Gaul, as we now do from Westphalia and Bologna.

It is generally agreed upon among naturalists, who have closely studied the subject, that all known breeds of the domestic pig have descended from two types—one from the common wild boar, the *Sus scrofa* group; the other from the Chinese and Siam group, erroneously named by Pallas *Sus Indica*, there being no occurrence of this species in a wild state in any part of India; indeed, the wild parent form of this Chinese group has not yet been discovered in any country. The *Sus scrofa* type has a wide geographical range, being found in Europe, North Africa, Western Asia, and Hindostan. The *Sus Indica* type is familiar to us, chiefly under the form and name of the Chinese breed. "The Roman or Neapolitan breed"—I am now quoting from Darwin—"the Andalusian, the Hungarian, and the 'Krause' swine of Nathusius, inhabits South-eastern Europe and Turkey,

and having fine curly hair, and the small Swiss 'Bündtnerschwein' of Rütimeyer, all agree in their more important skull characters with *S. Indica*, and, as is supposed, have all been largely crossed with this form. Pigs of this type have existed during a long period on the shores of the Mediterranean, for a figure closely resembling the existing Neapolitan pig has been found in the buried city of Herculaneum." (*Animals and Plants under Domestication*, i., p. 67.)

Professor Busk, in a letter to Dr. Rolleston (Dec. 17, 1876), mentions, among many numerous little bronze articles from the ancient Etruscan tombs, many figures of animals; one in particular being a very well-made statuette of a pig, which to his eye very closely resembles the Berkshire breed, the only point in which it is different being the comparatively large eye, whilst the rest of the contour was quite what we might expect to see at an ordinary cattle show. The animal was repre-

sented apparently as having a close-curled tail.*

Fowls.—There is no representation of any fowl on the Egyptian monuments, though they appear to have been always abundant. The art of hatching eggs by artificial incubation was known to, and practised by, the ancient Egyptians. The only authority, as far as I can make out, for this practice is Diodorus, the Sicilian, who says, "The most wonderful thing is, that those who breed fowls and geese—not content with the natural production of these creatures, as among other nations—do themselves, from an innate love of art, increase the number of these birds to an unspeakable extent; for they do not hatch them by means of the birds, but, strange to say, they display with their own hands such intelligence and skill that they are not surpassed by nature's operation"

* See a very valuable paper by Professor Rolleston, "On the Domestic Pig of Pre-historic Times in Britain" (*Trans. Lin. Soc.*, 1877).

(i. 74). From this account it is impossible to say definitely what the process was. Sir G. Wilkinson says that the above artificial contrivance has been handed down to the present day, and is still practised by the Copts, who hatch the eggs in an oven specially constructed and adapted for this purpose. The domestic fowl is nowhere mentioned in the Old Testament; "the fatted fowl," of our English version, as supplied to Solomon's table, being some other bird, perhaps white geese. The earliest mention of the domestic cock among the Greeks occurs in Theognis (born about B.C. 570); he merely mentions it once "as the awakening cock of dawn." There is no mention of domestic fowls in the works of Homer and Hesiod. Aristophanes calls the cock "the Persian bird," from which it would seem that the Greeks first became acquainted with this bird in their relations with the Persians. The fowl is figured on Babylonian cylinders of the date of the sixth or seventh century B.C.

The Romans bred fowls to a great extent. Varro says you should select those hens which are prolific egg-layers, with plumage inclining to red, wings black, toes unequal (*imparibus digitis**), heads large, comb erect, bodies large, as such are better layers. The cock should be sprightly and muscular, have a red comb, a short beak, full sharp eyes greyish-brown or black, red wattle with a little white, neck variegated or golden, short legs, long claws, tails large and well-feathered. High-spirited birds often crow, are pertinacious in battle, have no fear of other animals, and fight for the hens. Fighting cocks were the Tanagrian, Rhodian, and Chalcidean breeds. The hens of these were considered bad layers, and on the whole unprofitable. White fowls were not recommended, as they were thought to be more delicate than others. Generally the Romans kept their poultry in a closed courtyard strewn with sand and ashes; there was a hen-house

* *i.e.*, with five claws, like our Dorkings.

inside the yard, with roosting poles and nests along projecting walls. A flock would consist of two hundred or more, looked after by a poultry keeper, or by a woman and a boy. The art of stuffing, cramming, and fattening for sale was extensively practised. Here is Cato's receipt for cramming fowls and geese. "Cram hens and geese thus:—Let the keeper shut them up, and prepare balls of wheat or barley-meal: let him dip them into water and put them into the birds' mouths; the proportion to be gradually increased, a sufficiency to be determined by the quantity of food in the throat; this to be done twice a day; give water at noon."

This cramming process was sometimes carried on in the dark, as we learn from Martial—

> "Pascitur et dulci facilis gallina farina,
> Pascitur et tenebris: ingeniosa gula est."

"The hen is easily fed on sweet meal and in darkness; how clever is the palate." (Ep. xiii. 62.)

Ducks were certainly domesticated long

after fowls. There seems to be no doubt that the several breeds have descended from the common wild duck (*Anas boschas*). The ancient Egyptians had several ingenious methods of catching wild ducks and other water-fowl, but it does not appear that they domesticated the common duck. To the Jews also this bird was unknown, nor can I find any allusion to it in the writings of Aristotle. The Greeks, in the time of Aristophanes, appear to have had ducks in a semi-domesticated state. The comic poet uses the word *νησσάριον*, "little duck," as a term of endearment applied by a man to a woman. Cicero appears to speak of the half-domesticated duck when he alludes to the custom of placing duck's eggs under hens; and I hope that when Libanus, in the *Asinaria* of Plautus (iii. 3, 103) asks the girl Philenium to call him, among many other terms of warm affection, "her little duck" (*anaticula*), he is not referring to himself as a bird wholly *wild!* Varro and Columella both speak of duck preserves, and

give directions for their construction under the Greek word *νησσοτροφεῖον*, so that the Greeks preceded the Romans in the domestication of the wild duck. Still it is evident that the ducks of Columella's time were not thoroughly domesticated, and suffered to go about the farm-yard like the waddling tame bird of modern days, because instructions are given to cover the duck enclosure at the top with a strong net, not only to keep *enemies out*, but, as is expressly stated, to keep the *ducks in*.

Here are Varro's recommendations how to form a duck-preserve. "Those who wish to have flocks of ducks, and to establish a duck nursery (*nessotrophœum*), must, in the first place, select, if possible, a marshy locality, in which ducks delight. If this is not possible, then either a natural pond must be chosen, or an artificial one must be made with sloping sides, that the ducks may descend step by step. A wall of fifteen feet in height must be built; around the whole wall, in the inside, there must be an elevated ledge (*crepido*),

upon which covered nests (*tecta cubilia*) must be placed. The margin of the pond should have a level pavement of cement. With the pond a channel of water (*canalis*) was to be connected, and into it food was to be thrown, because ducks like to take their food with water. The whole wall outside was to be made quite smooth with cement, to prevent (*feles*) cats or other harmful animals gaining admission. Over the top a net with large meshes must be placed, lest an eagle should fly in or the ducks themselves fly out. Wheat, barley, grape-skins should be given as food; water crustacea (*ex aqua cammari*) and other aquatic creatures should also sometimes be supplied to them. A stream of water should be constantly flowing into and through the pond, that it might be always fresh." (*Varro*, iii. 11.) I may add that other kinds of water-fowl besides ducks were kept in these preserves, and that it was usual to hatch duck-eggs under hens. Martial must have been a very dainty feeder, for he says

that the breast and neck alone are worth cooking.

Geese have long been domesticated. With the Egyptians they often formed a large part

GEESE. (*Egyptian.*)

of their food. Figures of this bird are very common on the monuments. The species usually represented seems to be the ordinary grey-lag, though the Egyptian goose (*Anser Egyptiácus*) also appears. There seems good evidence for believing that the *Anser ferus*, or

grey goose, is the origin from which the domestic breeds have descended. It is the tame goose often represented as part of the farm-yard stock on the Egyptian monuments, and the bird which by its vigilance saved the Roman capital from the Gauls; the goose (χήν) of Homer and other Greek authors. The Romans kept their geese during the laying season in a walled yard, which had inside stone or brick partitions for nests. This yard was called χηνοβοσκεῖον, which term, as in the case of the duck preserve, shows that this method of rearing geese had been also practised by the Greeks. The white kind was preferred to the grey, as this latter was thought to be more nearly allied to the wild species. Geese-rearing, however, was considered rather troublesome work, as the birds would eat the corn crops and injure the grass by their dung. Goose eggs were often hatched under hens. Considering the large size of a goose's egg, only a few goslings could be hatched. The feathers were

valuable, selling for about 3*s.* 6*d.* per pound. It was customary to pluck the birds twice a year—namely, in spring and autumn. Pliny gives us the following information about geese. "Our people," he says, "only esteem the goose for the excellence of the liver, which grows to a large size when the bird is crammed. When the liver is soaked in honey and milk (*lacte mulso*) it is further increased in size, and indeed it is not without good reason that it is a moot question who first discovered such an excellent thing—whether it was Scipio Metellus, a man of consular rank, or Marcus Sestius, a cotemporary and a Roman knight. However, there is no doubt that it was Messalinus Cotta, a son of the orator Messala, who first cooked the webbed feet of geese and served them up with cocks' combs, for I must award the palm of the kitchen to the man who is deserving of it. This bird, wonderful to relate, comes all the way from the Morini (in Gaul) to Rome on its own feet: the weary geese are placed in front, and those following

by a natural pressure urge them on." Pliny next speaks of the high esteem in which goose-feathers were held. In endeavours to procure them, it appears, the commanders of the auxiliaries would dispatch whole cohorts from their station when on guard to run after geese, so that complaints were frequently made at head-quarters on this account. "Luxury," he adds, "has come to that pitch that now-a-days men will not rest their necks unless upon a pillow of goose-feathers."

Pigeons.—The domestication of the pigeon dates from very early times. The prophet Isaiah apparently alludes to these birds when he asks, "Who are these that fly as a cloud, and as the doves to their windows?" (lx. 8). In Egypt their domestication goes back, it is said, as far as 3000 B.C., and even before that time the pigeon appears in a bill of fare. This bird is not figured on the Egyptian monuments as part of the live-stock of the farm-yard, but it was valued as a favourite

food; "so pure and wholesome," says Sir G. Wilkinson, "was it considered by them, that when the country was visited by epidemic diseases, and all things were affected by the pestilential state of the atmosphere, they believed that those alone who contented themselves with pigeon-flesh were safe from the infection" (v., p. 216). The Egyptians used the pigeon as a carrier, as appears from a coronation scene of the time of Rameses III. "The king is there represented as having assumed the *pshent*, or double-crown of Upper and Lower Egypt, and a priest lets fly four pigeons, commanding them to announce to the South, the North, the West and the East, that Horus, the son of Iris and Osiris, has put on the splendid crowns of the upper and lower country—that the King Rameses III. has put on the two crowns" (v. 215, 216).

The Romans, in the time of Varro, bred enormous numbers of pigeons, as many as 5,000 sometimes occupying a single dove-cote, which was called by the Greek name περιστερο-

τροφεῖον, and was lofty and large. When the birds were required for the market, they were for the most part confined within this building, and copiously supplied with food and water. The Romans had a most cruel practice of breaking the legs of young pigeons, after they had grown their wing-feathers, to prevent them leaving the nest; a plentiful supply of food was placed before the parent birds, which would feed themselves and their young ones nearly all the day long; it was also customary to cram young birds with white bread which had been previously chewed.

Pigeons treated in these two ways would fatten sooner than others, and become whiter. Besides this tame breed there was another, called *agreste*, or *saxatile*, which was wild, or partly so; this breed dwelt in high places, and flew about at will; its colour was chequered (*varius*), and there was no admixture of white; the tame kind (*clementius*) was generally of a white colour, which was always preferred; these two breeds crossed. What is this wild

or half-wild pigeon of which Varro speaks? He must, I think, refer to the Rock pigeon, the *Columba livia*, the undoubted parent of all the various domesticated breeds, notwithstanding, he says, that it has no white about it (*sine albo*); the *Columba livia* has the lower part of the back white, which will not, in this respect, answer to Varro's description; but from his account of its general habits it must, I think, be this species, and the Roman writer must have forgotten the small patch of white on the back.

White was the favourite colour for the domestic pigeon in the opinion of the Romans; a handsome pair of pure white birds of good breed would be worth about 30*s.*; very handsome pigeons would be worth as much as £8 a pair; no doubt a fancy price, as we should say, but, at any rate, this price was offered by a buyer to L. Axius, a Roman knight (not Cicero's and Varro's intimate friend of the same name) for a pair of beautiful white birds; but Axius said he would not sell them for

less than 400 denarii, *i.e.*, about £13 of our money! Pliny notices this "pigeon-mania" when he says, "Many persons are insane in their love of these birds" (x. 37). It was customary for owners to convey their pigeons in the folds of their breasts a long way from home, and then to throw them up from theatres and other places, so as to train them to find their way home from great distances. At the present time letters are fastened under the wing of the carrier-pigeon, when the bird is required to act as a messenger. The Romans tied them to the feet. During the siege of Mutina (the modern Modena), Decimus Brutus, who was shut up in the town, held a communication with the consuls by means of letters fastened to pigeons' feet. "Of what avail," Pliny asks, "were Antony's entrenchment, and the watch of the besiegers, and the nets stretched across the river, while the messenger was cleaving the air?" (*N. H.*, x. 37). The pigeon was employed also as a messenger in affairs over which Cupid, rather

than Mars, presided; we find Anacreon thus making use of the bird as early as B.C. 500.

THE PEACOCK is an Indian bird, from some part of which country it was introduced into Judea by Solomon (1 Kings x. 22). In the Hebrew word for "peacocks," *tukkîyim*, we have an interesting illustration of the simple name revealing the animal denoted thereby. The Septuagint and Vulgate explain the word by ταῶνες and *pavo*, "peacocks." The Hebrew is a loan word; it has been traced to the Tamil or Malabaric *togei*, "the crested bird," a name still used in Ceylon for a peacock; and as the names of the other commodities introduced with peacocks into Palestine by Solomon—namely, apes and ivory—are not of Semitic but of foreign origin, so it is with the Hebrew loan word *tukkîyim* for "peacocks." The names of these three things, apes, ivory, and peacocks, show us that India was the country from which they were introduced into Judea. Buffon and Cuvier think that the

peacock was first introduced into Europe by Alexander; but this bird was certainly known to the Greeks before Alexander was born. Aristotle speaks of the peacock as a well-known bird when he says, "Some animals are vain and jealous like the peacock" (*Hist. An.*, i. 1, 15). I suspect that the Greeks first became acquainted with the peacock in their relations with the Persians, who may have received their birds originally from India. From Greece these birds gradually extended into Italy and other parts of Europe. Among the Romans Q. Hortensius is said to have first introduced the peacock as an article of food, at a banquet on the installation of an augur. In time the rearing of pea-fowl became quite an established thing, the birds being highly prized.

The price of a peacock was about 30*s.*, and an egg was worth 3*s.* As much as £500 a year is said to have been realised in this business. Small rocky islands off the coast of Italy were favourite breeding places. Here the

birds were in a semi-wild state, wandered about at will, fed themselves, and reared their young ones. Pea-fowl were also kept in covered enclosures with grass and trees, and with perches for roosting. The eggs were hatched under hens, but the birds did not breed more freely among the Romans than among us. Varro thought three pea-chicks for each mother bird as much as could be expected.

Parrots.—It must be a matter of considerable interest to learn what our ancestors thought of birds so wonderfully clever, imitative, and amusing as parrots. This bird was known to the Greeks by the name of *βιττακός*, *ψιττακός* or *σιττακός*. Ctesias (B.C. 400) refers to it as the "bird with a tongue and a voice like a man" (*Ind.* 3). Aristotle (B.C. 384) speaks of the parrot as "the Indian bird which is said to have a tongue like a man, and to be most talkative when intoxicated." Arrian (A.D. 90) writes, "Nearchus speaks of parrots (*σιττακοὺς*) as being quite a marvel, and as being found in

India, and as having a man's voice. As for myself, although I have seen many kinds, and am acquainted with people who know them, I have nothing wonderful to relate" (*Ind.* xv.). From Ælian (middle third century Christian era) we learn that parrots were kept by Indian princes in their palaces; that they were very abundant in that country, but that no one ever thought of eating them, for the Brahmans considered them sacred, and esteemed them before all other birds, and with good reason," for the parrot is the only creature that speaks like a man" (*N. H.* xiii. 18). Ovid (B.C. 43) has a whole elegy on the death of a favourite parrot which he had given to Corinna, his mistress.

"The parrot, imitative bird from the Indians, is dead; attend the funeral rites in flocks, O ye birds." The poet tells us the colour of his bird's plumage and of the beak. "Thou with thy plumage couldst dim the green emerald, having thy bill tinted with the red crocus; but what now avails the beauty

of thy rare colour, what thy voice so clear in imitating sounds? There was no bird on earth more imitative, so prettily didst thou answer words with lisping sound! With a very little food thou wast satisfied; indeed, so fond of talking wast thou, that thou couldst not spare thy mouth for much eating; a nut thy food, poppies thy sleep-inducer; a drop of pure water would drive away thy thirst; the pretty parrot is dead; echo of human voice, sent as a present from the ends of the earth. The seventh day arrived, destined to bring no morrow, and now Fate stands with distaff empty! And yet the words did not quite fail in thy almost speechless mouth. Farewell Corinna! thy dying tongue breathed out." Ovid buries his pet parrot at the foot of the Elysian Hill, imagining a place where the souls of good birds go after death. The poet thinks of his parrot as still calling in human tones to other birds around in the fields of the blessed, and there we may be content to leave her.

Pliny gives us the following description of a parrot:—There are some birds which can imitate man's voice; the parrot, for instance, which can even discourse. India sends this bird; it has the name of *Sittaces;* the body is green all over, except that the neck has a ring of red around it. It will salute an emperor, and pronounce words which it has heard spoken; it is rendered especially merry under the influence of wine. Its head is as hard as its beak. When it is being taught to speak it is beaten on the head with an iron rod, otherwise it is insensible to blows. When it lights on the ground it falls on its beak, and by resting upon it makes itself lighter, for its feet are naturally weak" (*N. H.*, x. 41).

Martial, with characteristic flattery, represents a parrot as having taught itself to salute the Roman Emperor Domitian:—

> "Psittacus a vobis aliorum nomina discam:
> Hoc didici per me dicere: Cæsar ave!"
>
> (xiv. 73.)

"I, a parrot, may learn from you the names of other men:
I have taught myself to say, Cæsar hail!"
"For *other* names your lessons may avail,
I *taught myself* to utter, Cæsar hail!"

Oppian calls the parrot the grass-coloured bird, and there can be no doubt from this expression, together with the descriptions given by other classical writers, that the species of parrot known to the ancient Greeks and Romans—the Indian green parrot with a ringed neck and ruby beak—is the beautiful ring parakeet, the *Palæornis Alexandri*, although, perhaps, the allied species *P. torquatus* of India and Africa may sometimes be included under the name of *Psittacus*.

Whether parrots from Africa were ever introduced into Rome I cannot determine. Pliny says that birds called parrots were first seen at an island called Gagaudes, between Syene and Meroe, by persons sent out on an African expedition by Nero. In the time of that wicked maniac-boy, with a shocking bad

character and an unpronounceable name, Heliogobalus, or Elagabalus, Roman Emperor, A.D. 215, parrots must have been imported into Rome in considerable numbers, if the stories told us of that youth's feeding lions on parrots and pheasants be true. The common grey parrot (*Psittacus erythacus*), the best talker of all the parrot tribe, is a native of Western Africa, and would not be known to the ancients.

Hares and Rabbits.—The Hare best known to the Greeks and Romans seems to be identical with our own, the common *Lepus timidus*, though the Alpine species, *L. variabilis*, was occasionally brought to Rome and placed in the *Leporarium*. These hare-preserves in time were used for other larger and fiercer animals, as wild boars and stags, and were called θηριοτροφεῖα, "wild-animal preserves." They occupied many acres of land. In these enclosed parks some of the animals became partly tame, and would

assemble in winter time, at the sound of a horn, to receive food. The Roman epicures'

HARE AND BIRDS. (*Assyrian.*)

tit-bit of the hare was the shoulder. The Greeks also were fond of hare's flesh, so that

they had an expression (ζῆν ἐν πᾶσι λαγῴοις) "to live on hare's flesh," which was synonymous with "living on all kinds of dainties." Besides hares, rabbits in the time of Varro were introduced into these *Leporaria*. But the rabbit was quite a modern importation into Rome and Italy; its original home was Spain and the Balearic Islands. In Greece there is no ancient record of its existence either in a wild or domesticated state; and in Italy there is no mention of its occurrence as a wild animal prior to the time of Athenæus, A.D. 230, who saw a great many specimens in his journey from Puteoli to Naples. Pliny speaks of the rabbit (*cuniculus*) as an inhabitant of Spain, and says that in the Balearic Islands it produces famine by destroying the crops. "It is a well-known fact," he adds, "that the inhabitants of the Balearic Islands begged of the late Emperor Augustus the aid of a number of soldiers to prevent the too rapid increase of these animals. Ferrets (*viverræ*) are much prized on account of their hunting

these animals; they are put into the burrows with the numerous outlets which the rabbits form, and from which circumstance they derive their name, and as the ferrets drive them out they are taken above ground" (*N. H.*, viii. 55). Martial (Ep. xiii. 60) says that rabbits first taught men how to undermine enemies' towns; but as the rabbit had only a local habitation for a long time, Martial's statement is incorrect. Appius, in Varro, gives instructions how to form a leporarium, and speaks of three kinds of hares—the *cuniculus*, or *rabbit*, being one of them. Two of these kinds, he concludes, Varro already has; "and since," he says, "you have been so many years in Spain, I think it likely that you have brought the third kind (the rabbit) with you from that country" (*R. R.*, iii. 12). To the ancient Egyptians, the Assyrians, and the Jews, the rabbit was unknown; the coney of our English Bible is quite a different animal.

Dormice (*glires*) were very highly esteemed as food by the old Romans. Small yards were walled round in which were planted oak-trees to supply the animals with acorns. These preserves were called *gliraria;* holes were dug in the inside of the yard for the dormice to breed in; a little water was supplied to them, but dry soil was necessary. They were fattened in large jars (*doliis*), and were plentifully supplied with acorns, chestnuts, and walnuts. In these dark places they soon got fat. The jars were made of earthenware, and were of different shapes. Varro gives a short description of them, but his words are obscure, and I can make no more out from his account than the German commentator Schneider could. The sleeping propensities of the dormouse are often alluded to. Thus Martial says—

"Tota mihi dormitur hyems, et pinquior illo
Tempore sum, quo me nil nisi somnus alit."
(xiii. 59.)

"I sleep through the whole winter, and become fatter in that time, in which nothing but sleep nourishes me."

Ammianus Marcellinus (A.D. 350, xxviii. 4), speaking of the pride of the nobles, says that it was customary at their entertainments to bring into the dining-room scales in which to weigh the fish, birds, and dormice on the table, and that they would discourse of these things till the guests became quite wearied. Dormice were considered articles of such luxury that one of the Consuls, M. Scaurus, prohibited them by a censor's edict, and, as Pliny says, "they were banished from our tables." Notwithstanding this edict, however, a *glirarium* appears to have been an ordinary adjunct of a Roman gentleman's villa. The species, so highly prized, was not our little animal (*Myoxus avellanarius*), but a larger kind, about the size of a squirrel, which in general form it resembles. It is the fat dormouse (*Myoxus glis*) common in Spain, Italy, and the south of France. I believe it is still eaten in some parts of Italy, but how far the flavour depended on the inherent good quality of the creature's flesh, or on the

mode in which it was cooked, I am unable to say.

Bees.—From the importance the ancient Egyptians attached to honey as an offering to the gods and as an article of diet, it may be supposed that they paid much attention to bee-culture, though we are not able to learn anything respecting their management from the monuments. At present, Sir G. Wilkinson tells us, bees require great attention; but he adds, so few are the necessary *plants* that the owners of hives often take them in boats to various spots on the Nile in quest of flowers. Bees are often mentioned in the Bible either with reference to the way in which, when angry, they make their attacks on man and other animals, or in respect of the much-prized honey. "A land flowing with milk and honey," spoken of Palestine, is an expression which testifies to the abundance of bees in that land in ancient times. Palestine, with its dry climate and abundant

flora, consisting in large proportions of thymes, mints, and other aromatic labiates, is a country admirably suited for bees, which make their nests in the holes of the limestone and other rocks. Whether or to what extent the ancient Jews domesticated bees and kept them in hives, it is not possible to say. The honey which they procured would probably be for the most part that made by the wild bees, according to the Psalmist's expression, "With honey out of the stony rock would I have satisfied thee."

The taking of bees'-nests by smoking them appears to have been an ancient custom. It is curious to observe that in a passage of Deuteronomy, the Syriac version and an Arabic version which Bochart saw, read, "chased you as bees that are smoked" (Deut. i. 44).

The Greeks and Romans paid great attention to bee-culture; Aristotle speaks of hives and bee-keepers; whilst Varro, Columella, and other Roman writers have written at some

length upon bees and their management. Among the ancients the queen was considered a king, upon whom it was erroneously supposed the chief work of the hive depended; the drone was not regarded as the male-bee. He seems to have been a useless sort of personage, making no honey, and supported by the other bees; the worker-bee (*μέλιττα*), the king-bee (*βασιλεὺς τῶν μελιττῶν*), and the drone (*κηφήν*), though living in the same establishment, being regarded as distinct kinds (*γένη*). The drones which were produced after the death of the king in the cells were supposed to be very passionate; they were called stingers (*κεντρωτοί*), for the following strange reason, that though being really destitute of stings, they had the will, but not the power to sting. Hesiod (*Op.* 304) uses the epithet *κόθουρος* or *κόλουρος*, *i.e.*, "stump-tailed," of a drone. The honey-dealers used to fumigate the hives when they took the honey. Aristotle says that when bees have stung anything they perish, for they cannot withdraw the sting from the wound

without leaving in their insides; but they are frequently saved if the person stung will press the sting from the wound; but when the sting is lost the bee must die. As a rule, this, I may add, is quite true. Bees, says Aristotle, "appear to have pleasure in noises, so that people say they can collect them into their hives by striking earthen vessels and making noises." But it is very doubtful, he thinks, whether they hear or not, and if they hear, whether they collect together from pleasure or from fear. He notices the fact that wasps are injurious to bees; the kind called merops (the bee-eater) is another great enemy. Frogs and toads he enumerates as injurious; the toad, of course, does something unusually wicked and unnatural. He blows into the entrance of the hive, and destroys the bees as they fly out!

The Romans at first placed their hives in recesses of their villas; subsequently they had regular apiaries, which were very productive. Plants and flowers, especially thyme and

cytisus, were placed near, and pure water supplied. The hives were made of brick, wicker-work, cork, bark, or baked dung; they had small holes for ingress and egress, and the tops covered with a movable lid, so that the bee-keeper could easily make inspection when necessary. The hives were arranged in rows of not more than three in number, one above the other; the lowest row was placed on a stone flooring, about three feet from the ground, the sides of which were coated with smooth cement to prevent enemies climbing up. Swarming-time was one of great anxiety to the keepers; a colony, after departing, was tempted to settle on some adjacent branch, which was rubbed with some sweet substance to attract it; long flights were prevented by throwing dust upon them, or the insects were arrested, it was supposed, by tinkling noises, a custom which has survived to this day in many country villages in our own country. When a swarm, or cast, had settled on a branch, it was at once transferred to the hive,

smoke being used to urge the bees to enter. If two kings claimed the empire, both were caught and examined; the worst-looking rival was at once destroyed. The Romans never sacrificed the lives of their bees for the sake of the honey; they smoked the insects, took off the lid, and cut out a certain portion of the comb. It was a common belief that a swarm of bees could be generated from the putrid carcase of an ox; such a swarm was called *βοηγενής*, "ox-produced:" nor was this only a poet's fancy, as sung by Virgil; it was the general belief, shared by such a practical and matter-of-fact man as the veteran agriculturist, Varro. Another curious notion was that in stormy weather bees would take up in their legs a little stone in order to preserve their balance in the wind: the idea is as old as Aristotle, who believed in it; Virgil, Plutarch, and others repeat the story.

The far-famed honey from Mount Hymettus, near Athens, owed its excellence to the abundance of thyme and heather which grew,

and still grows there; this honey, as I myself know, has a most delicate aromatic flavour. On the other hand, honey procured by bees from certain plants, as the *Azalea pontica* and *Kalmia latifolia*, is generally unwholesome, and, indeed, quite poisonous. It was from the effects of the honey obtained by bees from the *Azalea pontica* that Xenophon's soldiers suffered considerably when they were near Trebizond, during the retreat of the ten thousand.

Snail-Preserves.—The Roman *Cochlearium*, or snail-preserve, was a place surrounded by water to prevent the animals crawling away; from this it is evident that the edible mollusc was some terrestrial species. A spot sheltered from the sun was to be chosen where the dew would often lie; the snails required little care and food, which they could find themselves from the ground and from the vegetable growth on walls. Snails were, however, sometimes fattened by shutting them up in a jar, whose

sides were well smeared with boiled wine and flour; small holes in the jar admitted air.

The best, says Varro, came from Reâte; they are small and white; a large kind came from Illyria; but the largest of all, called *solitanæ* (from the Promontorium Solis, perhaps), came from Africa; the shell of which would sometimes hold as much as eighty quadrantes, or about fifteen quarts of water! This is also stated by Pliny, but he is only quoting Varro.

Some of these edible terrestrial molluscs were doubtless species of the family *Helicidæ*. The *Helix pomatium*, and several other kinds, large and small, are to this day abundantly used as food in Paris and other towns in France, and in many other parts of Europe. But what the enormous shells can be of which Varro and Pliny speak I cannot imagine. Pennant observes on this point: "People need not admire the temperance of the supper of the younger Pliny (*Epist.* i., xv.), which consisted of only a lettuce a-piece, three snails, two eggs, a barley-cake, sweet wine and snow,

in case his snails bore any proportion to those of Herpinus," the first inventor of these cochlearia.

The *Piscinæ*, or Roman fish-ponds, were of two kinds, the one of fresh water, the other of salt; the former existed from early times, and were not an unusual appendage to a farm; the salt-water ponds were quite modern, and were very expensive and unprofitable, owned only by the rich and noble, more suited to please the eye, as Varro says, than to furnish food; and more likely to empty the pocket of the proprietor than to fill it! These piscinæ were costly to make, costly to stock, and costly to maintain. A person of the name of Hirrus once lent Cæsar six thousand *murænæ*, and afterwards sold his villa for about £30,000, so well stocked were his salt-water preserves with fish. Sometimes a piscina had several separate divisions, or compartments (*loculatæ piscinæ*), so that different species of fish could be kept apart. They were thought more sacred, says Varro, than the Lydian fishes, which were

said to come out of the sea at the sound of the flute; no cook dare ever think of summoning them to—sauce!* "A friend of mine," writes Varro, "Q. Hortensius by name, had fish-ponds at Bauli, constructed at great cost. I have often been with him at his residence, and I know that whenever he wanted fish for dinner he would send all the way to Puteoli and buy; he used to feed the fish with his own hands, and would show a great deal more anxiety if his mullets were hungry than I am wont to do when my asses in Rosea want feeding! I am content with one slave to feed my asses (that cost a lot of money), with a moderate allowance of barley and pure water. Hortensius employs a host of fishermen, who are everlastingly sent out to catch heaps of little fish for big ones to eat. If the sea was rough, he would buy salt fish from the market and throw them into his ponds. He would

* "Hos pisces nemo coquus in jus vocare audet" (iii. cap. 17). The veteran writer is here guilty of a pun, for *jus* means "fish-sauce," as well as "law."

much rather give you one of his carriage-mules out of his stable than a bearded mullet from his pond; he felt much more anxiety about a sick fish than about a sick slave, who was not worth a thought provided only his fish had cold water to swim in during hot weather." Red mullet and murænæ seem to have been special favourites with the old Romans of Hortensius' stamp, those "blessed fish-pond-gentlemen" (*beati piscinarii*), of whom Cicero contemptuously speaks (*Ad Att.* xix.). The muræna was held in great estimation for the delicacy of the flesh, which is said to be very white and of fine flavour. This is the fish which, according to Pliny and others, a certain Roman knight and friend of Augustus, one Vedius Pollio by name, used to feed with human flesh! This individual seems to have been unfortunate in his slaves, who, when waiting at table, were careless or clumsy, breaking dishes or upsetting decanters, and such like dining-table ware. If an unfortunate servant of this time, in the employ of

Vedius Pollio, Knight, chanced to break a piece of valuable glass or crockery, he would have to pay the penalty by then and there being thrown into the fish-pond.

> " Whoever breaks the glass or dishes,
> That man becomes the food of fishes."
>
> (Dr. Badham, *Prose Halieutics*, p. 396.)

Well, on one occasion, the Emperor Augustus came to sup with Vedius Pollio, where he was, of course, sumptuously entertained. The best " dessert service," the richest vases, the best wine appeared on the table. The waiting servants conducted themselves with propriety, and no accident happened at first; the fish went off swimmingly, so did the rest of the dinner, but not so the dessert; an unlucky servant made a slip and broke a crystal goblet, whereupon his master ordered the offender to be at once delivered over to his pet murænæ, in the very presence of the Emperor. The man knew his doom; so he fell at Augustus' feet, and begged him to

intercede in his behalf with his master. "He did not care to die; it was not altogether that; but he thought it hard that a man, though a slave, should be gobbled up or nibbled to pieces by fish!" But Pollio would not listen even to the Emperor; whereupon Augustus very properly took the matter into his own hands. He pardoned the slave and dismissed him, ordered all Pollio's glass and "china" to be smashed, and his fish-ponds to be at once filled up! I suppose the Emperor made it up with Pollio soon after this affair; at any rate, the authorities state that when Pollio died he left a large part of his property to Augustus. So tame would these murænæ become that they would muster at their master's call and take food from his hand. Here is Martial's warning to any fisherman that may meditate a day's angling in the Baian Lake, whose fish were sacred to Domitian:—

"From the Baian Lake, with awe
Angler, I advise, withdraw:
Lest of hallow'd blood unspilt

Thou should'st rash incur the guilt.
Sacred fishes, swimming bland
Hail their lord and lick his hand:
Hand whose greater cannot wave,
Or to sacrifice or save.
Names respective know they all
And attend their master's call.
Once a Libyan rued the deed
When he play'd the trembling reed.
Sudden light his eyes forsook,
Nor displayed the fish he took.
Now he well the hook may hate,
Clothèd with so due a bait;
Where he, by the Baian pool,
Sits a blinded begging-fool.
Then, dear angler, still by law
Innocent, do thou withdraw.
Throwing first a simple dish,
Venerate devoted fish!"

(Mart., *Ep.* iv. 30; Elphinston.)

It was customary to deck the slimy bodies of these eels with various ornaments. To one gentleman of the Licinia gens the muræna appears to have even given a name, so great must have been his mania for fishponds in general and murænæ in particular. Hortensius, one of those blessed and luxurious

piscinarians to whom I have already had the pleasure of introducing you, actually shed bitter tears when a favourite muræna died in one of his ponds at Bauli. Another celebrated Roman, L. Licinius Crassus, also had an equally tender heart, for he could not stop his tears at the death of his fishy darling. But if Crassus had a soft heart, he had also a ready wit; for when his brother censor, Cneius Domitius Ahenobarbus (*Anglicè*, "Brazen-beard,") twitted him in the Senate for having cried as much at the death of an eel as if he had lost a daughter, Crassus very cleverly and cuttingly retorted, it was more than old Brazen-beard had done for any one of his three deceased wives!

PART II.

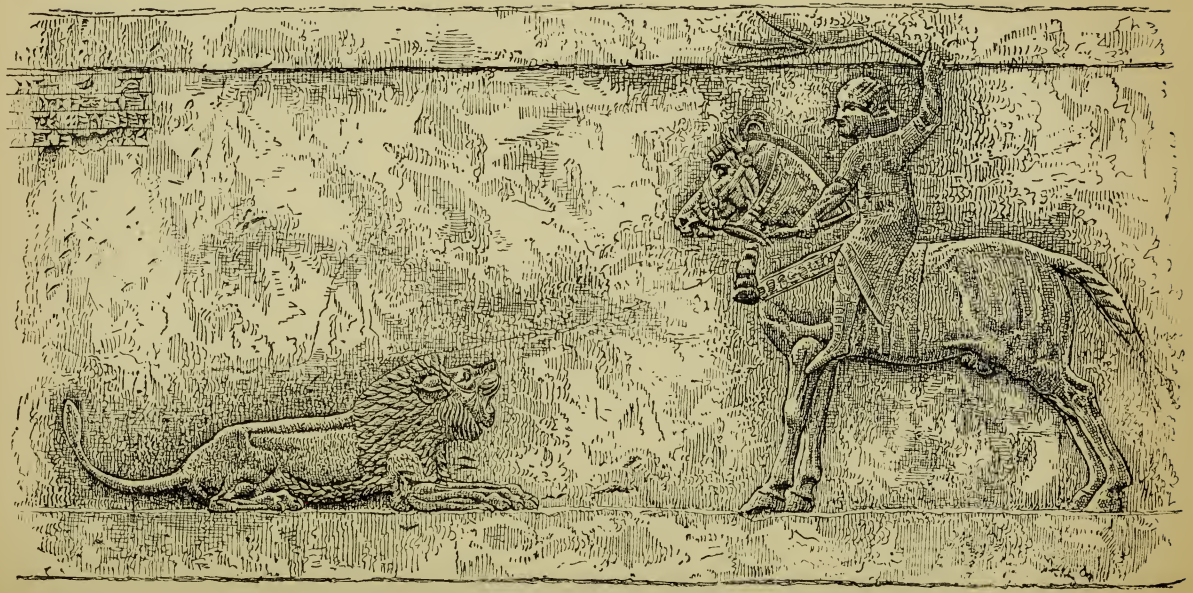
WILD ANIMALS.

The Lion has disappeared from various countries where it was once found, as from Egypt, Palestine, Syria, and from the whole of Europe. In Egypt the lion was worshipped, chiefly in the city of Leontopolis. Being the emblem of strength, it was typical of the Egyptian Hercules. A victorious monarch is sometimes represented attended by a lion. Some have supposed that the animal was merely a symbol to express kingly power; others have thought a tame lion actually accompanied the king in his expeditions. According to Sir G. Wilkinson, the lion was frequently trained and used for the chase, like the cheetah or hunting leopard of India. Sir G. Wilkinson saw two or three tame lions when he was in Cairo. Sir A. H. Layard tells us of a tame lion given him by Osman Pasha at

Hillah; and Sir H. Rawlinson had a tame lion for some years at Bagdad, "which was much attached to him, and finally died at his feet, not suffering the attendants to remove him." It is not improbable, therefore, that the ancient Egyptians tamed the lion and trained it for the chase; still the plate in vol. iii. of Sir G. Wilkinson's work, said to represent "hunting with a lion," may simply be intended for a huntsman who had accidentally come across a lion in the act of slaying an antelope. We learn from Plutarch, Ælian, and others, that the lion was a sacred animal, treated with much care, fed with joints of meat, and provided with comfortable and spacious dwellings, especially in Leontopolis, in the Delta of Egypt, and songs were sung to these animals in the Egyptian language while the animals fed. The doors of Egyptian temples were frequently ornamented with lion heads, having their mouths wide open. The lion was considered a type of the annual inundation of the Nile, which rose more abundantly when the

sun was in the constellation Leo ; therefore it was customary to make the water-spout heads of fountains in the form of lion's heads. This statement of Horapollo, not always the most reliable authority, has been confirmed, as many water-spouts terminating in lion's heads still remain on the temples. No mummied remains of lions have been discovered in Egypt. We learn from the Bible that lions were far from uncommon in Palestine in ancient days. Lions' bones have been found in the gravel of the Jordan ; and if the words of Phocas, who travelled in Palestine at the end of the twelfth century, are to be trusted, lions at that time inhabited the reedy coverts of the Jordan banks.

Lions are subject to considerable variation, and perhaps both the long-maned and the short-maned animals occurred in Palestine; though the lion with which the people would be most familiar would probably be the short-maned or Persian variety, one of less decided fierceness and strength than the other, so that



HORSEMAN SURPRISED BY A LION. (*Assyrian.*)

shepherds would sometimes venture to attack them single-handed.

Lions still occur in the Euphrates valley, in the jungles near the rivers in Babylonia, in Susiana, and other places. In the time of some of the Assyrian kings lion-hunting was a favourite sport, and numerous are the representations on the monuments now in the British Museum of these animals. Generally speaking, the king of beasts is admirably depicted by the Assyrian sculptors. Now he is represented as being on the point of springing at a horseman; now, with spread-out feet and exserted claws he holds in his mouth a portion of the body of a horse; now he is shrinking cautiously out of a wooden box or cage in which he had been placed; or he is in the agonies of death, pierced by many arrows, vomiting his life-blood, or vainly endeavouring to extract with his fore-paw a shaft that has pierced his eyeball; now he is seen erect on hind-legs, turning his body round, with outspread paws and fierce aspect, as indignantly

remonstrating with King Assur-banipal, who has seized the royal beast by the tail!

The Assyrian monarchs would sometimes attack a lion single-handed, as the monuments show. Assur-banipal says of himself:—"I,

MAN ATTACKING A LION. (*Assyrian.*)

Assur-banipal, King of multitudes, King of Assyria, by my might, on my two legs, a fierce lion, which I seized behind by the ears, in the service of Assur and Istar, goddess of war, with my two hands I pierced." Another epigraph states that the same king "seized a

lion by the tail, and beat his brains out with a club." The Accadian name of the lion has not, in this instance, any reference to any particular localities for the animal; it means simply "great beast." The lion of the Assyrian sculptures is the Persian or Arabian variety of the Asiatic animal. Every one almost is more or less familiar with the numerous allusions to the lion in the poems of Homer; it is often introduced in some of his grandest similes. I do not remember any passage in the *Iliad* relating to the habits of the lion that is not true to nature. The animals to which Homer—whoever he was, or wherever he lived—alludes would generally be those of Asia Minor, though in his time lions existed in Europe also.

Herodotus expressly mentions the existence of lions in Thrace, in the country between the Achelous and the Nestus (vii. 126), and speaks of their attacks upon the camels in the army of Xerxes. Aristotle also mentions them, but he is evidently only repeating the

statement of Herodotus. The great Greek philosopher has given a tolerably correct account of the habits of the lion. "Man-eaters" were known to him, and he correctly says that when a lion gets old the teeth become bad, and thus being unable to hunt wild prey, he is disposed to enter villages and to attack men and domestic cattle; but Aristotle held some odd notions about the structure of the king of beasts; as that the neck, for instance, had only one bone in it, there being no cervical vertebræ; the bones are small and slight, and are without marrow, excepting a little in the thigh and fore-leg. The bones are so hard that they will emit fire on percussion.

I may remark that when some of the classical writers describe the lion as lashing himself with his tail when angry, it has been supposed that the claw—a small pointed horny body occasionally found at the tip of the tail in certain *Felidæ*—was the instrument with which he goaded himself on to an attack. The classical writers, however, mention no

such claw. A commentator on the *Iliad* appears to have been the first to speak of its existence. As its occurrence is only exceptional, it can have no functional character. The old Assyrians seem to have noticed this horny process, which is now and then figured, though with exaggeration, on the marble slabs.

Hyena.—The species of hyena known to the ancients is the striped animal, the *H. striata*. It was hunted by the Egyptians, who considered it no less a duty than an amusement to destroy such an enemy to the flocks. It was also supposed to injure Indian corn and other crops when pressed with hunger; it was sometimes caught in a large steel-trap, or shot with bow and arrow. Sir G. Wilkinson mentions an extraordinary fancy which the Abyssinians have respecting the hyena. "They affirm that a race of people who inhabit their country, and who usually follow the trade of blacksmiths, have the power of changing their

form at pleasure, and assuming that of the hyena" (v. 159).

Among the Greeks and Romans also various curious notions were entertained, as that this animal was able to change its sex, an absurdity corrected by Aristotle; that its eyes would change colour a thousand times a day; that the pupils would sometimes turn into stones, which had the marvellous property of enabling a man, if he put one of these stones under his tongue, to foretell future events!

In Palestine the hyena was doubtless common in ancient times as it is now, though it is hardly ever mentioned by name in the Hebrew Bible. "The valley of Zeboim" (1 Sam. xiii. 18) means "the valley of hyenas;" and in this district Mr. Grove passed through a wild gorge, which had the name of *Shuk ed-dubba*—"the ravine of the hyena"—the exact Arabic equivalent of the Hebrew expression.

There is another Hebrew word, occurring

only in the plural number (*ôchîm*), translated "doleful creatures" in our version of Isa. xiii. 21 (see margin), which has lately been shown to mean "hyenas." Here we have an interesting instance of how the Assyrian, the Hebrew, and the Accadian words help to explain each other. The Hebrew word, in the singular number, would be *akh*, from a root meaning "to howl;" now in the cuneiform bilingual tablets there occurs an Assyrian name of an animal, *akhu*, the same as the Hebrew, which in the Accadian column is equated with *lig-barra*—*i.e.*, "a striped beast." Thus from the whole we get the "howling-striped-beast," an admirable description of the hyena.

Stag-hunting in the time of Xenophon. —Let me endeavour to describe the method of capturing deer as practised in the time of Xenophon. If it savours a little of what modern English sportsmen would regard as poaching, we must remember that before the

days of gunpowder it was no easy matter to take wild animals in a thickly-wooded country without the adoption of various devices in the shape of nets, pitfalls, and snares. The wary stags, even now-a-days not easily stalked with hound and rifle, could seldom be taken in a fair chase where the country was covered with woods.

A remarkable form of trap is given by Xenophon. These traps were called in Greek ποδοστραβαι—*i.e.*, "foot-twisters," and very unpleasant foot-twisters the unfortunate deer must have found them.

Each *podostrabe* consisted of a circular crown of tough yew-twigs, firmly twisted together. In this were fixed several spikes of yew-wood and iron alternately, the latter being the larger. A strong noose of twisted hemp was fixed to the circular crown, having at the other end a clog of oak-wood with bark still adhering. A round hole was dug in the ground about one and a half foot deep, equal in diameter at the top to the crown

of the trap, and gradually narrowing below. Another hole was made for the clog, and a channel for the rope. Several of these traps were set in soft places near water, and the deer were entrapped—but not held fast to one spot—as they came to drink.

The Unicorn of the ancients has been a puzzling question for generations, though really the matter is a very simple one. The unicorns of the Greeks and Romans—they mention several kinds—may be dismissed with a few words. Aristotle mentions two animals possessing a solid hoof and a single horn; these he calls the Indian ass and the oryx. By the first he is, I think, referring to the one-horned rhinoceros, of which animal he had heard some story from some source or other, according to which the rhinoceros was erroneously thought to have been some kind of ass. The oryx may possibly be the nylghau, a large Indian antelope, whose horns seen at a distance in profile by some observer

may have appeared as one—the one horn, as it were, covering the other. But, generally speaking, the animal which lies at the bottom of the numerous exaggerated and erroneous descriptions of the unicorns of the Greeks and Romans, is that known as the one-horned rhinoceros.

But it is altogether different with the unicorn of the Bible, which is, undoubtedly, some species of wild bull, as can be most clearly and fully demonstrated. The unicorn of our Authorised Version owes its origin to the Septuagint and Vulgate, which give μονοκέρως and *unicornis*, "a unicorn." But the Hebrew word *rém* denotes a two-horned animal, as is certain from a passage in Deuteronomy (xxxiii. 17), which contains a part of Joseph's blessing: "His horns are like the horns of a *reem*: with *them* shall he push the people together." Now our translators, seeing the contradiction involved in the expression, "horns of the unicorn," have translated the Hebrew singular noun as if it

were a plural; the correct reading, however, is given in the margin.

The two horns of the *reem* are the ten thousands of Ephraim, and the thousands of Manasseh, and represent the two tribes springing from one—namely, Joseph, just as two horns of an ox spring from one head. Wherever the word *reem* occurs in the Bible there is ample evidence to show that it is a two-horned bovine animal of some kind. The species denoted is the wild bull of the Assyrian monuments, and here we have not only a picture of the animal represented, but an Assyrian word, *rimu*, identical, you will observe, with the Hebrew. The Accadian name also, *am-si*, comes in to help us; *am* denotes "an ox," and *si* means a "horn"—*i.e.*, some bovine animal that had strong horns. The *reem* at one time was common both in Palestine and Syria; in the later days of the Assyrian monarchs it became scarce, and at length disappeared altogether. We have besides the evidence

supplied by linguistic palæontology, that afforded by natural history itself. Teeth of an extinct wild ox have been found in bone-breccia in the Lebanon, which have been referred to the *Bos primigenius*. Literary history confirms the former existence of these wild cattle in the very districts where their teeth have been discovered. Thus, in a record of a hunting expedition of the time of Tiglath Pileser I. (B.C. 1120–1100), this king is expressly stated to have hunted these animals and killed them "opposite the land of the Hittites and at the foot of Lebanon."*

The species of wild cattle hunted by the Assyrian monarchs is either the *Bos primi-*

* I may add that the ordinary Assyrian character, which is known to denote some bovine animal, can be traced through its archaic forms to its hieroglyphic origin, which is a rude picture of a bull's head, thus— with which may be compared the usual sign in our almanacks for the zodiacal Taurus. (See my paper, "On the Hieroglyphic or Picture Origin of the Characters of the Assyrian Syllabary," *Trans. Bib. Soc.*, vol. vi., pt. 2.)

genius or some closely allied species; it is apparently identical with the gigantic *urus*, which Cæsar and the Roman legions saw in the forests of Belgium and Germany. The Assyrians used to capture the calves of these wild cattle, and bring them alive to their royal abodes at Calah or Nineveh; they must have destroyed great numbers of them, to judge from the accounts they have left on the monuments. No figures occur on the sculptures of the date of Assur-banipal, and, perhaps, these wild *rimi* were growing scarce; but it is never safe to form a conclusion from negative evidence alone. The king hunted the wild bull in his chariot, attended by horsemen; the bow and arrow being the instrument of death. Sometimes a wounded animal, with arrows fixed in its body, would rush at the chariot, when the king would seize him by the horn, and with a well-directed blow, or rather stab with a short strong sword, pierce the marrow of the neck, and instantly bring him to the ground.

HUNTING WILD BULLS. (*Assyrian.*)

Wild Boar.—There is no figure of the wild boar on the Egyptian monuments, though this animal must have been well known to the people. Sir G. Wilkinson suggests as a reason for this omission that the wild boar does not frequent those parts where the scenes of the chase are laid; it being confined to the low marshy spots about the north of the Delta and the banks of the Lake Mœris. The domestic pig, as we have seen, was an especial abomination to the Egyptians; and, without doubt, its wild relative would have been similarly regarded, and perhaps for this reason it was never hunted by Egyptian sportsmen, being an animal altogether too abominable to have anything to do with. The Hebrews were, no doubt, well acquainted with the wild boar, although there is only one distinct allusion to it in the Bible. "Thou hast brought a vine out of Egypt; thou didst cause it to take deep root," but now "the boar out of the wood doth waste it." In a country like Palestine—"a land of

wheat, and barley, and vines"—the damage which wild swine would do to corn-crops and vineyards would be most serious. The records are silent as to whether or by what methods the ancient Jews destroyed this animal. To the Assyrians the wild boar would also have been well known; it is rarely represented on the sculptures, and nowhere as an animal of the chase. Figures of a wild sow, accompanied by eight or nine little sucking ones, occur on a slab in the British Museum; they are represented as frequenting marshy places covered with tall reeds, and are fairly drawn. Neither the mother nor any one of her little ones have curly tails; the sucking pigs are shaded like the mother, and one cannot say whether the striped longitudinal bands of the young of wild swine were ever noticed by the Assyrians.

Among the Greeks and Romans no sport was more popular than the chase of the wild boar, whose flesh often appeared at their tables. So fierce an animal could not help

kindling the sportsman's ardour; the danger that accompanied his capture enhanced the pleasure of the hunter, so that not all the earnest entreaties of the Goddess of Love could turn Adonis from his favourite sport. Wild boars were hunted with large and powerful dogs. The Indian, Locrian, Cretan, and Spartan are recommended by Xenophon; the two former were celebrated for their power and courage, the latter for their scenting powers. Very strong nets were used, and javelins were furnished with guards at the juncture of the iron and wooden parts, in order to prevent the stricken animal from pushing along the handle till he reached the hunter. Foot-traps similar to the *podostrabæ* used in deer-hunting were also set in places frequented by the animals. The hunters were to go in company for the sake of mutual protection in so hazardous a sport. After a boar has been killed, according to Xenophon —who, like the worthies of classical antiquity, generally, now and then indulged in the

fabulous—his tusks are so hot that hairs when laid upon them actually shrivel up; and when he is alive they are absolutely on fire when he is irritated, "because if this were not so, he would not singe the tips of the dogs' hair when they came near him."

Ovid's admirable picture of the hunt of the Caledonian wild boar is well known. The mighty forest rising from the plain, its trees growing for ages, never thinned by man—

"Silva frequens trabibus quam nulla ceciderat ætas,"

amid whose tangled brushwood the great wild boar had his lair; the neighbouring valley, with its rivulets of water and pool surrounded by willows, sedges, rushes, and tall reeds, to which spot Meleager and his chosen comrades tracked the monster; the placing of the nets, the unleashing of the dogs, the search for foot-tracks, the sudden rush of the wild animal from the swampy pool, the crushing of the brushwood by its impulse, the shout or "view hollo" of the party as he started off,

the casting of javelins, the dispersion of the dogs, are all most graphically related.

The wild boar's flesh was highly appreciated by the Romans: it was usually the chief dish of the *cæna*, and was served up whole, a custom first introduced by P. Servillius Rullus, father of him whom Cicero attacked. The thorough gourmand pretended that he could tell from the flavour what part of Italy the animal came from, whether it were Umbrian or Laurentian. The Lucanian and the Tuscan were celebrated. The cooking of the whole animal was rather an expensive matter, and the gift of one to a person not wealthy quite a "white elephant." Martial had a present of a splendid wild boar fed on Tuscan acorns killed by his friend Dexter. "But, alas!" he exclaims, "my cook will consume a mighty heap of pepper, and to the mysterious sauce will add Falernian wine. Go back, O expensive wild boar, to your master! I hunger at a cheaper rate." (Ep. vii. 27.)

The ELEPHANT is represented on the Egyptian monuments among the presents brought by an Asiatic people to an Egyptian king. The island Elephantine took its name from this animal, which, however, never appears to have been considered sacred. The Ptolemies, at one time, established a hunting place for the chase of the animal, which was valued almost solely for the sake of the ivory. A figure of the Asiatic elephant appears on an Assyrian monument of the time of Shalmanezer, as part of tribute from the Armenian Muzri, who had themselves most likely received it from India (see page 22). The African elephant was well known to the Greeks and Romans. We do not read of elephants being employed in war before the time of Pyrrhus, who in B.C. 280 made use of these animals in the war with Tarentum against the Romans. We know that the Carthaginians, also, in the time of Hannibal (B.C. 210), and probably before, employed these animals in war. Aristotle speaks of the docility of the elephant. He gives a

good account of the creature's proboscis, its form and functions; he notices correctly the absence of a gall-bladder, the construction of the feet, the great age to which it attains, the mode adopted in hunting and taming wild elephants, the peculiar structure of the hind feet, which appear to bend like those of a man. When the Romans first saw the elephant in the army of Pyrrhus in Lucania, they called it the "Lucanian ox"—*Bos Luca*—as Lucretius tells us.

"Next the Poeni taught the horrible Lucanian oxen, with lowered body and snake-like hand, to endure the wounds of war, and to throw into confusion the mighty ranks of Mars."—(*De Rer. Natura,* v. 1,301). The Romans, in the time of the Empire, introduced elephants largely into their capital. Cæsar held a triumphal entry with forty elephants attached to his car. They were frequently exhibited at the theatres and in other places, being trained and exercised against the solemnity of their games in certain

strange positions, intricate motions, difficult turns of the body, being taught to go, to come, to wheel about, &c. &c. These triumphing and performing elephants used by the Romans would be the broad-eared African species.

The Seals known to the classical writers are the common *Phoca vitulina* and *P. monachus*. Aristotle correctly says that the fins of the seal are homologous with the feet of a quadruped. "The seal is like a maimed quadruped, for immediately beneath the scapula it has feet like hands. They are five fingered, and each of the fingers has three joints and a small claw. The hind-feet are five fingered, and each of the fingers has joints and claws like those of the fore-feet. In shape they are very like the tail of a fish. When the young ones are twelve days old the mother leads them to the water several times a day, in order to habituate them by degrees. The seal drags its hinder parts along, for it cannot

walk nor erect itself on its feet, but it contracts and draws itself together. It is fleshy and soft." And now comes a strange error —its bones are cartilaginous. It is difficult to kill the seal by violence unless it is struck upon the temple, for its body is fleshy. It has a voice like an ox. With respect to the teeth, Aristotle correctly says, "All are sharp pointed, showing an approximation to the race of fishes." The docility of the seal did not escape the notice of the Romans. Pliny expressly states that these animals are susceptible of training, and with voice and gesture can be taught to salute the public, answering with a peculiar noise (*incondito fremitu*). Sealskins were considered protectors against lightnings. Augustus Cæsar habitually feared thunder and lightning, and at all times and in all places he carried about with him a sealskin as a preventative (*pro remedio*).

Seals are nearly always inhabitants of salt water. A species occurs in the Caspian Sea that seems to be allied to the common *Phoca*

vitulina; the water of this sea is very little salt; while another species is found in Lake Baikal, whose water is wholly fresh. Herodotus speaks of a race of men inhabiting the mouths of the Araxes, who feed on raw fish and clothe themselves with seal-skins; this species is clearly the seal of the Caspian Sea (*Phoca Caspica*).

The Coney of our English version is a wrong translation of the Hebrew word *shâphân*. The word coney is an old form for a rabbit, being derived from the Latin *cuniculus*. As we have seen, the introduction of the rabbit into the East is of recent date, and no rabbit was known to the ancient inhabitants of the Bible lands. This animal—the *Shâphân*—was by the Levitical law forbidden as food to the Jews, because it does not divide the hoof into two parts. The *shâphân* is said to chew the cud, which, however, it does not do. The animal intended is allowed by all writers to be the *Hyrax Syriacus*—neither a

rodent nor a ruminant. In outward form it has some slight resemblance to a rabbit, except that its ears are short and small. Zoologically, the little hyrax is classed between the hippopotamus and the rhinoceros: it has two incisor teeth, pointed and triangular, like those of the hippopotamus, whilst its molars are very similar to those of the rhinoceros; but though it appears to have its true affinities with the even-toed ungulates, the genus must be acknowledged to be a very aberrant form. In the Book of Proverbs, among the "four things, little upon earth, but exceeding wise," are enumerated these little animals. They are truly "but a feeble folk, and have their houses among the rocks." The hyrax, from its habit of moving about its jaws and teeth like hares and rabbits, led the Hebrews to suppose that it ruminated just as sheep and cattle do. It is not correct to say, as some have said, that the Hebrew words translated "chewing the cud," do not necessarily imply a true ruminating process, because the identical

expression which is used for chewing the cud in the true ruminants is used for that process in the animal under our consideration. "And the *shâphân*, because he cheweth the cud, but doth not divide the hoof, he is unclean to you" (Lev. x. 5). The Hebrew words are too distinct to admit the slightest doubt as to their full signification. The hiphil participle *maaléh*, from the verb *aláh*, "to go," "to ascend," literally rendered would read, "which maketh the cud to ascend," and shows, moreover, that the Hebrews had a correct general idea of the process of rumination as visible to them in their own cattle every day of their lives. The hyrax is not so common in Palestine as formerly. It is common, however, in some parts, as in the gorge of the Kedron, and all down the west side of the Dead Sea. They are timid and shy little creatures, and this is implied in the Biblical expression of "being exceeding wise" and on the alert when danger threatens. When an approaching stranger is seen by one of these animals it

immediately utters a scream, whereupon all the party hurry at once into the holes of the rocks. The hyrax does not burrow like the rabbit and some other animals. In Arabia Petrea these little creatures are called *gannim Isráel*, "Israel's sheep," doubtless from the hyrax frequenting the rocks of Horeb and Sinai during the forty years' wanderings of that people. The Germans translate the word *shâphân* by "rock badger." It is difficult to suggest a good translation. "The stony rocks for the hyraces" sounds awkward, and conveys no idea to the mind of an ordinary reader. "Rock-badger," though incorrect, is better on the whole. Perhaps, as the English word "coney" is now nearly obsolete as applied to the rabbit, it would be as well to retain the word, familiar to all from its occurrence in our Bibles—to re-issue the coin, but with the impress of a hyrax and not a rabbit upon it.

Of Whales there is not much that I find

interesting to notice. Popularly, a whale is looked upon as a fish; Aristotle was not deceived by a fish-like form of the body. "The phocæna, like the dolphin, is furnished with a blow-hole, it has no gills" (i. 8). In another place he says, "The cetacea, as the dolphin, seal, and whale, have mammæ and milk, and suckle their young." The dolphin shows great attachment to its young ones, which follow the mother for some time. "Of all animals," he says, "the most remarkable in this respect is the dolphin, and some other cetaceous water animals of this kind, as the whale and others which have a blow-hole; for it is not easy to place these with water animals, or with land animals, if air-breathing animals are land animals, and water-breathing animals are aquatic, because these animals share both natures, for they take in sea-water and eject it through the blow-hole, and the air, too, through the lungs, for they are possessed of such and breathe by means of them. Hence it happens that when a dolphin is

caught in nets, it quickly dies, because it cannot breathe. It can live a long time out of water moaning and groaning like other air-breathing creatures; while sleeping it keeps its nose out of the water, in order that it may breathe" (viii. 2, § 3). The species of dolphin chiefly alluded to by the Greek and Latin writers is most likely the common dolphin, *Delphinus delphis*, Lin.; this is the creature upon which the famous Lesbian harpist Arion is represented being carried across the sea from Sicily to Tenarus. The sailors coveting Arion's riches formed a plot to cast him into the sea; in vain he implored them to save his life; he asked to mount on the quarter-deck, and to play on the harp before he leaped into the sea. So sweetly he sang that dolphins were attracted to the ship, and Arion casting himself into the sea mounted the back of one of these animals and reached Tenarus in safety. The figures on coins representing this ancient legend are fair likenesses of the common dolphin.

Concerning the VULTURE and the PELICAN I will only speak in connection of the latter bird being fabled to feed its young with blood from self-inflicted wounds made in its breast. The pelican feeds its young ones with the fishy contents of its pouch, and during the process the red tip of the lower mandible is pressed against its breast; and this has been supposed to lie at the bottom of the fable that the bird feeds its young ones with its own blood. This, though an ingenious explanation, is altogether incorrect, because the bird, which originally is represented as feeding its young brood with its own blood, is *not* the pelican, but a vulture or an eagle. Nor is the fable a classical one at all. It originated with the Egyptians apparently, who considered the vulture a most compassionate bird. According to Horapollo, "a vulture symbolises a merciful man, because if food cannot be procured to nourish its offspring, it opens its own thigh and permits the young to partake of the blood, so that they may not perish from want."

That the vulture was considered a most affectionate bird is an idea shared by the Hebrews, as implied by the Hebrew name (*râchâm*) for a vulture, which signifies "an affectionate bird." Among classical authors also the love of the vulture for its young was proverbial; thus Homer represents Telemachus and Ulysses bitterly mourning as eagles or crooked-clawed vultures lament when countrymen had robbed their nests of their unfledged young ones (*Od.* xvi. 216). And Æschylus refers to vultures, which in their lamentations for their young, soar high above the nests from which they have been taken (*Agam.* 49). The Egyptian fable in time was transferred from the vulture to the pelican by the ecclesiastic fathers in their annotations on the Scriptures. The marvel was already sufficiently great, but in patristic theology it was still more magnified, for the blood of the parent pelican was supposed not only to serve as food for the young, but was also able to *re-animate* the dead offspring! Thus Augustine, commenting on

Psalm cii. 5, "I am like a pelican in the wilderness," says, "These birds (male pelicans) are said to kill their young offspring by blows of their beaks, and then to bewail their death for the space of three days. At length, however, it is said that the mother-bird inflicts a severe wound on herself, pouring the flowing blood over the dead young ones, which instantly brings them to life." To the same effect write Eustathius, Bishop of Antioch, Isidorus of Seville, Epiphanius, and a host of other writers, except that sometimes it was the female which killed the young ones, while the male re-animated them with his blood. This fable was supposed to be a symbol of Christ's love to men. In popular opinion, however, the vulture long remained as the original bird of the fable; for in architectural ornaments, and in old books of emblems, the bird is always depicted as an eagle or vulture; and it would seem that the word *pelican* at one time denoted an eagle, or similar bird of prey. In an old book of emblems, entitled

"A Choice of Emblems and other Devices," by Geffery Whitney, 1586, there is a woodcut of an eagle piercing her breast with her hooked beak, in a nest surrounded by her young ones, whose mouths are open to receive the blood which issues from the parent's body. Underneath the woodcut are the following lines:—

"The pellican, for to revive her younge,
Doth pierce her breast, and geve them of her blood.
Then searche your breste, and as you have with tonge,
With penne proceed to doe our country good:
Your zeal is great, your learning is profounde,
Then help our wantes with that you doe abounde." *

The Greek writers employ the word πελεκάν, or πελακῖνος, generally to denote the web-footed pouched bird, but the derivation from πελεκάω, "to hew with an ax," shows that some other bird was originally signified by it, and this bird, we learn from Aristophanes, was a "woodpecker," the clever joiner bird, which with its bill hewed out the gates of Cloud-

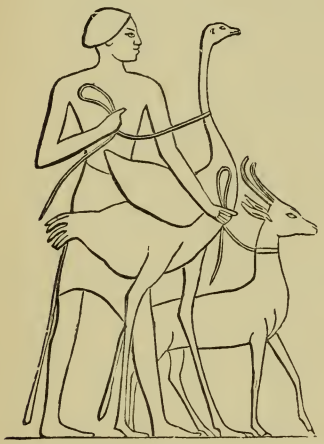
* A figure of the "life-rendering pelican" feeding her young ones with her own blood may be seen in Knight's *Shakspere*, Vol. VI., p. 154.

cuckoo-town (*Aves*, 1155). Whether our word "pelican" was ever used by any early English writers to denote an eagle, or any other bird except the real pelican, I cannot say. But in the epigraph just quoted it would appear that it was thus occasionally employed. The *picture* representing an *eagle*, and the *word* a *pelican*, was a puzzle to Sir Thomas Browne. "In every place," he says, "we meet with the picture of the pelican opening her breast with her bill and feeding her young ones with the blood distilled from her." He then says these pictures "contain many improprieties, disagreeing almost in all things from the true and proper description;" the pelican exceeds the magnitude of a swan, the bird of the pictures is described as of the bigness of a hen, as having divided claws, those of the pelican are fin-footed; lastly, there is one part omitted more remarkable than any other, that is the chowle, or crop, adhering under the lower side of the bill, and so descending by the throat; a bag, or sachel, very observable,

and of a capacity almost beyond credit" (*Vulg. Errors*, vol. ii., p. 1, Bohn's Edn.).

The Ostrich was hunted by the Egyptians for the sake of its plumes, which were highly prized for ornamental purposes, and also because an ostrich's feather had a religious signification; it was an emblem of truth, and is occasionally represented as placed in the scales of Justice, being weighed against the actions of a departed soul in the presence of Osiris. The eggs, moreover, were in request for ornamental or religious purposes; to what definite purpose ostrich eggs were employed by the ancient Egyptians is unknown: they are still suspended in Coptic churches; and the Arabs of Palestine use them for the decoration of graves. The ostrich was well known to the Jews, and is often mentioned in the Bible. The character of cruelty is attached to this bird in the Book of Job and in the Lamentations. "The daughter of my people is become cruel like the ostriches in the wilderness." In

Job xxxix. 13 our translation is in fault; the verse should be rendered thus—"The wing of the ostrich moveth joyously, but has she the plume and feather of the stork?" Here the ostrich is instanced as the very opposite in character to the stork, which was proverbially celebrated for its affection to its young. How unlike to the cruel ostrich, which leaves her eggs in the earth, and is hardened against her young ones! Stupidity and want of affection have long been attributed to the ostrich by the Orientals. The Arabs have a proverb, "stupid as an ostrich," and they give the following reasons for their belief:—The ostrich will swallow iron and stones. When the bird is hunted it thrusts its head into a bush,



MAN WITH OSTRICH AND GAZELLE. (*Egyptian.*)

and imagines that the hunter does not see it. It neglects its eggs. It has a small head and few brains. It is well known that the bird swallows stones and other hard substances to aid its digestion; its voracity is not always discriminating, as it will swallow wood, cordage, nails, glass, and other substances; the hard date-stones—one of the hardest of vegetable productions—are a welcome and efficient digester. According to Shaw, who witnessed the fact, a bird once swallowed several leaden bullets hot from the mould. The character of cruelty attributed to the ostrich is accounted for in this way: the ostrich is polygamous; the nest, which is a hole scratched in the sand, is filled promiscuously by several hens; the eggs are then covered over about a foot deep, and left to the heat of the sun, which in the day time acts as an incubator. During the night the parent birds share in the incubation. This, however, is the case only in tropical countries. The ostriches known to the Jews would be those of Syria, Egypt, and North

Africa, where the parent birds frequently incubate during the day. How, then, can it be said that the bird forgets that the foot may crush the eggs when they are covered a foot deep or more by the sand? In this way: besides the eggs destined for hatching, which are deposited in the nest, the ostrich lays other eggs, *not in* the nest, but *near* it, to all appearance forsaken. Clearly, therefore, these are the eggs which a foot may crush, mentioned in the Book of Job. What purpose do these supernumerary eggs serve? They are intended for the nourishment of the newly-hatched young ones, which in barren districts would at first find difficulty in procuring food. This opinion is confirmed by the statement of Arabs and other eye-witnesses. Figures of the ostrich occur on the Assyrian monuments, upon cylinders and utensils; there is no mistake about the bird denoted, though the drawings are grotesque; indeed, the Assyrian artists are far from happy in their delineation of bird-life generally.

The Greek and Roman writers frequently mention the ostrich as inhabiting some of the countries in which it is still found. What time it became known to the Greeks as an imported bird from Africa I am unable to determine. Aristotle's account would lead us to believe that he had seen the bird; here is his description of the Libyan bird:—"It is partly a bird, and partly a quadruped; it is not a quadruped, because it has wings; and it is not a bird, because it does not fly in mid-air, its wings are more like hair than feathers, and useless for flight. Moreover, like a quadruped it has upper eyelashes, and is bare about the head and upper parts of the neck, so that the eyelashes appear very hairy; like a bird it is furnished with *feathers below*, and like a bird it is a biped, but its feet are bisulcous like a quadruped, for it has no toes, but claws; the reason for this is that it has not the magnitude of a bird, but of a quadruped; for it is necessary that the body of birds should be the least, for it is not easy for a great bulk of body to be

moved in mid-air" (*Parts of Anim.*, iv. 14). Pliny repeats some of the remarks of Aristotle, but adds that the ostrich uses its bi-cleft foot for seizing stones to throw at pursuers in its course, that it has the extraordinary power of being able to digest almost any substance, that its stupidity is shown in thrusting its head and neck into a bush and imagining that its whole body is concealed. On this point Diodorus Siculus differs from Pliny and others; he says it is a *wise* precaution, because its head being the weakest and most vital part needs protection. Ostrich egg-shells were used by the Romans as vessels for certain purposes; the feathers of the wing and tail played a part in decorating the helmets of soldiers. Ostriches must have been imported into Rome at the latter end of the empire in great numbers, if Ælius Lampridius is to be credited, who asserts that Elagabalus once served up at table the heads of 600 ostriches, whose brains appear to have been considered a delicacy.

The CRANE was a bird in great favour with the Greeks and Romans, both on account of its migratory habits, by which it reminded them of the time of the year and the work necessary to be done in the field, and also for the delicacy of its flesh as an article of diet. Homer is the earliest Greek author who mentions the crane—

"So when inclement winters vex the plain
With piercing frosts, or thick descending rain,
To warmer seas the cranes embodied fly
With noise and order through the mid-way sky."
(Pope's *Homer*, iii. 5.)

Hesiod (*Op. et Dies*, 446) reminds the farmer that the migratory cranes proclaim the ploughing season to have come—"Mark when from on high among the clouds you shall have heard the voice of the crane uttering its annual cry, which both brings the signal for ploughing and indicates rainy winter." Homer, in the passage just quoted, mentions the destruction which the cranes cause to a pigmy race, which was supposed to inhabit a district in Upper Egypt. These birds sometimes descend from their lofty aërial flights and alight on

newly-sown corn-fields. Aristotle, like Homer, after speaking of the cranes, mentions the pygmies. He says—"The cranes travel from Scythia to the marshes in the higher parts of Egypt. Here dwell the pygmies, and this is no fable, for there is, as it is said, a race of dwarfs, both men and horses, which lead the life of troglodytes." I suppose it was believed that these little men, when they came to drive off the cranes from their corn-fields, were gobbled up by the birds. The story that the cranes in their migratory flights "from one end of the earth to the other" swallow a stone to balance themselves in the wind, which stone, when procured by any one, was said to be useful as a touchstone for gold, Aristotle at once regards as a pure fiction.

Cicero mentions Aristotle as recording a wonderful thing about the mode of flight adopted by a flock of cranes. He says that these birds, in their migratory flight over the sea, assume the form of a triangle, the apex of which keeps off the wind from the two flanks,

making their course through the air easier; the base of the triangle is helped by the wind, as in the case of a ship; these last cranes place their heads and necks on the back of those flying before them; but as the leader is unable to rest in this way, having no prop for his head, he flies to the rear and rests: to his place succeeds one of those who have rested; the same changes taking place throughout the entire aërial course (*De Nat. Deor.*, ii. 49). It is well known that some flights of birds often assume a wedge-shaped form; cranes are said to fly in long lines and in clouds, by those who have been eye-witnesses of their migratory flights; perhaps they, like some other birds, occasionally assume a V-shaped form; the rest is pure fiction. The V form of the crane's flight is alluded to by Martial (Ep. xiii. 75), who says—

"You will disturb the ranks, and the letter will not fly entire, if you destroy a single bird of Palamedes."

"Turbabis versus, nec littera tota volabit,
Unam perdideris si Palamedis avem."

The Greeks appear to have kept cranes with other birds in enclosures, where they were probably fattened for the table. The guest in Plato's *Politicus*, addressing Socrates, jun., says, "You have, at all events, heard, and you believe in the feeding of cranes, γερανοβοτία, and of geese, although you have never wandered about the plains of Thessaly" (264 C, ed. Stallbaum). Seius possessed a country seat with an attached park, in which he kept large flocks of geese, fowls, pigeons, cranes, and peacocks (Varro, III. ii. 14). Horace speaks of the limbs of a crane sprinkled with salt and bread-crumbs among the articles of food at the entertainment given by Nasidienus (*Sat.* ii. 8, 87).

The sacred Ibis (*Ibis religiosa*) is a curious and interesting bird; it was sacred to Thoth, lord of letters, who is sometimes represented with the head of this bird. So sacred was the ibis considered by the Egyptians, that if any person wilfully killed it he was put to death; if he killed it accidentally, upon true repent-

ance and the payment of a fine, he was not punished. On what account was the ibis held so sacred among the Egyptians? The alleged cause that this bird benefits mankind by devouring serpents can have no foundation in fact; this species, as well as the North African species, *Ibis falcinellus*, the Glossy Ibis, has a curved, slender, and feeble bill, and is unable to kill serpents, except they be of the youngest and smallest kinds. Cuvier found a few remains of a snake in an embalmed ibis, it is true, but the bird does not feed on snakes, but on worms, small molluscs, the larvæ of insects, little fish, and crustacea. Be the cause of its sacredness what it may, all Egypt acknowledged its divine character; and there is no other animal of which so many mummies have been found. Sometimes the ibis was wrapped in linen bandages, sometimes they were placed in earthenware vases, or in wooden or stone cases. "At Memphis," says Mr. Pettigrew, "there are thousands of the embalmed ibis, but they are generally badly preserved." So great was

the respect shown to these birds that the Egyptians preserved even the fragments of their bodies, while the eggs of the bird have been found preserved in the tombs dedicated to this bird (*Hist. of Egypt. Mummies*, p. 208).

M. Savigny connects the appearance of the ibis with the rise of the Nile and the consequent fertility of the earth, and thinks that *hence* the first motives for the veneration of the bird arose. Is not this a probable reason? The ibis, appearing synchronously with the rising of the river, and increasing in numbers as the waters overflow, would be looked upon as a wise, prescient, and devout bird; clever in foretelling the Nile's periodic overflow of its waters. Hence we see, I think, why it was especially sacred to Thoth, the Egyptian Mercury, lord of letters and god of wisdom; hence the reason for the mummied form of the bird, which "when viewed in a particular position, sitting with its neck bent forwards and its head concealed under its wing, resembles the form of a heart"

(*Hist. of Mummies*, p. 205). Now the heart with the Egyptians was the seat of intellect, and Thoth was the god of intellect; and as the ibis was regarded a wise and clever bird, its mummied form was made to take the shape of the heart. The same idea of wisdom attaching to the ibis will be found in the mummied forms which have been found in a human form or attitude.

There are several allusions to the ibis in Greek and Roman writers, but nearly always they refer to this bird only as known to the Egyptians.

The Hoopoe is the bird denoted by the Hebrew word *dukîphath*, which is rendered "lapwing" in our version; it occurs only in the list of birds forbidden to be used as food by the ancient Jews. (See Lev. xi. 19; Deut. xiv. 18.) This bird has a characteristic fan-shaped crest on the top of its head; it is figured on the Egyptian monuments. Horapollo says that when the

Egyptians wished to represent the quality of gratitude, they delineated a hoopoe, because this is the only dumb animal, which, after it has been brought up by its parents, repays their kindness to them when old; for it makes a nest in the place where it was reared, and trims their wings and brings them food, till the old birds acquire a new plumage and are able to look after themselves. On this account the hoopoe has been honoured by being placed as an ornament on the sceptres of the gods. It does not, however, appear that the hoopoe was considered sacred. So prettily-coloured and peculiar a bird as the hoopoe, and in some respects so quaint in its habits, could not fail to attract attention. The Arabs have a superstitious reverence for it, as they believe it to possess marvellous medicinal properties, calling it "the doctor." The bird's head, we are told, "is an indispensable ingredient in all charms, and in the practice of witchcraft." One fable told of this bird can be traced to a peculiar habit

of the bird. The Arabs say that it is a betrayer of secrets, and that it is able to point out underground wells and fountains. Now the hoopoe, when it settles on the ground, has a strange and portentous-looking habit of bending the head downwards till the point of the beak touches the ground, raising and depressing its crest in a most mysterious manner at the same time. Hence, probably, arose the Arabic fable. This habit of *inspecting* probably suggested its Greek name ἔποψ, or ἐπόπτης, "an overseer," "inspector." The hoopoe feeds on worms and insect-larvæ. In Palestine it is migratory, returning in the spring; in Egypt, where it is very common, it is resident throughout the year; it is often to be seen on dunghills searching for food. The ancient classical writers call the hoopoe the "bird of the rocks and of mountains." When Euelpides and Pisthetærus, the two lawsuit-wearied citizens of Athens, in the comedy of the *Birds of Aristophanes*, are on their search for epops,

king of birds, they are led through a wild tract till they come to rocks and hills where epops sits in royal state. Dr. Tristram found the hoopoe tolerably common in all parts of Palestine, and most abundant in woods and near rocky watercourses; it also resorts to soft marshy places. It makes a nest in rocks and holes of walls. In size it resembles a thrush; it occasionally visits this country, and if unmolested, it would probably favour us with more frequent appearances.

Various species of *Hirundinidæ*, or swallows, were known to the ancient Greeks and Romans; the small-footed swift is the *apous* of Aristotle, called also the *cypsellus*, very like the *chelidôn*, or "swallow," only that its feet are covered with feathers. Our proverb, that "one swallow does not make a summer, nor one fine day," is as old as Aristotle, who uses this identical expression, *μία γάρ χελιδὼν ἔαρ οὐ ποιέι, οὐδὲ μία ἡμέρα.* (*Eth. Nic.* i. 6, 19; ed. Bekker.) Aristotle thought that swallows did not always migrate, but that in

the winter-time they concealed themselves in hollow places where they had been seen, stripped of their feathers—a notion once entertained by Linnæus and others, but now exploded. The swallow is a common figure on Egyptian monuments; it sometimes signifies "great" or "valuable;" it has been found embalmed in the tombs of Thebes, but it was not regarded as a sacred bird. Another small bird resembling a swallow, only that the tail is not forked, is still more common on the Egyptian monuments; it is a usual determinative for "littleness," "disaster," or "painful circumstance." Champollion referred this bird to a sparrow. Sir G. Wilkinson thinks it is a "wagtail," and states that this bird is "still called in Egypt *aboo fussád*, 'the father of corruption,' as if in memorial of the hieroglyphic character assigned to it by the ancient Egyptians" (v. 214). The figures on the monuments are, however, more like sparrows; and I believe that Champollion is correct. I think also we may

see the connection of the ideas of littleness and disaster implied in the determinative, in the fact that sparrows and other small insessorial birds do a great deal of mischief to newly-sown grain, as well as to ripe corn. Hence arose the necessity of covering the seed in the ground directly after it was sown, which, as we have seen, was extensively practised in Egypt by driving various animals over the newly-sown fields.

The swallow is mentioned, together with the dove and the raven, on the British Museum tablet, which gives an account of the Chaldean Deluge; these birds the Chaldean Noah sent out of his ship. He says:—

"On the seventh day, in the course of it
I sent forth a dove—it left;
The dove went and turned about,
A resting-place it did not settle upon, and it returned.
I caused to go forth a swallow—it left;
The swallow went and turned about,
A resting-place it did not settle upon, and it returned.
I caused to go forth a raven—it left;

The raven went, and the corpses which were
On the water it saw, and
It ate, it swam, it wandered about, and did not return."

The swallow here is called in the Accadian language *nam-khu*, "the destiny bird;" the common swift has been seen in Armenia (on a mountain of which country the Chaldean ship rested) in numbers from May till September; and perhaps this bird, so punctual in its arrivals and leavings, may be more especially intended by the "destiny-bird" of the old Accadians, which was so called from its periodic migrations.

The Cuckoo seems always everywhere to have received its name from its characteristic note. Even the old Accadians appear to have called the bird the *khu-u-ku*. I suspect the Greek word κόκκυξ, which has a harsher sound than our "cuckoo," was given to the bird first by some one who heard its note when close at hand; for when near the note has a decided guttural tone, about the last syllable, which

tone is lost to the ear at a distance. Aristotle's observations on the habits of the cuckoo are partly correct and partly fabulous. "The cuckoo," he writes, "is said by some persons to be a changed hawk, because the hawk which it resembles disappears when the cuckoo comes, and indeed very few hawks of any kind can be seen during the period in which the cuckoo sings, except for a few days. The cuckoo is seen for a short time in the summer, and disappears in winter. But the hawk has crooked talons which the cuckoo has not, nor does it resemble the hawk in the form of the head; but in both these respects it is more like the pigeon than the hawk, which it resembles in nothing but its colour; the markings, however, upon the hawk are like lines, while the cuckoo is spotted. Its size and manner of flight is like that of the smallest kind of hawk, which generally disappears during the season in which the cuckoo is seen. They say that no one has ever seen the young of the cuckoo. It does, however,

lay eggs, but it makes no nest; but sometimes it lays its eggs in the nests of small birds, and devours their eggs, especially in the nests of wood pigeons (φαττῶν). Sometimes it lays two, but usually only one egg; it lays also in the nest of the *hypolais*, which hatches and brings it up. At this season it is particularly fat and sweet-fleshed. Young hawks also are very sweet and fat." Various opinions as to the singular habits of the cuckoo prevailed in Aristotle's time.

"Some people say that when the young cuckoo grows it ejects from the nest the other young birds, which thus perish; others say that the foster-parent kills her young ones and feeds the young cuckoo with their flesh, because the beauty of the young cuckoo makes her despise her own offspring. Some again say that the old cuckoo comes and devours the young of the sitting bird (ὑποδεξαμένης ὄρνιθος); others maintain that from the great size of the young cuckoo it is the first to get the proffered food, so that the other young birds die of

starvation; others say that the young cuckoo being the strongest kills every other bird that is nourished up with it."

So much for other people's opinions. Now what was the philosopher's own notion to account for the singular and exceptional habits of the cuckoo? "The bird appears to act prudently in the matter of having young ones, for it is quite aware of its own cowardice, and that it cannot render them assistance; on this account it brings up its young ones supposititiously, that they may be preserved; in cowardice the cuckoo surpasses all other birds, for when it is pecked by little birds it flies away from them." I need not say that this is mere conjecture, and far from the true reason. The turning out of the young rightful owners of the nest by the young cuckoo is not intentional on the part of the foster child; as it grows larger than the other young ones, it naturally takes up more space, and soon fills a large part of the centre of the nest; the other smaller ones are pushed, of necessity, to

the sides, and often find themselves on the hollow back of the young cuckoo; and whenever the latter raises himself on his legs, he lifts up the young one, who is thrown off its back completely out of the nest. The reason for the cuckoo's non-incubation of its own eggs seems to lie in the fact of the necessity of a short sojourn in this country. A cuckoo seldom arrives before the middle of April; the ovaries are not sufficiently developed for the production of an egg till about a month after the bird's arrival—this would bring the first egg to the middle of May. The eggs are said to be laid at intervals of some days. The period of incubation lasts fourteen days; the young cuckoo requires twenty-one days in its nest before it is able to leave it, and after it has left it and is able to fly it continues to be fed for about five weeks by the foster parents. Now, the old birds leave this country generally about the second week in July, though sometimes they remain till the end of that month. The young birds remain

till September. This being the case, "not a single nestling," as Dr. Jenner observes, "would be fit to provide for itself before its parent would be instinctively directed to seek a new residence, and be thus compelled to abandon its young one." The question, however, after all, is a difficult one: why cannot the old cuckoos remain in this country till September, and then with their respective families all migrate simultaneously? Of course, the answer is, it is not their habit.

Of that curious fish the *Silurus*, or Sheat-fish of the Danube, Wolga, and other rivers—I mean the gigantic *Silurus glanis*, Lin.—I shall say but little. It grows to an enormous size, 80, 90, and 120 pounds in weight, and is said sometimes to measure eight feet in length. According to Ælian, the following curious mode of fishing for these great siluri was sometimes employed by the ancient Mysian inhabitants of Scythia and the Danubian districts:—

"An Istrian fisherman drives a pair of

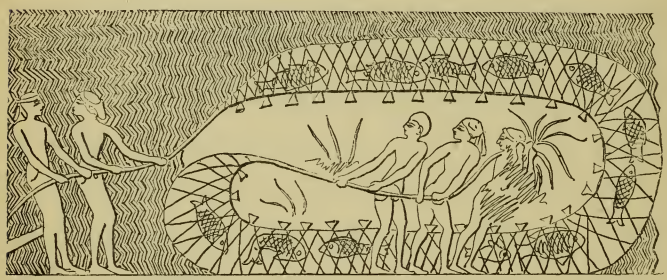
oxen down to the river-bank, not, however, for the purpose of ploughing. . . . If a pair of *horses* are at hand, the fisherman makes use of horses; and with the yoke on his shoulders, down he goes and takes his station at a spot which he thinks will make a convenient seat for himself, and be a good place for sport. He fastens one end of the fishing-rope, which is very strong and suitable, to the middle of the yoke, and supplies the oxen, or the horses, as the case may be, with sufficient food, and the animals take their fill. To the other end of the rope he fastens a very strong and sharp hook, baited with the lungs of a wild bull; this he throws into the water as a lure—a very sweet lure—to the Istrian silurus, having previously fastened a piece of lead of sufficient size to the rope near the place where the hook is bound on, for the purpose of regulating its position in the water. When the fish perceives the bait of bull's-flesh, he immediately rushes at the prey, and meeting with what he so dearly

loves, opens wide his great jaws and greedily swallows the dreadful bait; then the glutton, at first turning himself round with pleasure, soon finds that he has been pierced unawares with the hook, and being eager to escape from the calamity, shakes the rope with the greatest violence. The fisherman observes this, and is filled with delight; he jumps from his seat, and, now in the character of a fisherman, now in that of a ploughman, like an actor who changes his mask in a play, he urges on his oxen or horses, and a mighty contest takes place between the monster (κῆτος) and the yoked animals; for the creature, foster-child of the Ister, draws downwards with all his might, while the yoked animals pull the rope in an opposite direction. The fish is beaten by the united efforts of two, gives in, and is hauled on to the bank."

The Fish of the Sea of Galilee.—It must be of some interest to all persons to know something of the fishes which Christ

and his apostles so often saw as a glittering spoil—the reward of their night's labour,—either on the shore of the Galilean lake, or in the boats that occupied its waters. What sorts were eaten? What species presented themselves? What were the good, carefully put away for food; what the bad, which were cast away? It is only within the last ten years or so that zoologists have learned any thing of consequence with respect to the fishes of the Holy Land. Dr. Tristram, in 1863, organised an expedition to Palestine, and amongst other Natural History objects brought home were many well-preserved specimens of fish, fifteen distinct species, three of which were new to science, while eight of these were added to the fauna of Palestine. The Sea of Galilee is now, as in the time of Christ, an extraordinary piece of water for the multitudes of fishes that swim in its depths or sport on its surface. As Dr. Tristram and his party were walking along near the lake, they had an opportunity of watching

the mode of fishing as it is now carried on. "An old Arab sat on a long cliff, and threw poisoned crumbs of bread as far as he could reach, which the fish seized, and turning over dead, were washed ashore, and collected for the market." The shoals are described as being

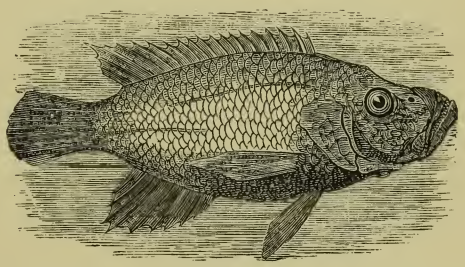


NETTING FISH. (*Egyptian.*)

marvellous, representing black masses of many hundred yards long, with the back fins projecting out of the water as thickly as they could pack. No wonder that any net should break which enclosed such a shoal.

The following fish are known to be inhabitants of the Sea of Galilee:—Three species of *Chromis*, one of which is identical with the Nile species, *C. Nilotica;* one *Hemichromis;*

three species of barbel, *Barbus longiceps, B. Beddomii,* and *B. canis;* one fish very similar to a barbel, called *Capoëta damascina,* which is found all over the country; one belonging to the Siluroid family, the *Clarias macracanthus,* and two species of loach. It is probable that



HEMICHROMIS.

other species occur. Dr. Günther has observed that wherever in Africa the *Clarias* is found it is accompanied by fish of a very different appearance—viz., *Chromis* and its allies. Now, singularly enough, these two fishes are also associated in the Holy Land. These chromids are otherwise exclusively African, nor is there any European fish to which they can be compared. They are broad oval fish,

reminding one somewhat of our common bream, only much thicker, and they have very large scales. There is a peculiarity in the chromids which does not occur in any other known fish—the lateral line is interrupted on the posterior part of its course. *Chromis Nilotica* is very abundant in the Lake of Galilee; it is greenish olive in colour, of shining silvery hue; it attains to a length of sixteen inches. Two species of barbel—the long-snouted and the large-scaled—appear to be common fish in the Jordan and Lake of Galilee: in size and weight they are about the same as our common barbel. The *Clarias* is an ugly, eel-shaped fish, one of the Siluridæ or Sheat-fish family. This genus is found in Africa and tropical Asia only. The species of the Galilean Lake is identical with that found in the Nile. It is described by Günther as a long, scaleless, eel-like fish, of black colour, with a many-rayed fin extending along the whole length of its back, and another from the vent to the tail; its broad mouth is sur-

rounded by eight long barbels, and the fins at the throat are armed with a spine. It lives on the bottom, lying concealed in muddy places overgrown with weeds, and watching for its prey, which chiefly consists of other small fishes, thus resembling much the eel in habit as in appearance. It is known to grow to the size of twenty inches, and probably it attains a much greater size. It is common in the Lake of Galilee.

I come now to answer the question —What kinds of these Galilean fish were eaten by our Lord and his disciples, and what were the "bad" fish of one of his parables which were "thrown away"? Do you remember Raphael's cartoon representing the miraculous draught of fishes? Most of the fishes drawn are mere nondescripts, piscine forms of the great painter's fancy; but two are evidently of the skate or ray family, never found in fresh water, and fish "quite out of water" in this case. The fish that would constitute the edible kinds in the time of Christ

and his apostles would be principally, perhaps, chromids and barbels, as these fish are extremely abundant in one or other of the species.

But what are the "bad" fish of the parable? "The Kingdom of Heaven is like unto a net that was cast into the sea, and gathered of every kind; which, when it was full, they drew to shore, and sat down, and gathered the good into vessels, but cast the bad away" (Matt. xiii. 47, 48). Now the epithet which is rightly translated "bad" in our version is in the Greek *σαπρά*, which more definitely means "putrid." But putrid fish would seldom, if ever, be drawn to land by the nets, nor would the separation of such fish have required so much care as is implied in the expression "sat down and gathered or sorted." The epithet *σαπρός* was the ordinary one used by the Greeks to express a badly-cured silurus; *σαπρὸς σίλουρος*, "a stinking silurus," is a very frequent expression, made use of by Athenæus and the Greek

parodists cited by him; it is the "half of a stinking silurus," mentioned by Juvenal. It appears that the Romans used to import large quantities of siluri from Egypt, and as the Galilean species is identical with the one common in the Nile, this species would be one of them. These fish, often hastily and carelessly prepared, and hawked about the streets of Rome and other towns in the hot summer months, would merit the epithet applied to them; and as these fish were considered cheap and inferior food, eaten only by the hungry lower orders, the epithet of σαπρός, originally bestowed on these semi-putrid salted siluri, was afterwards used, almost proverbially, for any silurus, dead or alive. The Jewish law forbade as food all scaleless fish. On this account, then, the *Siluridæ* were excluded, being without scales, and when taken in a net they were picked out and thrown away.*

* A friend has supplied me with a very apt illustration of the Greek term σαπρός as applied to fresh fish of an inferior quality. Our English word "offal," meaning generally that which is "bad," "carrion," or "refuse," is among fishmongers

The Angler-fish (*Lophius piscatorius*), Sea-Devil, or Wide-gab, has received its first name from its habits. On the head are two slender filaments; the anterior one at its base is formed into a ring, which is beautifully articulated to another ring-like process near the nose: by this means motion in every direction is possible. The second filament has a motion more limited, being apparently one capable of being brought backwards or forwards. Now these filaments are well supplied with nerves, and this is the use to which they are applied: The fish partly buries itself in the mud or sand at the bottom of the water, or, keeping close to the ground, it stirs up the mud by its broad pectoral fins, and is hidden by the turbidity of the water; then it waves these two filaments about by way of a tempting bait, and small fishes being attracted, either by

of modern England applied to fish which are perfectly wholesome, but of inferior *quality*. Thus skate, flukes, and even haddock, are in the trade technically termed offal, in contradistinction to soles, salmon, turbot, and other fish which are more highly esteemed for food. I think this a very happy illustration of the use of the Greek word σαπρός.

curiosity or by hunger, approach, and touching one of these fishing lines, immediately become a prey, and rapidly disappear down the enormous jaws of the angler-fish. Aristotle thus speaks of this fish under the name of Batrachus, the "frog-fish." "Marine animals, too, have many artful ways of procuring their food, for the stories that are told of the Batrachus, also called 'The Fisher,' are true. The batrachus has appendages above its eyes, like a hair, with a round extremity like a bait. It buries itself in the sand or mud, and raises these appendages above the surface, and when the small fish strikes them it draws them down till it brings the fish within reach of its mouth." This latter assertion is erroneous, as the fish does not draw its bait into its mouth, like the common hydra of our ponds, by means of these filaments. The fish, when aware of the presence of its prey, suddenly springs from its lair and seizes its victim.

Eels were held in high repute by the

ancient Greeks and Romans as a delicious article of food. The Egyptians did not eat them; they paid the slimy creature a greater compliment, by enrolling it among their gods. Antiphanes (in *Athenæus*, vii. 55, ed. Dindorf) ridicules the Egyptians for the honour they paid to eels, and contrasts the value of the gods with the high price asked for this fish in the market at Athens. "In other respects men say that the Egyptians are clever, in that they esteem the eel to be equal to a god; but they are far more valuable than the gods, for we can propitiate *them* by prayer, but as for eels, we must spend twelve drachmas or more merely to get a smell at them." Another writer quoted by Athenæus (the Athenian comic poet Anexandrides) thus very amusingly contrasts the manners of the Egyptians with those of his fellow-countrymen:—"I never could associate with you, for neither do our laws or customs agree with yours, but differ widely. You worship an ox, but I sacrifice him to the gods; you esteem an eel as the

greatest deity, we think him by far the best of all fish food; you don't eat pork, I am particularly fond of it; you worship a dog, I beat him if I ever catch him devouring my victuals; you weep at the sight of a sick cat! I with the greatest pleasure kill it and skin it; a shrew-mouse in your opinion is good for something, he is good for nothing in mine." *

The Greeks carried their partiality for the eel to a ridiculous excess. Now the eel is invoked as the goddess of pleasure, as the white-armed goddess, in allusion to the whiteness of the flesh; now as the Helen of the dinner-table, because every guest strove, like Paris, to supplant his neighbour and keep her for himself. Lake Copais, and the river Strymon, and Sicily, all produced most excellent eels. I may mention that Lake Copais (now Topolias) is still famous for its eels. The Greeks in the time of Aristophanes, and perhaps before his time and after, used to serve up their eels with beetroot, but some-

* δύναται παρ' ὑμῖν μεγαλῆ, παρ' ἐμοὶ δὲ γ' οὐ.

times they were simply boiled in salt and water, and served up with marjoram and other kitchen herbs. Eubulus, in *Athenæus*, says:

> "Then there came,
> Those natives of the lake, the holy eels,
> Bœotian goddesses, all clothed in beet."

Eels were captured in wicker baskets with narrow necks, as with ourselves; sometimes they were decoyed into earthenware vessels covered with colander-shaped lids, the vessels being baited with bits of cuttle-fish or other tempting morsels; the Romans kept them in their *vivaria* ready for the table when wanted. Eels were sometimes caught by stirring up the mud of the ponds or lakes in which they lived; hence arose the Greek proverb, ἐγχέλεις θηρᾶσθαι, "to fish for eels," "to fish in muddy waters," which had the political meaning of disturbing a state for the sake of gain; hence in Aristophanes (*Eq.* 864) the sausage-seller addresses Cleon: "Yes, it is with you as with eel-catchers: when the lake is still, they take nothing; but if they stir the mud, they

capture: so do you when you disturb the state."

The procreation of eels has long been a puzzling question. Aristotle, after asserting that they are not produced from eggs, or, as some have stated, from the metamorphosis of intestinal worms into young eels, gives us his notion about the true mode of generation. "They are produced," he says, "from what are called the entrails of the earth (ἐκ τῶν καλουμένων γῆς ἔντερων), which exist spontaneously in mud and wet earth. Some have been observed to make their escape from these things, and others have been apparent in them on being dissected. Such things are produced in the sea, and in rivers where there is much putrefaction" (*Hist. An.* vi. 15, § 2). Aristotle thought there was no difference of sex in the eel. He speaks, however, correctly of the eel migrating to the sea, of its nocturnal habits, of its dislike to great cold, and of its love of pure fresh water. Pliny's notion as to their generation was as absurd as Aristotle's—

"They rub themselves against rocks, and their scrapings come to life; they have no other mode of propagation."

The electrical properties of the *Torpedo*, or Numb-fish, the Electric Ray, were in effect known to the ancients. By the Greeks it was called by the appropriate name of *narké* (νάρκη), "the benumbing fish." Thus Meno, in Plato, accuses Socrates of resembling "both in form and other respects, the broad marine *narké*, for this fish benumbs the man who approaches and touches it; and you appear to have done to me the same thing; for in truth I am benumbed, both in mind and mouth, and I don't know how to answer you." Aristotle rightly says—"The *narké* stupefies any fish it may desire to master by the peculiar force which it has in its body, and then takes and feeds on it; it lies concealed in mud and sand, and captures the fishes as they swim over it, after it has benumbed them: of this fact many persons have been witnesses. The *narké* has also benumbed

men." According to Dioscorides and Galen, the shock of the torpedo was good for relieving chronic headaches. A cotemporary of Dioscorides recommends a person suffering from gout in the feet to stand bare legs in the shore and apply the torpedo! Two species inhabit the Mediterranean, the *Torpedo narké* and *T. marmorata;* the latter species sometimes occurs on the British coasts.

The Fish called Scarus by the Ancient Greeks and Romans.—Rumination, or the power which certain animals possess of casting up small portions of food from the stomach into the mouth for re-mastication, is normally confined to ruminant mammalia, as to camels, deer, sheep, cattle, &c. I say normally, because abnormal rumination has been known to occur in other animals, as in some species of kangaroo, according to Professor Owen's observations. But it appears that normal rumination is not confined to the mammalia alone; certain families of the class *Pisces* possess a power identical with rumina-

tion, a fact established by our great anatomist just mentioned. Every fisherman is aware of the sharp and numerous grasping teeth possessed by the pike, for instance; and every fisherman knows that he may confidently introduce his finger into the soft leather-like mouth of the carp, which is without these sharp grasping teeth, without being bitten. But the carp, tench, roach, and other leather-mouthed fishes possess grinding throat-teeth, whose office it is to chew the swallowed vegetable food which enters so largely into their diet.

In connection with a true rumination process in certain herbivorous fish it is very curious to notice that Aristotle mentions a certain fish called *scarus*, which, he says, is the "only one which appears to ruminate like quadrupeds." This statement has generally been set down as a simple myth and very absurd. What is the fish known to Aristotle as the scarus? I think there is little doubt that it is the *Scarus cretensis*, still found in

the Mediterranean, a fish noticed by Spratt and Forbes as occurring in the Ægean and Carpathian waters, abundant on the Lycian shores, and still called by its ancient name. The scarus is one of the "Parrot-fishes," so called from the shape of the mouth; its anterior teeth are soldered together, and the whole, as Owen remarks, peculiarly "adapted to the habits and exigencies of a tribe of fishes which browse upon the lithophytes, that clothe, as with a richly-tinted carpet, the bottom of the sea, just as the ruminant quadrupeds crop the herbage of the dry land." It is probable that the scarus does return portions of the hard coralline contents of its stomach for trituration by the masticatory pharyngeal teeth. But what led Aristotle to affirm that the scarus was the only ruminating fish, though certain species of the *Cyprinidæ* were known to him, I know not. He may be only repeating, as he often did, a hearsay story; or he may have been led to the belief from an examination of the

mouth and teeth of the scarus, and from the chalky pulp of the intestines, to which the bitten-off coral had been reduced by the action of the throat-teeth. Whether the scarus is a normally ruminating fish like the carp has never, I believe, been proved; but analogies from the nature of its teeth and food are in favour of an affirmatory answer. Be this as it may, the ruminating properties of the scarus, whether originating from Aristotle, or merely re-asserted by the philosopher, are repeated by Ælian, Pliny, Ovid, Oppian, and others. The ancient Greeks cooked scari as modern cooks do red mullet, with their insides undrawn; in this way it was reckoned a delicious dish, but the scarus otherwise made ready for table was poor food. I may mention that this mode of cooking scari would favour the idea that the fish ruminates, for otherwise the hard gritty contents of the intestinal tract would never have suggested that mode of cooking.

The Crocodile and the Plover.—The

story which Herodotus tells of a little bird, which he calls a *trochilus*, entering the mouth of a crocodile and picking out the leeches, is not so "contrary to all reason" as some writers have asserted. These are Herodotus' words:—"As the crocodile lives chiefly in the river, it has the inside of its mouth constantly covered with leeches; hence it happens that while all the other birds and beasts avoid it, with the trochilus it lives at peace, since it owes much to that bird; for the crocodile, when he leaves the water and comes out upon the land, is in the habit of lying with his mouth wide open, facing the western breeze: at such times the trochilus goes into his mouth and devours the leeches. This benefits the crocodile, who is pleased, and takes care not to hurt the trochilus" (ii. p. 97, Rawlinson's *Herod.*). Aristotle simply gives Herodotus' account, adding that the crocodile moves its neck when it wishes to shut its mouth, so as to warn the bird to avoid the danger. For a long time this story was put down as one of

the old Greek historian's myths, without a particle of fact at the bottom of it. M. Geoffroy St. Hilaire, however, an eminent French naturalist, confirms the truth of the story as told by Herodotus, but says that the creatures which the Egyptian-plover picks out of the crocodile's mouth are gnat-like insects and not leeches. "During his long-residence in Egypt, St. Hilaire had repeated occasions to ascertain that the story of Herodotus, though correct in substance, was inexact only in some particular details. It is perfectly true that a little bird does exist, which flies incessantly from place to place, searching everywhere, even in the crocodile's mouth, for the insects, which form the principal part of its nourishment. This bird is seen everywhere on the banks of the Nile; and Geoffroy having succeeded in procuring one, recognised it as belonging to a species already described by Hasselquist, under the name of *Charadrius Ægyptius*. . . . If the trochilus is in reality the little plover, the animals described

by Herodotus under the name of *bdellæ* cannot be 'leeches,' but a very small insect of that species, which swarms in those damp and warm regions, known by the name of *gnats* in Europe. Myriads of these insects dance upon the borders of the Nile, and when the crocodile reposes on the land he is attacked by their innumerable swarms. His mouth is not so hermetically sealed as to prevent them introducing themselves; and they penetrate in such vast numbers that the inner surface of his palate, which is naturally of a bright yellow, appears to be covered with a brownish-black crust. All these sucking insects drive their stings into the orifice of the glands, which are numerous in the mouth of the crocodile. It is then that the little plover, who follows him everywhere, comes to his succour, and delivers him from these troublesome enemies; and that without danger to himself, for the crocodile is always careful, when he is going to shut his mouth, to make some motion which warns the little

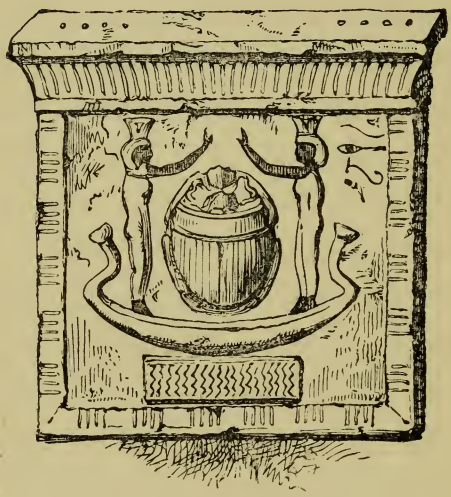
bird to fly away." (See *Edinb. Journal of Science*, Vol. IX., p. 68—72, 1828.)

So far Geoffroy St. Hilaire. That there is some kind of understanding between this little bird and the great saurian of the Nile, and that they are frequently seen together as friends, are facts which have been witnessed by modern travellers and naturalists. Thus Mr. Curzon writes:—"The bird was walking up and down close to the crocodile's nose. I suppose I moved, for suddenly he saw me, and instead of flying away, as any respectable bird would have done, he jumped up about a foot from the ground, screamed 'Zic-zac!' 'zic-zac!' with all the powers of his voice, and dashed himself against the crocodile's face two or three times. The great beast started up, dived into the water, and disappeared. The zic-zac to my increased admiration—proud apparently of having saved his friend—remained walking up and down, uttering his cry, as I thought, with an exulting voice, and standing every now and

then on the tips of his toes in a conceited manner, which made me justly angry with his impertinence." Mr. Curzon waited for some time to see if the crocodile would put in an appearance again; but as he did not do so, he threw a clod of earth at the little bird, and came away. The bird in question is the black-headed plover, the *Pluvianus Ægyptius* of Linnæus, of which bird Mr. E. C. Taylor, in his *Ornithological Reminiscences of Egypt* (*Ibis.*, Vol. I., p. 52) says—"As a matter of fact, I seldom saw a crocodile on land without seeing a *Pluvianus Ægyptius* near him." As to the creatures which the bird finds in the crocodile's mouth, they may be both gnat-like insects as noticed by G. St. Hilaire, or some kind of leech as asserted by Herodotus. Those who in this country have witnessed, as I have myself, the occurrence of great numbers of small leeches, such as *Glossiphoniæ* and *Piscicolæ*, adhering to the bodies and the insides of the mouths of fishes in an unhealthy state, will see no difficulty

in accepting the record of Herodotus as it stands; for the Greek word he uses means "leeches" and not "insects."

The SCARABÆUS, or *Ateuchus sacer* of



SCARABÆUS. (*Egyptian.*)

modern entomologists, is the well-known Lamellicorn beetle, the most celebrated of all insects, held in high veneration by the ancient Egyptians, and more frequently found carved out of various materials than any other Egyptian antiquity. The antiquity of the

worship of this beetle is great. There is a steatite scarabæus in the British Museum which bears the cartouche of Cheops (B.C. 2300), and which, as Mr. King says, "may dispute with the Assyrian cylinders the claim of being the earliest productions of the glyptic art" (*Antique Gems and Rings*, p. 97). This insect was looked upon as an emblem of the sun. The mode in which it provides for the security and development of its eggs is very remarkable. At the proper season of the year the female collects a sufficient quantity of dung, in the centre of which she deposits an egg; she then rolls the ball about till it assumes more or less a globular form. After this she turns her back to the ball, and with her hind legs pushes it backwards. The insect is black, about an inch long, and the ball containing the egg is somewhat larger than the insect itself; she shows great attachment to her globular treasure, the destined cradle of an infant beetle larva. This peculiar habit of the scarab-beetle, in forming a globu-

lar nidus for the development and sustenance of her young, must have been very early observed by the ancient Egyptians, and no doubt one of the reasons why it was accounted sacred. There is hardly any symbolical figure so often represented in Egyptian sculpture as this beetle, and it is frequently represented with the ball between its fore-legs, which seems to have been considered a symbol of the sun. It was also supposed to be a type of spring, of fecundity, and of the Egyptian month anterior to the rising of the Nile, as it appears in that season of the year which immediately precedes the inundation. It would not be worth while to examine the various reasons, often very fanciful, which ancient authors have given for the worship of the scarabæus among the Egyptians; it was either a symbol of the world, or the sun, the moon, of Pthah the creative power, of spring, fecundity, &c., &c. Perhaps this insect's habit of forming balls of dung as depositories for its eggs was looked upon as a symbol of

the sun's creative power, and this is the main idea involved. "The manufacture of these scarabæi in such countless profusion, coupled with the circumstance of the majority of them bearing the royal superscription alone, utterly precluding the explanation that they were all signets and nothing more," is accounted for by the theory that they were circulated as tokens of value, being in fact the "small change" of the days of the Pharaohs. Mr. King, quoting Plato, who says,—"In Ethiopia they use engraved stones instead of money," reminds us that "the Egyptians had no coinage whatever before the Macedonian Conquest (B.C. 332); large sums were paid in gold and silver bars bent up into rings of a certain weight, as still used in Senaar; but the high civilisation of the inhabitants must have rendered some representative of smaller values absolutely indispensable for the wants of daily life. Hence we find scarabæi scattered so profusely amongst the bandages of the mummies, un-

strung and unset; perhaps the fee for the door-keepers of the other world answering to Charon's *obelus* amongst the Greeks" (p. 100).

Hermit-Crab.—Every visitor to the sea-side, who is in the habit of using his eyes, must be familiar with that curious occupant of empty univalve shells, popularly called the "soldier," or "hermit-crab," the drollest of the droll order of Stalk-eyed Crustacea. There are several species, of which the *Pagurus Prideuxii* is one of the most common. All the species, which have very soft abdomens and need protection, inhabit the unoccupied shells of one-valved molluscs. Aristotle calls the "hermit-crab" a *carcinium*, and says "it resembles both crustacea and molluscous animals; in nature it is like a crab, but from the fact of its living in a shell it resembles a mollusc. Below the throat the whole creature is soft, and when laid open is yellow within; it is not united with the shell, but is easily liberated from it."

The truth of this latter assertion was a matter of controversy among naturalists in the early part of last century. The great Dutch authority, Swammerdam, said Aristotle was wrong, that a muscular attachment connected the crustacean to its house, and that the occupant was the natural and rightful owner of the shell. But though old Rondeletius and others before him had previously certified to the truth of Aristotle's narrations, the faith of many, such as the French commentator Camus, was shaken by Swammerdam's positive statement and reputation. There can be no doubt that the small-framed, thin-legged, lisping pupil of Plato, notwithstanding his conspicuous dress and the rings on his delicate fingers, was not unfrequently found by his fellow-disciples at Athens, or his friends in Macedonia, busily dissecting and examining some fish, cephalopod, or crustacean; but that Aristotle borrowed largely from other sources is unquestionable, and it is seldom possible to discover how far his descriptions,

even of common animals, are the result of his own observation. He does not hesitate to quote names of writers whose theories or statements he opposes; thus Herodotus is "the mythologist," and Ctesias "utterly unworthy of credit."

Nevertheless Aristotle's *History of Animals* will always remain a monument of wonderful diligence and mental vigour, and it must not be forgotten that the great Greek philosopher is the only author amongst the ancient Greeks and Romans whose natural history writings show any approximation at all to the idea of a zoological system. Zoological science, like other sciences, is in its nature progressive. A Cuvier was not possible in Aristotle's time, nor was a Darwin possible in that of Cuvier. Among many great men who, at different ages, have directed their minds to zoological questions, especial mention may be made of Aristotle, Cuvier, and Darwin, of whom the greatest is Darwin.

INDEX.

PAGE

Angler Fish 228
Ass 92
Baboons 13
Bees 142
Boar, Wild 175
Camel 77
Cats 40
Cattle 56
Coney 184
Crane 201
Crocodile 238
Cuckoo 213
Dogs 25
Dormice 140
Ducks 117
Eels 229
Elephant 180
Fish of Sea of Galilee 220
Fowls 114
Geese 121
Goats 68
Hares 136
Hermit Crab 248
Hoopoe 207
Horse 84
Hyæna 165
Ibis 204

Ichneumon 50
Lion 157
Marten 46
Monkeys 13
Mules 100
Ostrich 195
Oxen 56
Parrots 131
Peacock 129
Pelican 190
Pigeons 124
Pigs 104
Plover 239, 243
Rabbits 136
Scarabæus 244
Scarus 235
Seals 182
Sheep 68
Silurus 218
Snails: Preserves 148
Stag-hunting 167
Swallows 210
Torpedo Fish 234
Unicorn 169
Vulture 190
Whales 187
Wild Asses 94
Wild Boar 175
Wild Goats 73

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