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*** START OF THE PROJECT GUTENBERG EBOOK A NATURAL HISTORY FOR YOUNG PEOPLE:
OUR ANIMAL FRIENDS IN THEIR NATIVE HOMES ***



BROWN OR ALPINE BEARS.

Our Animal Friends
IN THEIR Native Homes
INCLUDING
MAMMALS, BIRDS and FISHES

BY

MRS. PHEBE WESTCOTT HUMPHREYS

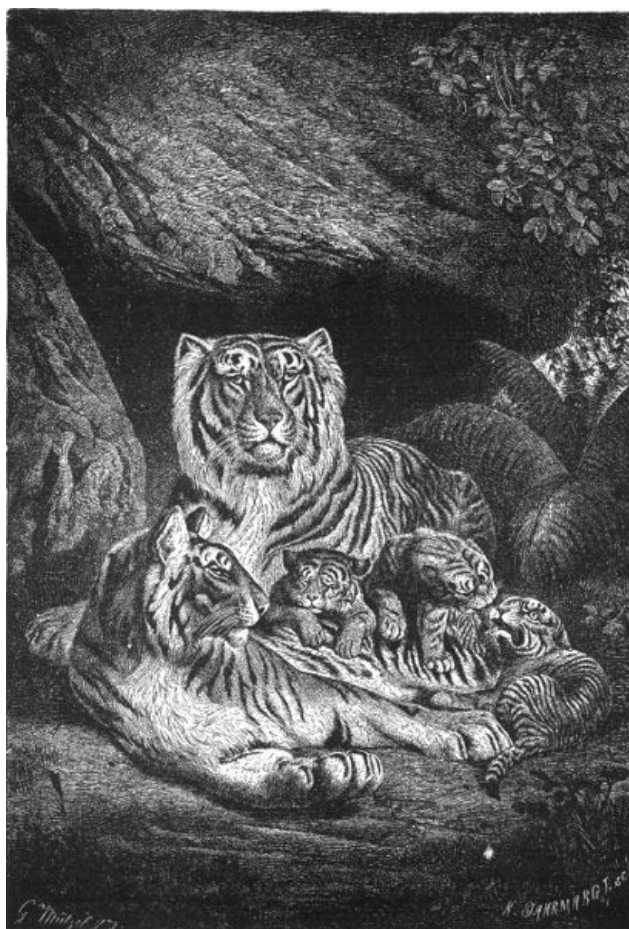
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By PHEBE WESTCOTT HUMPHREYS

This little Volume of Natural History has been prepared to fill a long-felt want. As a child the author was especially interested in the study of animals, but met with the usual drawback—nothing could be found in classified form to meet the requirements of young people, not yet old enough to take up a college course of study. Natural Histories abounded in every form and in every language, there were scientific works in plenty, and numerous books for children, from the fairy tales founded on animal life to the usual descriptive matter accompanying profuse illustrations in childish books; but nothing could be found in which the Mammals, Birds and Fishes, were carefully classified and arranged in the proper families, and the whole in words of easy reading—discarding unnecessary scientific words and phrases, and carefully explaining the necessary ones. It was not until later in school life, when a certain knowledge of Greek and Latin became necessary in the college-preparatory course that these scientific works could be really enjoyed. And the author of this little volume—who was then preparing her first literary efforts in the intervals of school work—resolved that one of her earliest books should be a carefully arranged Natural History for Young People, in which all the desires of her own childhood should be realized.

The immensity of the labor involved in preparing such a work did not become apparent until once seriously commenced, and French, German, Greek and Latin dictionaries were called into requisition in order that every scientific word and classification might be carefully explained. The best authorities among ancient and modern naturalists have been consulted; Goldsmith, Jones, Figuier and Brehm have been quoted, and other English, French and German works, studied and compared. And although this has been delayed, because of the tedious work required, and other books for young people, by the same author have been allowed to precede it, this is finished in time to meet the demands of the small son of her household, who has reached the age so aptly described by the well-worn phrase, "An animated interrogation point"—especially in the direction of Natural History. And filling as it does, the demands of one, may it meet the desires of the many mothers of inquiring sons and daughters, and the young people who are eager for such a work, that is accurate, readable and interesting, and fully up to the present condition of modern science.



A FAMILY OF TIGERS.

PREFACE	5
OUR ANIMAL FRIENDS	13
QUADRUMANA—FOUR-HANDED MAMMALS.	
THE TAILLESS APES	17
Gorilla, Orang Outang, Chimpanzee.	
THE APE MONKEYS	23
Baboons, Mandrills, Macaques, Wanderoo, Barbary Ape, Bonnet Monkey.	
THE AMERICAN MONKEYS	27
The Howlers, The Spider Monkeys, The Weepers.	
THE LEMURS	31
The Fox-Headed Monkeys.	
CARNIVORA—FLESH-EATING QUADRUPEDS.	
PLANTIGRADE CARNIVORA—THE BEAR FAMILY.	33
The Brown or Alpine Bear, The Collared Bear, The American Bear, The Grizzly Bear, The White or Polar Bear, The Sloth Bear.	
DIGITIGRADE CARNIVORA—THE HYENA FAMILY.	42
Spotted Hyena, Striped Hyena, Hunting Hyena.	
THE CAT FAMILY	44
Wild Cat, Domestic Cats, Lion, Tiger, Leopard, Panther, Jaguar, Puma, Ocelot, Lynx, Caracal, Ounce, Serval, Cheetah.	
THE DOG FAMILY	63
Sporting Dogs, Running Dogs, Pointers, Setters, Newfoundland Dog, Esquimau Dog, Mastiffs, Spaniels, Wild Dogs, Hyena Dog, Wolf, Jackal, Fox.	
THE WEASEL FAMILY	75
Ermine, Marten, Otter.	
THE CIVET FAMILY	80
African Civet, Indian Civet, Mangousts, Genet.	
AMPHIBIOUS CARNIVORA—THE SEAL FAMILY.	81
Common Seal, Sea-Elephants, Sea-Lions, The Walrus, or Morse.	
CHEIROPTERA—ANIMALS WITH WINGED HANDS.	86
Long-Eared Bats, Long-Nosed Bats, Roussette, Vampires.	
INSECTIVORA—INSECT-EATERS.	91
The Shrews, Water Shrew, Elephant Shrew, The Hedgehogs.	
EDENTATA—TOOTHLESS QUADRUPEDS.	
THE SLOTH FAMILY	94
Unau, Ai, Armadillos, Ant-Eaters, Pangolins.	

<u>RODENTIA—GNAWING QUADRUPEDS</u>	<u>99</u>
Mice, Rats, Porcupines, Beavers, Squirrels, Prairie Dogs, Hares.	
<u>MARSUPIALIA—POUCHED QUADRUPEDS.</u>	<u>111</u>
Kangaroo, Opossum.	
<u>PACHYDERMATA—THICK-SKINNED QUADRUPEDS.</u>	
<u>THE ELEPHANT FAMILY</u>	<u>114</u>
African Elephant, Asiatic Elephant, Mammoth, Mastodon.	
<u>ORDINARY PACHYDERMATA.</u>	
The Hippopotamus.	<u>114</u>
<u>THE TAPIR FAMILY</u>	<u>117</u>
American Tapir, Indian Tapir.	
<u>THE RHINOCEROS FAMILY</u>	<u>118</u>
One-Horned Rhinoceros, Two-Horned Rhinoceros.	
<u>THE HOG FAMILY</u>	<u>120</u>
The Wild Boars, The Wart Hog, The Peccaries.	
<u>THE HORSE FAMILY</u>	<u>123</u>
Horses and Ponies, The Wild Ass, The Domestic Donkey, The Zebra, The Quagga, The Dauw.	
<u>RUMINANTIA—ANIMALS THAT CHEW THE CUD.</u>	
<u>THE CAMEL FAMILY</u>	<u>129</u>
Camel, Dromedary, Llama, Paca, Vicuna.	
<u>THE MUSK DEER</u>	<u>133</u>
<u>RUMINANTS WITH HAIRY HORNS.</u>	
<u>The Giraffe.</u>	<u>134</u>
<u>RUMINANTS WITH HOLLOW HORNS.</u>	
<u>THE ANTELOPE FAMILY</u>	<u>134</u>
Chamois, Gazelles, Gnus.	
<u>THE OX FAMILY</u>	<u>141</u>
Yak, Bison, Buffalo.	
<u>RUMINANTS THAT SHED THEIR HORNS.</u>	<u>145</u>
The Deer Proper, The Reindeer, The Elk or Moose.	
<u>CETACEA—THE WHALE FAMILY.</u>	
<u>BLOWING OR SPOUTING WHALES.</u>	<u>152</u>
Rorquals, Cachalot, Pot Whale, Dolphin, Porpoise, Narwhal.	
<u>HERBIVOROUS CETACEA</u>	<u>159</u>

BIRDS.

BIRDS OF PREY 166

THE OWL FAMILY 167

The Horned Owls, Great Owl, Virginia Eared Owl, Long-Eared Owl, Short-Eared Owl, Scops-Eared Owl.

HORNLESS OWLS 169

Snow Owls, Barn or Screech Owls, Hawk or Canada Owls, Brown or Tawny Owls, Ural, Burrowing and Sparrow Owls.

THE FALCON FAMILY 169

Sea-Eagles, Eagles, Stone Eagles, Harpy Eagles, Buzzards.

THE VULTURE FAMILY 173

King Vulture, Bearded Griffon, Condor.

THE NATATOIRES—SWIMMING BIRDS.

THE FAMILY OF DIVERS 176

Great Northern Diver, Penguin, Auk, Grebes.

DUCKS, GEESE AND SWANS 182

Wild and Domestic Ducks, Sea Ducks, Fresh-water Ducks, Wild and Domestic Geese, Mute and Whistling Swans, Black Swan of Australia, Black-necked Swan.

THE PELICAN FAMILY 183

LONG-WINGED SWIMMING BIRDS. 190

Albatros, Petrels, Gulls.

GRALLATOIRES—WADING BIRDS.

WADERS WITH UNITED TOES 195

Avocet, Stilt Bird.

WADING-BIRDS WITH LONG BILLS 197

Woodcocks, Snipes, Reed Hens.

WADING-BIRDS WITH KNIFE-SHAPED BILLS 199

Storks, Argala or Adjutant, Marabou, Spoonbill, Cranes.

WADING-BIRDS WITH COMPRESSED BILLS 203

Curious Types, Flamingo, Frigate.

THE SHORT-WINGED BIRDS 206

Ostrich, Rhea.

SCRANSORES—CLIMBING BIRDS.

THE PARROT FAMILY 209

Grey Parrot or Jaco, Green Parrot, Macaw, Parrakeets, Amazonian Parrot.

THE COCKATOO FAMILY 214

Trumpet Cockatoo, Great White Cockatoo, Leadbeater's Cockatoo, Toucans.

<u>THE CUCKOO FAMILY</u>	<u>214</u>
Trogons, Honey-Guides, Anis, Barbets, Touracos, Plantain-Eaters.	
<u>THE WOODPECKER FAMILY</u>	<u>217</u>
Ivory-Billed Woodpeckers, Spotted Woodpeckers, Downy Woodpeckers.	
<u>GALLINACEAE—DOMESTIC BIRDS.</u>	
<u>THE PARTRIDGE FAMILY</u>	<u>220</u>
Grey Partridge, California Partridge.	
<u>THE GROUSE FAMILY</u>	<u>222</u>
Black Grouse, Ruffled Grouse, Hazel Grouse, Heathcock.	
<u>THE PIGEON FAMILY</u>	<u>224</u>
Crowned Pigeon, Fan-Tailed Pigeon, Wheeling Pigeon, Tumbler Pigeon, Carrier Pigeon.	
<u>THE PHEASANT FAMILY</u>	<u>225</u>
Silver Pheasant, Golden Pheasant.	

[PASSERINES—THE SPARROW FAMILY.](#)

<u>HUMMING BIRDS</u>	<u>229</u>
Sword-bill Humming Bird, Crested Humming Bird.	
<u>KING FISHERS</u>	<u>229</u>
<u>CROWS</u>	<u>233</u>
<u>RAVENS</u>	<u>233</u>
<u>DIPPERS OR WATER WRENS</u>	<u>235</u>

[FISHES.](#)

[CARTILAGINOUS FISHES.](#)

<u>THE LAMPREYS AND EELS</u>	<u>239</u>
Lesser Lamprey, Sea Lamprey, Sand Eels, Electrical Eels, Sea Eel.	
<u>THE FAMILY OF RAIAS OR FLAT-FISH</u>	<u>243</u>
The White Ray, The Lump-Fish, The Torpedo or Cramp-Fish.	
<u>THE SHARK FAMILY</u>	<u>249</u>
"Man-Eating Sharks," Dog-Fish, Hammer Heads, Saw-Fish.	
<u>THE STURGEON FAMILY</u>	<u>252</u>
The Caviare Sturgeon, Huso, or Isinglass Fish, Great Sturgeon, Common Sturgeon, Chimaera.	
<u>OSSEOUS, OR BONY FISHES</u>	<u>255</u>
<u>FAMILY OF GLOBE FISH AND COFFERS</u>	<u>257</u>
Globe-Fish, Diodon, Coffers or Ostracions, File-Fish or Balistes.	
<u>PIPE-FISH AND SEA-HORSES</u>	<u>258</u>
<u>THE SOFT-FINNED FISHES</u>	<u>259</u>
Some Curious Specimens, Sea-Snail, Lump-Fish, Echineis.	

[FLAT-FISH WITH SOFT FINS](#)

[260](#)

The Soles, Turbot, Flounders and Plaice, Halibut and Dab.

[THIRD GROUP OF SOFT-FINNED FISHES](#)

[261](#)

Cod, Whiting and Haddock, Pike, Stomias, Chaetodons, Flying-Fish, Herring.

[THE SPINY-FINNED FISHES](#)

[267](#)

Trigula or Gurnards, Red Gurnards, Flying Gurnards, Sword-Fish, Archer-Fish.

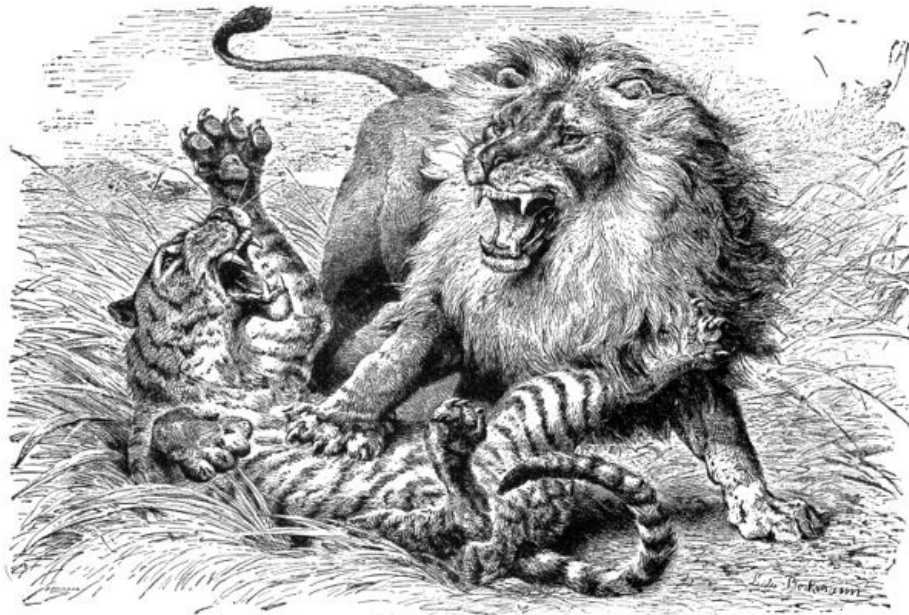
<u>Brown Bear</u>	<u>Colored Plate Frontispiece</u>
<u>A Family of Tigers</u>	<u>6</u>
<u>A Battle between the Lion and Tiger</u>	<u>12</u>
<u>Flying Squirrels</u>	<u>16</u>
<u>Gorillas</u>	<u>17</u>
<u>Orang-Outang</u>	<u>20</u>
<u>Chimpanzee</u>	<u>22</u>
<u>Baboons or Dog Headed Monkeys</u>	<u>24</u>
<u>Mandrill</u>	<u>26</u>
<u>Bonnet Monkeys</u>	<u>28</u>
<u>Weeping Monkeys</u>	<u>30</u>
<u>Lemur or Fox Headed Monkeys</u>	<u>31</u>
<u>Sloth Bear</u>	<u>32</u>
<u>Grizzly Bear and Buffalos</u>	<u>35</u>
<u>Panther Surprised by a Tree Snake</u>	<u>36</u>
<u>Polar Bear</u>	<u>39</u>
<u>Striped Hyena</u>	<u>42</u>
<u>Wild Cats</u>	<u>45</u>
<u>Angora Cat</u>	<u>46</u>
<u>Pumas Fighting over Vultures</u>	<u>53</u>
<u>Caracal Defending His Booty from Jackals</u>	<u>54</u>
<u>Jaguar</u>	<u>57</u>
<u>Lynx Attacking Fawn</u>	<u>59</u>
<u>Esquimaux Dogs</u>	<u>62</u>
<u>Newfoundland Dog</u>	<u>63</u>
<u>Hyena Dogs</u>	<u>66</u>
<u>Wolf</u>	<u>67</u>
<u>Jackal</u>	<u>70</u>
<u>Foxes at Home</u>	<u>72</u>
<u>Weasels and Ermines</u>	<u>75</u>

Marten	76
Otter Fishing for His Dinner	78
Mangousts	79
Genets	80
Common Seal	82
Sea Elephants	83
Walrus	84
Long-nosed Bats	85
Sea Lions in Battle	87
Whale Attacking Bloodheads	88
Long-eared Bats	89
The Elephant Shrew	92
Hedgehogs	93
Sloths	95
Armadillos	96
Ant-Eater or Ant Bear	97
Beavers	100
Porcupines	103
Goat Defending His Family from a Lynx	105
Bisons in Battle	106
Village of Prairie Dogs	107
Rabbits	108
Giant Kangaroos	112
Elephant in the Jungle	115
Hippopotamus	116
Indian Tapir	118
One-horned Rhinoceros	119
Wild Boars	121
Wart Hogs	122
Shetland Ponies	124

Domestic Donkey	125
Zebras	126
Dromedary	128
Camel	130
Llama	131
Paca	132
Giraffe	135
Gnu	136
Gazelles	137
Mountain Sheep	140
American Buffalo	142
Yak	144
American Deer	146
Reindeer	148
Elk or Moose	149
Pot Whale	155
Dolphin	157
Narwhal	158
Manatee	160
Eagle, Colored Plate	164
Tailor Bird	165
Owls	167
Harpy or Crested Eagle	170
Buzzards	172
Eagle Picking up an Ice Fox	177
Falcons Fighting	178
Penguin	179
Black Necked Swans	184
Pelicans	186
Vulture and Griffin Fighting over Prey	187
Condor Capturing Llama	188

Albatros	191
King Fishers	192
Reed Hen	193
Ostrich on Her Nest	194
Woodcock	198
Broad-billed Stork of Africa	200
Jabiru	201
Spoonbill	203
Amazonian Parrot	210
Ivory Billed Woodpeckers	211
Heathcocks Fighting	212
Cockatoos	213
Toucan	216
Spotted and Downy Woodpeckers	218
Common Gray Partridge	221
Crowned Pigeon	223
Golden Pheasants	225
Sword Bill Humming Bird	230
Crested Humming Birds	231
Crows and Ravens	232
Dippers or Water Wrens	234
Flying Fish. Colored Plate	238
Sea Eel	242
White Ray	244
Lump Fish	245
Herring Attacked by Whales	247
Diver Battling with a Shark	248
Dog Fish	251
Sturgeon	253
Chimaera	255
Coffer or Ostracion	256

Diodon	258
Pipe Fish	259
Chaetodon	262
Red Gurnard	267
Flying Gurnard	268
Sword Fish Spearing His Prey	269
Archer Fish	271



A BATTLE BETWEEN THE LION AND TIGER.

OUR animal friends are usually supposed to be included in the home pets, and the domestic animals which are useful to us in so many ways; but when we learn how closely some of the wildest and fiercest of animals are of the greatest benefit to mankind, how they resemble us in the formation of their bodies, and in the care and love for their little ones, how the many different kinds of animals scattered all over the world are related to each other, and how they are divided into families, we will have a more friendly feeling toward all the wonderful creatures which are often looked upon as the enemies of mankind, and a greater interest in their habits and lives in their native homes.

In this little volume of Natural History we will not only study our animal friends as individuals, but will learn of their relationship to each other, carefully arranged and classified, but much more easily understood, than the classification found in the numerous great volumes of encyclopedia of Natural History.

We are always interested in the relatives of our human friends; even their distant relations living in far off countries soon have a special interest for us when they are closely connected to our friends, and we are constantly learning of their manner of living and their doings in distant lands. In the same manner we find new interest in the fierce wild animals of other countries when we learn how they are related to our domestic animals and home pets.

We find that not only the Wild Cats, but the fierce Lions, Tigers, Panthers, Leopards, Lynxes, Pumas, Jaguars, and many smaller animals, belong to the same family as our pet Cats. The Wolf, Jackal, Hyena, and many different kinds of Foxes are all closely related to our good friends, the Dogs. The Sheep and Cows have some very fierce relations in distant countries, as the Gnu and Yak and Bison, and also some very accommodating and useful relations, like the Camel, Dromedary, Llama and Paca, who are as helpful to their masters and owners as the domestic animals of this country. We would not suppose at first thought that our Horses belong to the same family as the Rhinoceros, Hippopotamus, Elephant, and the Tapir and many smaller animals which are classified with them, besides the different kinds of Ponies, Donkeys, and the Dauw and Quagga and Zebra.

It is this classification into families, by the use of Latin words, that makes the study of Natural History so difficult to many who are interested in our animal friends, but do not know just how to find out about them without first wading through quantities of long, hard names, that seem to have very little use, except to puzzle the reader. As one of these interested readers recently remarked while delving away at an encyclopedia to learn something of an animal in which he was especially interested: "I believe the writer of that article just used all those big words to show off, and try to make people believe he knows more than any one else."

This does seem to be the case at times, but many of these hard Latin words are often really necessary to make us acquainted with particular kinds of animals and their families; and we will use only the absolutely necessary ones in this book, and master them together, with the different scientific terms explained and made easy to understand, even in the index. Then after mastering these general terms for dividing animals into families, the study of scientific works on Natural History will not be so difficult; for the animals are as carefully classified here, from the works of famous Naturalists, as in those larger volumes, although the Latin names are used only when it is necessary to distinguish different animals that are very much alike, or to divide them into families.

There is a very good reason for the hard words and sometimes whole sentences of unpronounceable Greek and Latin, often used to describe a single little animal—the Greek and Latin language is studied and understood by scholars of every other language. If the great Naturalist, Linnaeus, had written in Swedish or German, only a Swede or a German could have understood his meaning. To talk to a Spaniard or a Frenchman about a "River Horse," giving its English name, would not give him any idea of the animal described, but call it a Hippopotamus (which is derived from two Greek words meaning horse and river,) and he would at once understand the nature of the animal.

It is the same with the classification of the different animals. The English and French and German Naturalists differ in their manner of arranging into families—according to the formation of the bodies of various animals, their manner of moving, what they eat, the number of their teeth, the shape of their feet, etc., but it was from the Latin and Greek terms that the names of these divisions were taken for all the different languages in which works of Natural History have been written. Take the first great division—the Mammalia—and it is found that the term is used by Naturalists in all languages, and that it comes from the Latin word mamma, meaning "the breast." And we find that all animals grouped under this great class are fed on their mother's milk while they are too small to eat the vegetable and animal food on which the father and mother live. This is very different from the birds who carry the same food that the father and mother eat (the worms and insects) and place it in the mouth of the baby bird; and the fowls who teach their little ones to scratch and pick up their food from the ground. And while the little ones of the birds and fishes and the smaller orders of creation develop rapidly and are soon able to take care of themselves, the babies of some of the larger animals are almost as helpless as human babies, and feed on their mother's milk for many months before their teeth are well formed and they are strong enough for other food. We often see pictures of Lions and other fierce beasts tearing dead animals to pieces to feed their little ones, but this is only after their teeth begin to grow, and like the babies of the human family they are old enough to feed at the same table and eat the same kind of food as older members of the family.

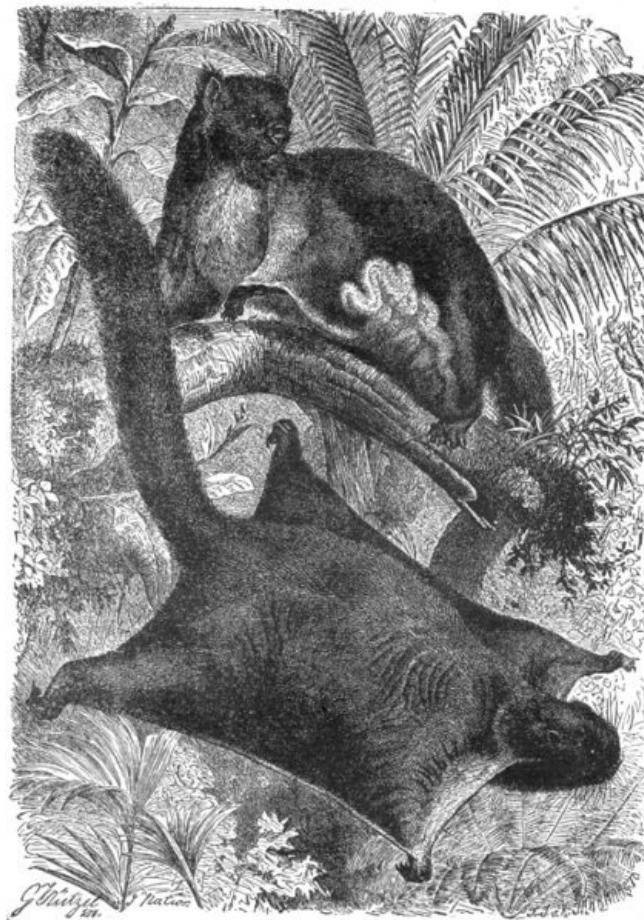
Many do not realize what a great number of our animal friends belong to this great family of Mammals or Mammalia, from the Moles and the Bats to the huge Mastodons of past ages. Even

some of the large water animals are included in it, like the Seals, the Whales and their numerous relatives—the Dolphins, Porpoises, Narwhals, etc. The latter are usually called fishes by those who do not understand this division into orders and families; they are not fishes, however, but belong to the Water Mammalia. And in dividing this book into Animals, Birds and Fishes, all these members of the Whale family will be found where they belong with the great family of Mammalia.

Then after classifying all Mammals both of land and water under the one great family, or order, the Latin terms help to sub-divide them into smaller families, more closely related, in such a manner that all the readers of different languages may understand the meaning of the words because of their Greek or Latin origin. Thus we know that a quadruped is a four footed animal because the term comes from the Latin words *quatuor*, four, and *pes*, *pedis*, a foot. And the term *quadrumane* comes from *quatuor*, four, and *manus*, a hand, which makes it easy to understand that all the animals classified under “*Quadrumana*” belong to the monkey family, who have four hands instead of four feet, with regular thumbs and fingers on the hind hands (which are usually known as feet) as well as on the front ones. Thus the word *Quadrumana* distinguishes this whole four-handed family from the *Bimanes*, or two-handed family, to which mankind belongs (making an order by itself) and the *Quadrupeds*, or the great four-footed family.

In the same manner the family to which the Horses belong are not only quadrupeds, but they have very thick skin. They are, therefore, classified under the term *Pachydermata*, made up of two Greek words meaning thick and skin. We often find many of the *Mammalia* arranged in orders, or large groups, before being divided and sub-divided into families and smaller groups. Thus the Dog family and the Cat family are both included under the order of *Carnivora*, or carnivorous quadrupeds, which is derived from the two Latin words *caro*, *carnis*, flesh, and *vorare*, to devour; and we know that the animals found under this order prefer a diet of flesh food, and devour other animals in their wild state.

Thus we might continue with explanations of terms, but it requires only a few such words and their derivations to make us understand how easy it is, after all, to keep in mind the main families and orders and groups under which all the different animals are classified. And we will soon become so well acquainted with our numerous animal friends in their native homes, and grouped in their proper families, that we can easily recognize many of the animals that must be crowded out of a book of this size. Because we know the meaning of the term used to describe a particular animal, we can place him in the family to which he belongs, and then understand something of his life and habits by comparing them with those of his well-known relatives.



FLYING SQUIRRELS.

WE will begin with the Monkey family in learning about our animal friends, because they resemble mankind more closely than any other animal. Although Darwin and other Naturalists have spent years of their lives in tracing the resemblances between the Human and the Monkey family we had much rather trace the points of difference, for it is not pleasant to claim a very close relationship to some of the hideous monsters who make their homes in the dense forests or distant countries.

Although the formation of the body, especially the skull, and the features, are more like ours, than are those of other animals, the first great point of difference is their four hands, those of the legs being formed the same as those of the arm, with thumbs and long flexible fingers, which enables them to climb trees quickly and swing from branch to branch with fearless activity, because they can grasp the limbs of the trees with any one of their four hands. Some of them also use their tails to assist them in climbing, and the Monkeys are sometimes classified under the "prehensile tailed" and the "non-prehensile" tailed according to whether the tails are formed for seizing or grasping the limbs of the trees. And there is still another family of tailless Monkeys.

But while many of the different Monkeys are very active in trees, in which they spend the greater part of their time, when in their native homes, this formation of hands instead of feet on their legs, makes them very awkward when standing erect or walking. Even in the most man-like Apes, these hands that serve as feet, are not placed at right angles to the legs, so as to come flat upon the ground like ours; but when the legs are extended, the soles nearly face each other, so that, when erect, the whole weight of the body rests upon the outer edge of the sole of this strange foot, or as it should be more properly called, the palm of the hand. In addition to this peculiarity, the legs are bent inwards to enable them firmly to grasp the boughs of the trees, and this makes them very awkward when trying to walk upright on the ground.

Their arms are also very much longer than ours, in proportion to the rest of the body, and in some families the fingers will almost touch the ground when the large animal is standing erect.

While the majority of the Monkey family have their faces covered with hair like the rest of the body, others have what are known as "naked faces," with only a beard, or a fringe of whiskers about the chin and throat, and some of these are comically like a human face.

The great family of Quadrumana is divided in various ways by different Naturalists; but the easiest classification to keep in mind is the grouping of five distinct Orders, each made up of small families.

The first order—The Tailless Apes—includes the Gorilla, the Orang-Outang, and the Chimpanzee, and is called by some, Troglodytidae, from the Greek word troglodytes, meaning one who hides in caverns. Although this is a peculiarity of these Apes, this does not seem so good a classification as that given by another Naturalist who calls these the Anthropomorphous Monkeys because they so closely resemble the human species; the word Anthropomorphous comes from two Greek words meaning man and form, and signifies that which has the form of man.

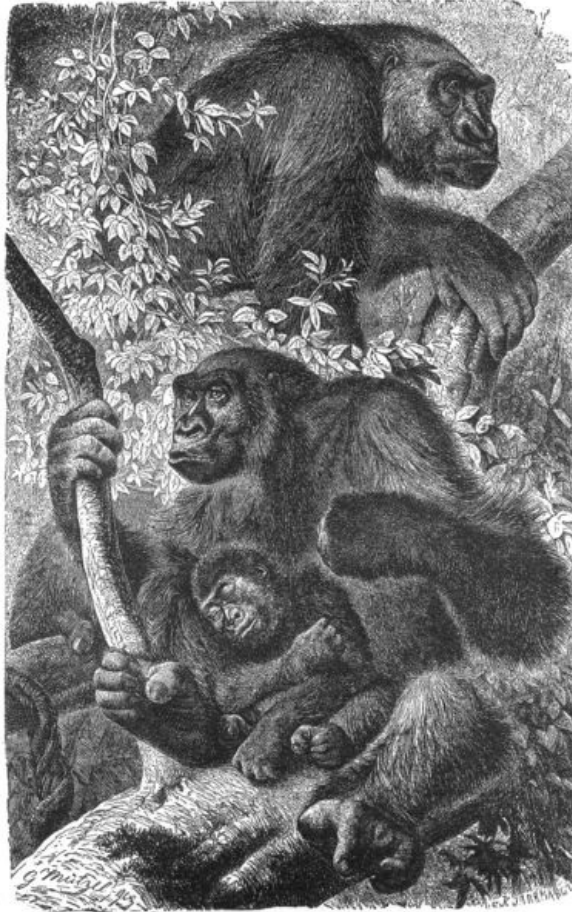
The second order is the Simiadae—The Ape Monkeys—and the term comes from the Greek word simos, meaning flat-nosed; these have oblong heads and flat nostrils, and the same number of teeth as man, and many of them have cheek pouches in which they stow away food for future use. A few of the Simiadae are without tails, others have tails (of different lengths in the different families), but none of them have prehensile tails, that can be used to help them in climbing. All the different families belonging to this order are natives of the Old World, and the most of them are found in the forests and the mountainous districts of Western Africa.

The third order—Cebidae—includes the American Monkeys; and they are distinguished from the Monkeys of the Old World by having four more grinding teeth, making thirty-six in all instead of thirty-two. These American Monkeys have long tails and no cheek-pouches.

The fourth order—Lemuridae—includes the different Lemurs, and the word comes from Latin lemur, a sprite, a night-walker, so called from their habits of roaming about at night.

Some naturalists include in this order the Flying Cat, or Flying Lemur. Others make a distinct fifth order of this species. Although they resemble both a weasel and an ape, they have one peculiar formation that does not belong to either of these; the long slender limbs are connected by a broad, hairy membrane, which looks like a cloak when folded up, but which expands and gives the appearance of wings when the animal is springing from tree to tree.

Although each one of these orders contain many small families, until the different Monkeys seem numberless, yet they can all be classified in some one of these groups, and it is not so hard to remember the long names when we understand the meaning of the words from which they are derived.



GORILLAS.

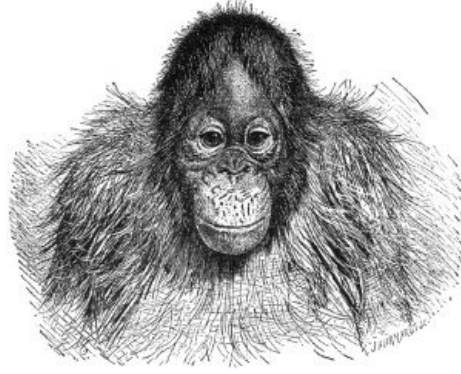
The Gorillas live in the hottest parts of Western Africa, and as their home is so near the Equator they search out the loneliest and shadiest parts of the dense African forests, and whenever it is possible they keep near a running stream. It is called a nomadic animal because it seldom remains in one place many days together. The reason for this wandering life, is the difficulty it finds in procuring its favorite food, which is fruit, seeds, nuts, and banana leaves, the young shoots of this plant, and the juice, of which it sucks, and other vegetable substances.

Although the Gorilla likes to dwell among the trees, it does not find this necessary for its happiness, nor does it remain long on the trees like some other Monkeys who sit and sleep on the branches. In fact it is always found on the ground except when it climbs a tree to gather fruit or nuts, and it descends as soon as it has satisfied its hunger. These enormous animals would be incapable of jumping from branch to branch like the small Monkeys.

The young Gorillas occasionally sleep on trees for safety, but the adults rest seated on the ground, their backs against a log or tree, thus causing the hair on this part to be worn off.

The Gorilla belongs to the family of "Tailless Apes" and although it is not so large as the Orang-Outang—measuring about five feet in height—it is very strong. It is called the king of the forests which it inhabits because of this strength, which is said to be equal to that of the Lion. The Negroes of Africa never attack it except with firearms, and they are very proud when they can kill one, because this is very difficult.

The old Gorillas are not fond of company, and usually go about alone or in couples. The young Gorillas sometimes go about in groups of six or eight but never in great numbers. Their sense of hearing is very delicate, and on the approach of the hunter they hurry away with loud cries, so that it is difficult to get within gun-shot of them.



ORANG-OUTANG.

This large and hideous species of the Monkey family is sometimes called the "Wild Man of the Woods." These animals are somewhat rare, and limited to a small region. They live in the thick forests covering the low damp lands in the islands of Borneo and Sumatra. Very little is known of their habits in a wild state, as it is only by accident that they come out in open places, or where the country is inhabited.

When full grown the Orang measures from six to seven feet in height. His head is covered with a sort of mane of smooth hair of greyish black color, and his face is naked, with the exception of a tufted moustache on the upper lip, and a long thick beard. The nose is flat and the muzzle very prominent and it is not surprising that some of the inhabitants of these countries have many strange and superstitious beliefs concerning this hideous "Wild Man of the Woods."

Although so little is known of these strange animals in their wild state, the habits of tame ones have been closely studied, as it is not difficult to capture them when very young, and they make very interesting pets while small. One of the most intelligent of these animals that has yet been known, was brought from Java by Dr. Abel Clark, and many interesting stories have been told about it.

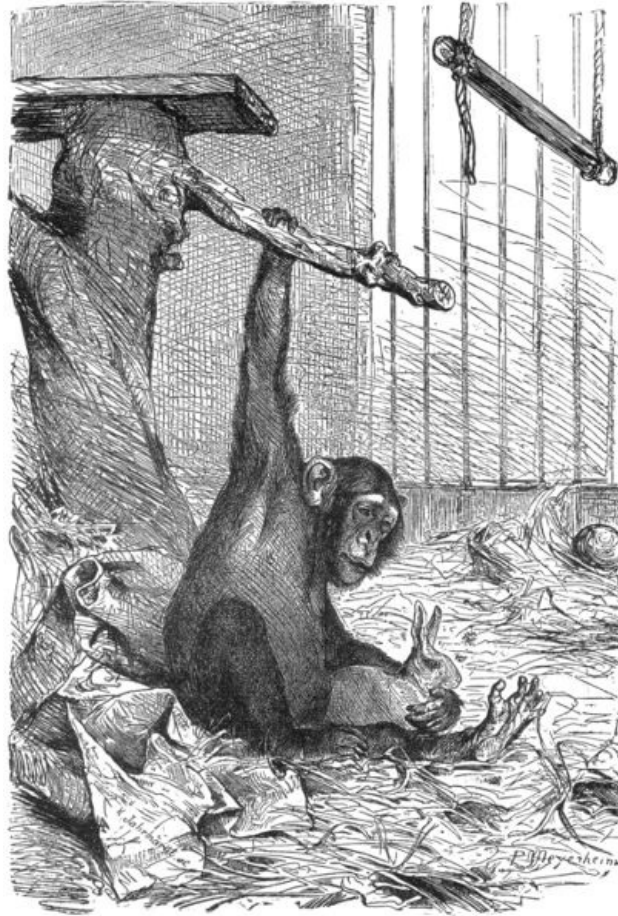
At Java, this Monkey lived under a tamarind tree, near the Doctor's dwelling. There it had made a bed, composed of small interlaced branches covered with leaves; on this it passed the greater portion of the time, looking out for the people who carried fruit, and, when they approached, descending to obtain a share.

When taken on board the vessel, it was secured by an iron chain to a ring-bolt; but it unfastened itself and ran away, when, finding the chain trailing behind, an encumbrance, it threw it over its shoulder. As it released itself in this manner several times, it was decided to allow it to go at large. It became very familiar with the sailors; it played with them, and knew how to escape when pursued, for it darted into inaccessible parts of the rigging.

"At first," writes Doctor Abel Clark, "it usually slept on one of the upper yards, after enveloping itself in a sail. In making its bed it took the greatest care to remove everything that might disturb the smooth surface of the place on which it intended to lie. After satisfying its tastes in this part of its domestic arrangements, it lay down on its back, bringing the sail over the surface of its body. Frequently to torment it, I have beforehand taken possession of its bed. In such a case it would endeavor to pull the sail from beneath me, or try to expel me from its resting-place, and would not rest until it had succeeded. If the bed proved to be large enough for two, it slept quietly beside me. When all the sails were unfurled, it searched for some other couch, often stealing the sailors' jackets which were hung out to dry, or robbing some hammock of bed-clothes.

"It willingly ate all kinds of meat, especially raw flesh. It was very fond of bread, but always preferred fruit when procurable. Its ordinary beverage at Java was water, but on board its drink was as varied as its food. Above everything it liked coffee and tea, but it also willingly took wine.

"One of the sailors was its special friend, and this man shared his meals with it. I must say, however, that the Orang-Outang sometimes stole from its benefactor. He taught it to eat with a spoon; and it might have been seen more than once, tasting its protector's coffee, and affecting a serious air, a perfect caricature of human nature."



CHIMPANZEE.

Of all known Monkeys, the Chimpanzee in its habits, its motions and its intelligence, comes nearest to the human species. In the first place its arms are not so long as those of the other Monkeys described; they scarcely reach below the knee when the Chimpanzee is standing erect. And although it seldom wears a beard like the "Wild Man of the Woods," its face and ears and the palms of its hands are entirely without hair, giving it a much more Human appearance; and in walking, its "hind-hands" are often planted quite firmly on the ground like our feet, instead of walking on the sides of them. When walking erect, it is fond of using a large stick to help support it, and this gives it a manly appearance of carrying a cane. Another favorite manner of walking is to bend down and touch its fingers to the ground, then by keeping the legs bent, it swings itself along by the means of its arms as by a pair of crutches.

23

The Chimpanzee inhabits the same regions as the Gorilla—the dense forests of Africa, and another point of resemblance is that the Chimpanzees live in small troops while they are young, and alone or in couples in adult life. But unlike the Gorillas they are great climbers and pass nearly all their time on trees, seeking the fruits which constitute their food.

There is a kind of Chimpanzee called by the natives "Nshiego-mbouve," which builds a kind of leafy nest among the boughs of the loftiest trees. This nest is composed of small interlaced branches with a tight roof of leaves. It is fixed with firmly tied bands, and is generally from six to eight feet in diameter, and presents the form of a dome, an arrangement which readily throws off the rain.

The Nshiego is distinguished from the ordinary Chimpanzee, by the absence of hair on its head, and it is sometimes called the Bald Chimpanzee.



BABOON OR DOG-HEADED MONKEYS.

The Baboons and the Mandrills are sometimes placed in separate classes by Naturalists because of the difference in the length of their tails, but they both belong to the same family—the Cynocephali, which is derived from the words cyon, cynos, a dog, and cephalo, a head, and means dog-headed.

In these creatures the teeth and the cheek-pouches, which are similar to those of the majority of the Monkey family, are combined with a long nose and the nostrils situated like those of a dog. The Baboons have longer tails than the Mandrills, and although their forms are very clumsy, they climb trees easily, and even display much agility when they are sporting among the branches; yet they seldom select the forest as their place of residence. They are found almost exclusively in Africa, although a single species is found in Asia.

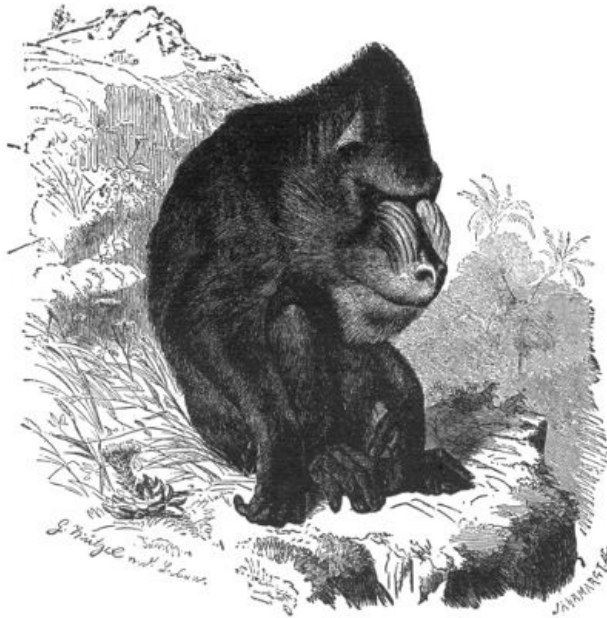
The Baboon was known to the ancient Egyptians, on whose monuments it often appears, and as it symbolized the god Thoth, the inventor of the alphabet, it was held in great veneration in those days of long ago, and numerous mummies of this animal have been found in Egyptian burial places.

The Baboon prefers to walk on all fours like a quadruped, and instead of living in forests, they choose the mountainous districts, and rocky places covered with bushes and brush wood. They live in troops, and each troop takes possession of a certain district, which they defend against all intruders. If men approach, the alarm is instantly raised, the whole troop gather together, and endeavor both by their cries and their actions to drive them away. And if not successful in this they will attack such visitors with sticks, or throw stones and other missiles at them. Even firearms will not frighten the Baboons and a troop will not retreat until many are left dead upon the ground.

If a traveler is unfortunate enough to encounter one of these troops when alone, he is soon surrounded by numbers of the infuriated beasts, and literally torn to pieces. Rather than encounter such a death an Englishman once killed himself by leaping from a cliff, where he had been hemmed in by a multitude of these ferocious creatures.

Their canine teeth are almost as formidable as those of the Tiger, yet they are said to live entirely on vegetable diet, and to be so fond of fruit that they sometimes seriously destroy orchards and gardens.

It is usually during the night that they make their thieving excursions, and they take great care to ensure the success of their stealing. When the troop arrives at the scene of action, it divides into three companies, one enters the orchard or garden, while those of the second division place themselves as sentinels to give warning of the approach of danger, while a third division establishes itself in the rear and forms a long line extending from the other troops to their home in a neighboring mountain. When all these arrangements are completed, those who have broken into the orchard or garden throw the produce of their thieving to the nearest sentinels, who pass it on to those behind, and thus in a very short time it is handed along the line and stored in a safe place at the end, until there has been enough secured to make a feast for the entire troop. While thus engaged, if one of the sentinels raises a cry of alarm, the whole body will scamper off to their hiding places.



MANDRILL.

The Mandrills are distinguished by their very short tails, and by deep wrinkles on each side of the nose which are often brilliantly colored. There are two species living in Western Africa which are known as the Mandrill and the Drill.

The Drill is very much like the Mandrill except that its face is completely black instead of being striped with color; and it also inhabits Guinea.

The Mandrill has a very peculiar appearance when the colors of its face are bright. In some instances the entire face is streaked with bright red and blue and black bands, and what seems still more curious the upper part of the thigh is sometimes of a bright red mixed with blue, giving the Monkey a very peculiar appearance. And what seems even more strange, these colors are not permanent, but often disappear after or during disease, and they even change when the animal is strongly excited.

The Mandrill when old is deceitful and malicious. Even when taken quite young and supposed to be tame, it should not be trusted, for taming does not seem to improve its character.

Besides these changeable colors that stripe the face and tint the thighs of the Mandrill, their permanent colors are very bright and striking. The hair upon its body is a brownish grey, with olive upon the back; the chin is surrounded by a beard of bright lemon yellow; its cheeks are either striped or of a brilliant blue, while the nose is red, especially towards the tip where it becomes scarlet. It would be difficult to find an animal more gaily decorated and yet so hideous. And as it grows to be almost as large as a man, it is not surprising that the negroes of the Guinea coast, where it is commonly found, should have a superstitious fear of so dangerous a creature.

CURIOUS MONKEYS OF THE MACAQUES FAMILY.

The Monkeys belonging to the group known as Macaques, or Macacus, nearly all have tails; some quite long, others short, and still others of medium length, and Naturalists sometimes divide them into different groups according to the length of the tail. Others classify in different ways, making a great many distinct groups or Genus of this particular tribe of Monkeys, but the three main groups—the Wanderoo, the Barbary Ape and the Bonnet Monkey—are the most important and include the main characteristics of all the others.

THE WANDEROO.

The Wanderoo is commonly found in the island of Ceylon. These Monkeys have cheek pouches like the others of this family. They do not grow much larger than an English Spaniel Dog and are of a grey color with black faces and great white beards reaching from ear to ear, making them look like old men. They do very little mischief, keeping in the woods, and eating only leaves and buds of trees; but when they are tamed they can be taught to eat anything.

The other Monkeys have great respect for this species, looking upon them as their superiors; and they are usually considered by mankind to be much more intelligent than the rest of the Monkey race.

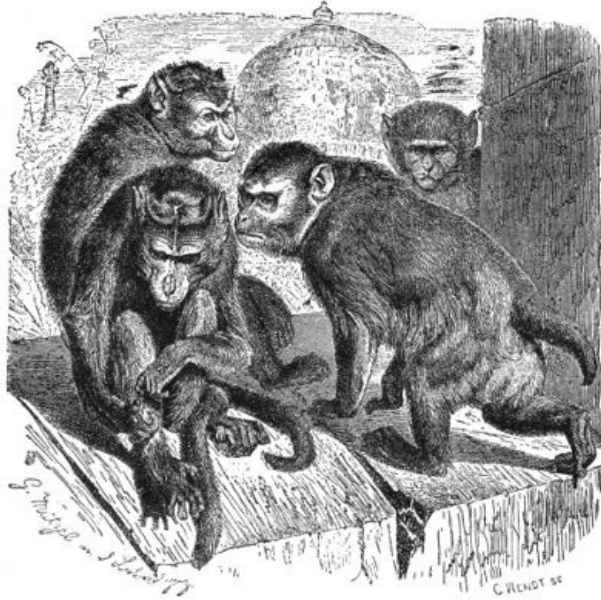
THE BARBARY APE.

The Barbary Ape is the only Monkey found in Europe, and differs from almost all others belonging to the Macaques, in being without a tail. When full grown it is from three to four feet high. Its general color is olive green and grey; the face is of a dirty flesh color, with brown spots, very much wrinkled, and surrounded with dirty grey hair.

It usually goes on all fours. The young animals are very intelligent and gentle, and they are well known throughout Europe as objects of exhibition and amusement.

The Barbary Apes prefer to live in rocky places and on the mountains. In their native home they live upon pine cones, chestnuts, figs, melons, nuts and vegetables which they carry off from gardens near their homes, although great care is taken to exclude these mischievous animals. While they are committing their thefts, two or three mount to the summits of the trees, and of the highest rocks to keep watch, and as soon as these sentinels see any one, or hear a noise, they utter a cry of warning, and immediately the whole troop take to flight, carrying off whatever they have been able to lay their hands on.

THE BONNET MACAQUES.



BONNET MONKEYS.

The Bonnet Monkey is frequently caught for exhibition. It is about the size of a large cat, greenish grey above and white below, with a long tail. The face is naked and wrinkled; the hair of the crown is long and dark, and spreads in all directions, lying upon the surface of the head like hair in a scalp-wig. On this account the animal is sometimes called the Scalp Monkey.

In its native country the Bonnet Monkey is almost as much venerated as the Hoonuman in Bengal, and although it does great injury to fields and gardens, the natives forbid any one to kill it. Or if this has been done through mistake, they demand from the culprit enough money to pay for a grand funeral.

When young, the Bonnet Monkey is very amusing as a pet, performing all his tricks with a comical gravity. When two or three are kept together, they are constantly hugging and nursing each other. When a Monkey of this kind has no companions of its own species, it will make friends with some other animal, and will often pet and hug a kitten with great gravity and all the fondness of a child, at a great risk of choking it. When full-grown, however, the behavior of the Bonnet Monkey changes, and it becomes sullen and savage and spiteful.

THE AMERICAN MONKEYS.

There are several queer families of American Monkeys that make their home in Brazil, Peru and on the banks of the Amazon and the Orinoco. Further South, and along the western part of South America are found many of the small Monkeys with long tails like those we usually see in this country patiently following the street organs and making trade for their Italian masters. The most of these are intelligent, affectionate little fellows, and are more in demand for taming than the Monkeys of Africa, or even those of the smaller families found in Asia and Europe.

Nearly all of the American Monkeys have long tails, and some find them a great help in climbing; these are usually classed as the Prehensile tailed Monkeys, and the Non-prehensile tailed Monkeys are those who do not make any use of their long tails in grasping the limbs of the trees, etc., in climbing. Very few of the American Monkeys have cheek-pouches and their nostrils are placed on the sides of the nose, instead of beneath it, giving them a very different appearance from the Apes, Baboons, etc., found in Africa. The different kinds of American Monkeys are usually divided into several families with the usual long hard Latin names to distinguish them, but as these names mean simply, the Howlers, the Spider Monkeys, the Weepers, etc., we will use only their English names in describing them.

THE HOWLING MONKEYS.

The Monkeys belonging to the family of Howlers are remarkable on account of the formation of their throat, which causes their voice to be hoarse and loud and very disagreeable. Although they are scarcely two feet in height, these Monkeys have the most powerful voice of any known animal. When gathered in troops they make the great forests re-echo with their tumult, which carries terror even to the bravest man when heard for the first time. Travelers compare this noise to the creaking of a great multitude of carts whose wheels and axle-trees need greasing; and with all this creaking and grinding noise there is a sound like the rolling of a drum.

Every day, morning and evening, the Howlers assemble in the forests, and one of their number, taking his station upon a lofty tree, makes a sign with his hands, as though inviting the others to sit around him. He then begins a sort of discourse, in a voice so loud and harsh that any one might suppose that they were all screaming together, although one only is thus employed; when this one leaves off, he gives a signal to the others, who immediately set up a cry in full chorus, until their leader commands silence, and is instantly obeyed. The first speaker, or rather howler, then begins again, and it is only after several repetitions of this that they cease from their discordant yellings.

These Monkeys live in large troops and only frequent the highest trees, from which they rarely come down. They leap from branch to branch with wonderful agility, and, contrary to the habits of most *Quadrumana*, seem to prefer those parts of the forests which are in the vicinity of rivers or swamps. They live almost entirely upon the fruits and foliage of the trees around them, and are said occasionally to catch and eat insects. The whole race is remarkably sullen, lazy, heavy and of disagreeable nature; they are tamed with difficulty. And it is not often that this is attempted, for even if they were good-natured and intelligent, they would not make desirable pets on account of their voice.

THE SPIDER MONKEYS.

These curious little Monkeys are found in nearly all parts of South America, and they live in troops, making their homes in trees. They feed on the insects which are usually found in great quantities in many of the South American trees, and occasionally they will descend to the ground, in search of small Fish and Molluscs which they find in the mud on the banks of the rivers. It is said that they even venture on the beds of the rivers when the water is low, and capture the oysters, and they are very quick in learning how to open the shells and take out the oyster.

These Monkeys are distinguished by their fine silky hair, their strong tails, which they use in climbing and in swinging themselves from limb to limb, and the fact that they have no thumbs; but only the four fingers on each hand. This peculiarity has given them the Greek name by which the family is usually classified which means imperfect, but the name Spider Monkey has been given to them because of their long, slender limbs and their slow, queer manner of walking, which sometimes gives them the appearance of huge spiders.

THE WEEPING MONKEYS.



WEeping MONKEYS.

The Weeping Monkeys are smaller, but not so slim as the Spider Monkeys. They live in the forests of Guinea and Brazil, and flock together in great troops. They will eat snails and small Birds when they can get them, but their principal food is the abundance of fruits found among the trees where they make their home.

They generally keep on the topmost branches of the highest trees to keep out of the way of the Serpents, of which they are very much afraid. Even when tamed and brought to this country, the sight of the most harmless Snake will fill them with terror.

These Monkeys are called weepers from their plaintive cry. Usually their voice is soft; when excited or angry it becomes loud and pitiful; when teased it keeps up a kind of plaintive wailing, which has given it its name of Weeping Monkey, although they have also been called Musk Monkeys at times, because of their musky odor.

These Monkeys have short round heads with the skull projecting backwards, and many of them have their faces bordered with long hair; others have long hair on top of the head, and in one species, called the Horned Monkey, this hair forms two black tufts, having the appearance of horns.

All the Weeping Monkeys are gentle and easily tamed, and perform many amusing tricks, such as firing off a gun, and sweeping with a small broom. They will break a nut between two stones when it is too strong to be cracked with their teeth, and show many signs of unusual intelligence.



LEMUR OR FOX-HEADED MONKEYS.

Some very curious animals are found in the Lemur family. The Sloth Monkeys, the Indris, the Aye-Ayes and the ugly big-eyed Tarsier, are all related to the Lemurs, and some look more like fairy-tale monsters than harmless, timid, little animals of the Monkey family.

What are known as the "Lemurs proper," or the Fox-Headed Monkeys, are the best known of this family. Their hair is thick, soft and woolly, their ears short and velvety, and their tails long and bushy. They have very large eyes, and queer hands with flattened nails.

Nearly all the different members of the Lemur family live in Madagascar and the surrounding islands. They like to live in companies or troops among the trees, and their food is mainly the fruits of these trees; but they will also eagerly catch and devour insects. They are very sociable animals, and like to collect in numerous bands; and they sleep in the highest parts of the trees where no harm can come to them.



SLOTH BEAR.

THE Carnivorous animals form the largest and most powerful family of Mammals that live on the land; and in this family are also included many water Mammals. Although this extensive family contains animals that are very different in size and form, yet they are all alike in their flesh-eating habits, in possessing strong sharp claws, and three kinds of teeth, the incisors, molars and canines; the latter being sharp and powerful fangs used for seizing and holding their struggling prey.

Although the animals of this family are all flesh-eaters, and all prefer this diet, there are some members that live partially on vegetable food, especially when flesh diet is scarce, and this fact is sometimes used to help divide the large family into smaller groups. There is also a great difference in the manner of walking. Some of the animals place the entire sole of the foot upon the ground, from the heel to the toes, so that the soles of the feet are without hair; but the greater number have their heel so much raised that they walk only on their toes; and in these, the part corresponding to the sole is hairy (like that of the cat) and is sometimes mistaken for the leg of the animal.

To the first of these divisions the term Plantigrade has been applied. The word means stepping on the sole, and comes from *planta*, the sole; and *gradior*, to step. To the latter division the name Digitigrade is given, which means stepping on the toes, and comes from *digitus*, a finger, or toe, and *gradior*, to step.

There is still another important division to this great family, known as the Amphibious Carnivora, which includes the Seals, Sea-Lions, etc., which are capable of living both on the land and in the water.

This is the simplest and most easily remembered of all the divisions of the great order of Carnivorous animals. Some Naturalists object to it as not being clearly defined, and divide the Carnivora into six great families. First the Mustelidae, or Weasel family; second, the Hyena family; third, the Felidae, or Cat family; fourth, the Canidae, or Dog family; fifth, the Viverridae or Civet family; and sixth the Ursidae or Bear family.

These six families are then sub-divided into many smaller families, and the Amphibia are grouped by themselves instead of being included among the Carnivora—although they are flesh eaters, and this seems to be their proper place.

For easy grouping we will cling to the old method of classifying all the Carnivorous animals under the three main orders of Plantigrade, Digitigrade, and Amphibious Carnivora.

The Bears form the most important family of the "Plantigrade Carnivora." The sole of the foot is very wide, and the whole surface touches the ground in walking. They are very strong and can easily crush a man to death in their arms. Different members of the family live in various parts of the globe. They eat almost any kind of food, and many of them prefer a vegetable diet; very few of them will kill a man or an animal simply for the sake of food, unless necessity compels them. But they will defend themselves vigorously when attacked, and in spite of their heaviness and their slow motions, they prove very quick and fierce at such times. They can easily overtake a man in running, and most of them climb trees easily.

Bears can stand upright on their hind legs longer than almost any other animal, and they usually take this position when they fight.

In eating, Bears sit down like Dogs, and taking up the food in their paws raise it to their mouths.

When caught young, the Bear may be easily tamed, and its gentle nature enables it to learn many amusing tricks, but it will not often show off these tricks without first expressing its unwillingness by deep growling, and it often gets very angry during the training.

The best known varieties of Bears are the Brown Bear of Europe, the Grizzly and the Black Bear of America, the Syrian Bear, the White or Polar Bear, the Sloth Bear and Malay Bear and the Bornean Bear.

Although their native homes are in America, Europe and Asia (it is uncertain whether any exist in Africa) they are mainly found in the northern regions as they do not like the heat; and when they are found in temperate or warm climates, they generally live in the lofty mountain ridges.

THE BROWN OR ALPINE BEAR.

(See [Frontispiece.](#))

The Brown Bear leads a lonely life in the dark pine forests, and the deep gorges or on the highest mountain ridges. It makes its den in caverns, on clefts of the rocks, or in the hollow of some giant old tree. It generally sleeps during the day and seeks its food at night. It feeds on the nuts of the beech, and many kinds of wild fruits and berries, preferring those that are slightly sour, and also seeds, vegetables and roots. It is very fond of honey, strawberries and grapes and will travel many miles to procure these delicacies, and it is especially fond of a swarm of ants, which it likes on account of their acid taste.

In the lofty region in which it lives, when all these kinds of food fail, it makes its way down to some of the lower valleys, and ravages the fields of wheat, oats, etc., and any flesh food that it may find, especially a carcass of some dead animal. When very hungry it will often go many miles from home to seek its vegetable or to kill its animal food if necessary, but at dawn it never fails to return to its own home.

This Bear is very cautious, and if it gets into trouble it is not because of want of care. It has very keen sight and smell and hearing, and whenever it goes into a new neighborhood to search for food, it will first climb to the top of some small tree, and explore the surrounding space, both by sight and smell. It very seldom enters a trap, and if it finds a carcass, it will examine it very carefully before attempting to drag it away and eat it.

When it becomes necessary to kill animals for food, it prefers a sheep or a goat. It will seldom attack cows, although it has been known to lay in wait for these near their drinking places, and when it has sprung on the back of one, it seizes it by the nape of the neck, biting and tearing it until it bleeds to death. Then, after devouring part of it, the Bear carries off the remainder.

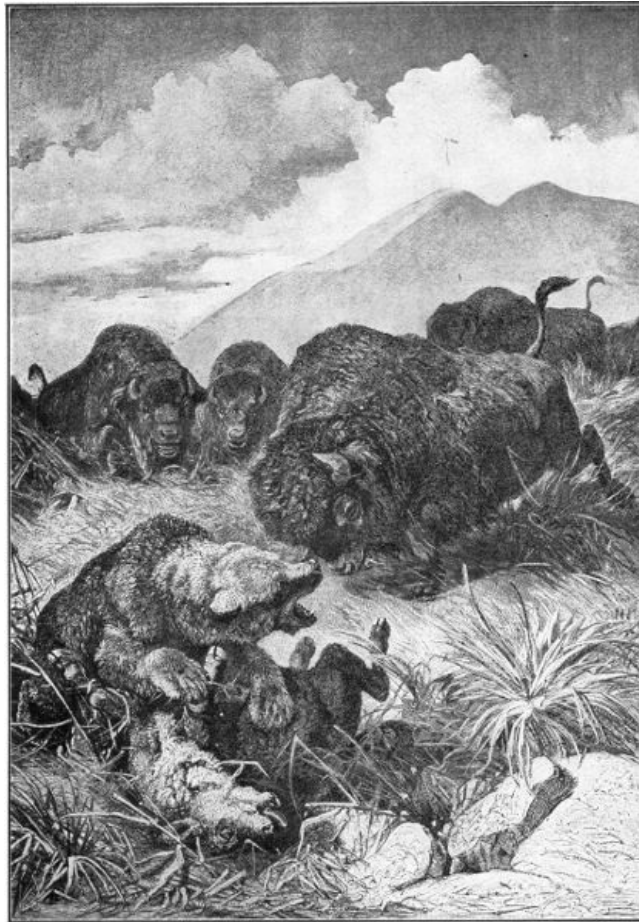
The Brown Bear is an easy tempered animal, and is cruel only from necessity. It is happy and comic in its ways. But when it is attacked or wounded or suddenly disturbed in its sleep, or when its cubs are in peril, this bear becomes a dangerous foe.

THE COLLARED AND THE AMERICAN BEAR.

The Collared Bear and the American Black Bear are somewhat peculiar in their nature and habits.

The Ringed, Collared, or Siberian Bear owes its name to a large white ring which surrounds its shoulders and fades away on the chest. The Siberian Bear is much more formidable than the European variety. In the gloomy and cold countries which it inhabits, the vegetation is not sufficient to satisfy its appetite; it must therefore, fall back upon some kind of animal food. It will also feed on fish, which it catches cleverly, and on carcasses thrown on the seashore. It hunts the Reindeer, and will often attack man. The inhabitants of Kamtschatka wage a war of extermination against this animal.

The American Black Bear, on the contrary, is naturally one of the least offensive animals. It has little taste for flesh. Even when hungry, if a choice is offered between animal food and fruit, it does not hesitate in selecting the vegetable substance. It swims well, and is fond of fish, which it catches skillfully. It seldom attacks man, unless it is hunted; as a rule, it prefers seeking safety in flight. It principally makes its abode in the hollows of firs and pines, selecting the holes which are the highest. Under these circumstances, the Americans capture it by setting fire to the foot of the tree. This animal is hunted with great activity, not only to put an end to its depredations in the corn-fields, but also for the sake of its flesh, fat, and fur; the latter is used for many purposes. The hams of the American Bear, when salted and smoked, have a high reputation both in the United States and Europe.



Grizzly Bear and Buffaloes.

The Grizzly Bear is a native of North America, and has been found near 61 degrees north latitude, and as far as Mexico to the south. It is exceedingly formidable on account of its great strength and ferocity. It overpowers even the American Bison, and has been seen to drag along a carcass a thousand pounds in weight.

These bears vary considerably in color; the young are darker than the older specimens. The feet are armed with long curved claws, those on the fore-feet being larger than the hind ones. The Grizzly Bear can dig with ease, and is able when young to ascend trees.

It usually inhabits swampy, well-covered spots among trees and bushes, and here it makes its lair. It prowls forth both by night and day, and is more carnivorous than the Black Bear, but in the latter part of summer seeks eagerly for the fruits which then abound; it prefers, however, the flesh of animals, and will partially bury a carcass for future supply, after having feasted upon its best parts.

Townsend, in the "Narrative of a Journey across the Rocky Mountains," gives the following account of an adventure with a Grizzly Bear on a small stream running down a valley covered with quagmires:

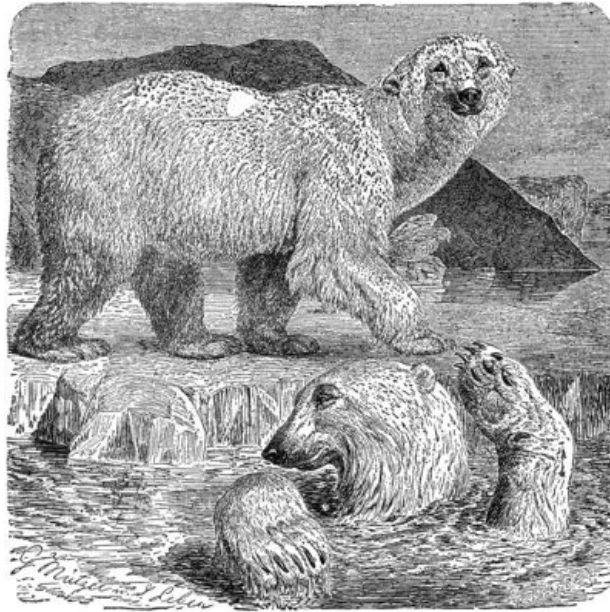
"As we approached our encampment near a small grove of willows on the margin of the river, a tremendous Grizzly Bear rushed out upon us. Our horses ran wildly in every direction, snorting with terror, and became nearly unmanageable. Several balls were instantly fired into him, but they only seemed to increase his fury. After spending a moment in rending each wound (their invariable practice), he selected the person who happened to be nearest, and darted after him, but before he proceeded far he was sure to be stopped again by a ball from another quarter.

"In this way he was driven about among us for fifteen minutes, at times so near some of the horses that he received several severe kicks from them. One of the pack-horses was fastened upon by the brute, and in the terrified animal's efforts to escape the dreaded gripe, the pack and saddle were broken to pieces and disengaged. One of our mules also gave him a kick in the head, which sent him rolling to the bottom. Here he was finally brought to a stand. The poor animal was now so surrounded by enemies, that he was completely bewildered. He raised himself upon his hind-feet, standing almost erect, his mouth partly open; and from his protruding tongue the blood fell in fast drops. While in this position he received about six more balls, each of which made him reel. At last, in complete desperation, he rushed into the water and swam several yards with astonishing strength and agility, the guns cracking at him constantly. But he was not to proceed far. Just then, Richardson, who had been absent, rode up, and fixed his deadly aim upon him, fired a ball into the back of his head, which killed him instantly.

"The strength of four men was required to drag the ferocious brute from the water; upon examining his body, he was found completely riddled; there did not appear to be four inches of his shaggy person, from the hips upward, that had not received a ball. There must have been at least thirty shots made at him, and probably few missed him; yet such was his tenacity of life that I have

no doubt he would have succeeded in crossing the river, but for the last shot in the brain. He would probably weigh at the least six hundred pounds, and was about the height of an ordinary steer. The spread of the foot laterally was ten inches, and the claws measured seven inches in length. This animal was remarkably lean. When in good condition he would doubtless much exceed in weight the estimate given."

When driven by hunger, the Grizzly Bear is especially fierce and daring in seeking his prey, and (as our illustration shows on page [35](#)) will even approach a herd of Buffalo and attack a straying calf. He has fallen upon this young Buffalo which has foolishly wandered apart from the herd, and thrown him down. Directly will the Grizzly tear his prey upon whose body his powerful fore paws are placed, when he is interrupted in an unwelcome manner. The anguished bellowing and bleating of the fallen animal have been heard by the distant feeding herd, and the old Buffalos come immediately, their great, clumsy, heavy bodies storming along with startling swiftness to punish the Bear for his bloody deed. He sees that he must for the time being postpone his feast and prepare to protect himself against the approaching attacking party of whom especially the foremost steer, with colossal head sunk low, jaws foaming and tail thrown up, presents a vivid picture of ungovernable strength and fury. The outcome of the battle can not be doubtful to us. Although the Grizzly could easily capture a single Buffalo, his great strength can avail nothing against the whole herd of these great animals. The Bear, who is a swift runner, must either seek safety in flight, or find his end under the horns of his opponents.



POLAR BEARS.

The Polar Bear is a very distinct species, easily recognized by its long, flat head, as well as by the white color and smoothness of its fur. It is an inhabitant of the frozen shores of the northern hemispheres, and semi-aquatic in its habits, swimming and diving with the utmost ease and facility, for the purpose of capturing Seals, young Whales and Fish, upon which it principally feeds; nevertheless, even this animal is not altogether carnivorous, but feeds greedily on vegetable substances whenever they can be procured.

The Seal, however, is his favorite food; and Captain Lyon, in the following passage, describes the mode in which he captures this animal: "The Bear, on seeing his intended prey, gets quietly into the water and swims to the leeward of him, from whence, by frequent short dives, he silently makes his approaches, and so arranges the distance that, at the last dive, he comes to the spot where the Seal is lying. If the poor animal attempts to escape by rolling into the water, he falls into the Bear's clutches; if, on the contrary, he lies still, his destroyer makes a powerful spring, kills him on the ice, and devours him at his leisure."

The Polar Bear is seldom seen far inland, but frequents the fields of ice, and swims to icebergs—often at a great distance from the shore. Captain Sabine saw one half-way between the north and south shores of Barrow's Straits, although there was no ice within sight.

The Polar Bear is found further north than any other quadruped, having been seen by Captain Parry beyond 82 degrees north latitude.

In illustration of the affection of the mother Bear for her young, Captain Scoresby relates the following anecdote: "A mother Bear with her two cubs were pursued on the ice by some of the men, and were so closely approached as to alarm the mother for the safety of her offspring.

"Finding that they could not advance with the desired speed, she used various artifices to urge them forward, but without success. Determined to save them if possible, she ran to one of her cubs, placed her nose under it, and threw it forward as far as possible; then going to the other, she performed the same action, and repeated it frequently until she had thus conveyed them to a considerable distance. The young Bears seemed perfectly conscious of their mother's intention; for, as soon as they recovered their feet after being thrown forward, they immediately ran on in the proper direction, and when the mother came up to renew the effort, the little rogues uniformly placed themselves across her path, that they might feel the full advantage of the force exerted for their safety."

Doubtless, much of the ferocity of the Polar Bear is to be attributed to the barrenness of the regions which it inhabits, the absence of vegetation obliging it to attack animals to supply its craving appetite. Its domain includes all those solitudes which surround the arctic pole—Greenland, Spitzbergen, Nova Zembla, &c. Over these vast ice-fields it reigns supreme.

In the summer time, when the White Bears betake themselves to the forests farther inland, they attack the Mammals which are natives of these regions, especially Reindeer.

Most mariners who have been detained by the ice in the polar seas have had frequent encounters with White Bears. Instances have been known in which they pursued them into their vessels, even endeavoring to make their way into cabins at night through the port-holes.

The White Bear is terrible in its attack. Accustomed, as it is, to meet with little or no resistance, and not even suspecting danger, it rushes upon Man with a blind fury and determination too often fatal in their results.

It is not an uncommon thing for White Bears to drift out to sea on floating icebergs, when they become reduced to the most frightful distress from hunger. Fatally confined to their icy raft, and utterly devoid of all means of subsistence, they ultimately attack and devour one another.

The White or Polar Bear often attains a length of nine feet. Its huge limbs and powerful claws are

developed in fitting proportion to the massive body; and the soles of its feet are clad with hair, enabling it to tread with safety on the slippery ice floes, where it finds a home. Purely carnivorous in its diet, the Polar Bear subsists chiefly on the Seals it contrives to trap by watching their breathing holes patiently for hours, or it may be for days together. The fur is of a dirty-white hue, inclining towards a yellowish-brown tint in the young. When the Seals are scarce, these Bears will welcome the carcass of a Whale which has floated beyond the recall of the whaler.

The instinct which prompts the Esquimau to feed upon a fatty diet rich in carbon, by way of providing in his body a heat-producing basis, also leads the Bear to choose his food in the fat and blubber of the Seals and Walruses of his seas. Dr. Robert Brown, in his remarks in the "Mammals of Greenland," tells us that he has seen upwards of twenty Polar Bears feeding on the huge inflated carcass of a Whale in Pond's Bay, on the western shores of Davis's Strait.

The Polar Bear is hunted by the Esquimau chiefly by means of Dogs. Its flesh, however, is not very desirable. In fact, some parts of the body of the Polar Bear, such as the liver, are said to possess poisonous qualities. Scoresby relates cases of illness, and even death, which have followed upon eating the liver of this animal.

The "nennok," as the Esquimau terms the Polar Bear, is unusually regarded as a fierce and predatory animal. When irritated, or at bay, and when pressed by hunger, this Bear, like every other animal, will become dangerous. It does not grip or "hug" its enemy, but bites him.

THE LABIATED, OR SLOTH BEAR.

This strange specimen of the Bear family differs from all the others by its extended lips, and a tongue of remarkable length. It is a native of India and feeds mainly on vegetables.

The Sloth Bear is often classed with the Borean and Malay Bears, which are natives of Malacca and the Borean Isles, and which climb trees readily and feed chiefly on fruits. These are all alike in their desire for vegetable diet and will not eat flesh except when forced to it, and they are all easily tamed and soon learn numerous tricks.

These Bears are sometimes made prisoners in rather a ludicrous manner. The natives fill a little barrel with honey and brandy, and lay it in some place to which the Bear often resorts. The attraction of the sweet liquor is so great, that Mr. Bruin not only indulges himself, but often brings Mrs. B. and all the little B.'s to partake of the delicacy; the whole party eat and drink till the spirit does its work; they then caper and dance about for a time, as if demented, and at length fall asleep, and become an easy prey to their captors.

The Hyenas are often grouped with the Cat family, as they have many points of resemblance (particularly the rough tongue) and prowl and seize their prey in much the same manner. But the Hyenas differ from all the members of the Cat family in having the fore legs longer than the hind ones, giving them a shambling gait and a strange, sneaking appearance. They have large heads, and their jaws are very powerful, and able to lift easily a prey of great weight. Their coat is very thick, and forms a kind of flowing mane along the ridge of the spine. Their claws are short and stout, and are more useful for digging than tearing their prey. Dreadful tales have been told of the Hyenas, and their unclean habits; how they rob the grave yards and devour the dead bodies, and how they prefer decaying animals, to killing their prey and eating it while fresh. But they accomplish a good work in one direction, even if it does fill us with disgust. They perform the same service among quadrupeds that the Vulture does among birds.

In the cities and villages of Africa, in which the care of the public roads is often left to chance for their cleaning, the Hyenas are in the habit of removing all the decaying substances, which would otherwise soon cause diseases by decaying in the hot burning African sun. The Hyena even eats all the bones of the carcasses on which they feed.

The Hyenas are not so fierce as is usually supposed. If they can find sufficient decaying matter to satisfy their hunger, they will seldom attack living prey, and they will never attack mankind except in cases of great necessity, but they have been known to break down the walls which the inhabitants of African villages erect around their homes and kill and drag off the cattle.

THE STRIPED HYENA.



STRIPED HYENA.

The Striped Hyena is of a grey color, marked with upright stripes of brown or black. It has a thick mane which extends along the whole length of the neck, and down the center of the back. This mane stands erect when the animal is very angry. This Hyena is about the size of a large Dog.

THE SPOTTED HYENA.

The Spotted Hyena, and an animal very much like it which is some times called the Aard Wolf, and the "Hunting Hyena," all belong to this family, but there is very little difference in their forms or their manner of living. The Spotted Hyena, which is called by the colonists of the Cape of Good Hope the Tiger Wolf, is most commonly met with in Southern Africa, where its appetite for living prey, as well as for carrion, causes it to be justly regarded as a very dangerous neighbor; indeed, as we learn from the reports of travelers, it seems to be especially fond of attacking children, and many harrowing tales might be told of the fiend-like deeds of which it is guilty.

"To show clearly the preference of the Spotted Hyena for human flesh," says Steedman, "it will be necessary to observe that the Mambookies build their houses in the form of bee-hives, and tolerably large, often eighteen or twenty feet in diameter; at the higher or back part of the house, the floor is raised until within three or four feet of the front, where it suddenly terminates, leaving an area from thence to the wall, in which every night the calves are tied, to protect them from storms or wild beasts. Now, it would be natural to suppose that should the Hyena enter, he would seize the first object for his prey, especially as the natives always lie with the fire at their feet; but notwithstanding this, the practice of this animal has been in every instance to pass by the calves in the area, and even the fire, and take the children from under the mother's caress; and this in such a gentle and cautious manner that the parent has been unconscious of her loss until the cries of the poor little innocent have reached her from without, when hopelessly a prisoner in the jaws of the monster."

THE HUNTING HYENAS.

The Hunting Hyena was first described by Mr. Burchell. It is smaller and of a more slender shape than either the Striped or the Spotted Hyena; the ground color of its body is sandy, shaded with darker hair, varied with irregular blotches of black, and spots of white. In its teeth it resembles the Dog; but, on the other hand, it approaches the Hyenas in having only four toes on each foot.

Mr. Burchell was fortunate in bringing home a living specimen, which he kept chained up for more than a year. At first it was so ferocious that no one attempted to tame it; but at length its manners became softened, and it used to play with a Dog chained up in the same yard; yet still the man who fed it never dared to venture his hand within its reach. Mr. Burchell informs us that in a wild state this animal hunts in packs; though in general it hunts at night, it frequently pursues its prey by day, and as it is very fleet, none but the swiftest animals can escape it. Sheep and oxen are particularly objects of its attacks, the first openly, the latter only by surprising them in their sleep and suddenly biting off their tails, a mode of attack for which the wide gape and great strength of its jaws are peculiarly adapted. This species is found throughout Africa.

THE CAT FAMILY.

All the different animals of this great family are alike in having short, powerful jaws armed with sharp teeth, and a rough bristling tongue, which feels like a rasp when it is drawn across the bare skin—wounding by mere licking; in their manner of walking on their toes, and in several other characteristics. The fiercest beasts of all the carnivorous animals are found in the Felidae family, which includes three groups—the Cat tribe, the Lynx and the Hunting Leopard. The Cat tribe includes, in the Old World, the Lion, Tiger, Panther, Leopard, Ounce, Serval, and Wild and Domestic Cats. In the New World are found the Domestic Cats, the Jaguar, Puma and Ocelot.

All these animals in the wild state prefer to feed on living victims, devouring their prey as they kill it. Although the various animals belonging to this great family differ much in size, they are all alike in their mode of attacking and killing their victims. They usually take them by surprise, for they do not have so much courage as people sometimes think. Crouched in some hidden retreat, they silently and patiently await their prey; and as soon as within reach, they spring upon it from behind, without allowing time for escape or defence.

WILD AND DOMESTIC CATS.



WILD CATS.

It is usual to place the Lion at the head of this great Felidae family, which takes its name from the Latin *felis*, a cat; but it seems more appropriate to first describe the Wild and Domestic Cats, as these particular feline members have given the great family its name.

The Wild Cat is a reddish brown animal, marked with more or less distinct black stripes and spots.

Its length is about two feet. It does not differ in its habits from the larger members of this family. It climbs trees with agility, and feeds on Birds, Squirrels, Hares, Rabbits, &c. At one time it was very common in France and Scotland. It is found in nearly the whole of Europe, and a large portion of Asia.

There ought to be ranged beside the Wild Cat a multitude of species, which are only separated from it by differences in the color of the fur and length of hair, and which are its representatives in the countries it does not inhabit. Such are the Pampas Cat, the Bengal Cat, the Neptaul, the Egyptian Cat, the Serval Cat, the Caffir Cat, indigenous to the Cape, &c.

Certain authors are inclined to believe that the numerous varieties of the Domestic Cat have descended from the Wild Cat, and the Egyptian Cat. However this may be, there exist several kinds of well-characterised Domestic Cats. Such are the Spanish Cat, the Chartreuse Cat, the Red Cat of Tobolsk, the Angora Cat, the most highly prized of home pets, the Chinese Cat with pendant ears, and the tailless Malay Cat. The tails of Wild Cats terminate in an abrupt thick point, while the tails of Domestic Cats taper to a finer point.

The Domestic Cat is one of those few animals which has remained in a state of independence in its domesticity; it lives with Man, but still is not reduced to servitude. If it renders service, it is simply for its own interest to do so. That disinterestedness which distinguishes the Dog we do not find in the Cat. Whatever Buffon and others may have said, it is capable of affection; this attachment is only manifested by infrequent caresses, not by devotion. Has a Cat ever been known to defend its master? It has been said that it is more attached to localities than persons; yet we know of numerous exceptions to this.



ANGORA CAT.

No animal is more savage than the Cat when threatened by punishment or danger. For when it sees no chance of escape, it defends itself with energy that cannot be surpassed. So long as its

enemy keeps at a respectful distance, it confines itself to a passive resistance, watching, however, for the slightest indication of hostility, and holding itself ready for every emergency. Should its adversary advance to seize it, with wonderful activity it strikes with its claws, at the same time expressing anger with its voice. It nearly always comes off victorious, unless over-matched, for its agility renders escape almost certain.

The Cat is less an enemy of the Dog than is generally believed. When unacquainted with one another, they have little sympathy in common; but when associated for a length of time they become good friends. Then they lick each other, sleep with each other, and understand making mutual concessions, which enable them to live in peace; in short, the most perfect harmony frequently reigns between them.

The Lion has been called the "King of Beasts" from most ancient times, and this is a very appropriate title, if we consider the impression we usually have of this animal when viewed for the first time. He carries his head high and walks with a slowness which may well pass for majesty. He always appears calm and dignified and conscious of his strength. The bushy and magnificent mane which overshadows his head and neck gives an added grandeur to his appearance.

Some adult Lions have attained a length of nearly ten feet, from the tip of the nose to the root of the tail; but usually they do not exceed six or seven feet. With the exception of the mane and a tuft of hair at the tip of the tail, the coat of the Lion is entirely smooth, and of a tawny color. The mane, which gives this great "King of the Beasts" such a lordly appearance, is missing in his mate, who has a smooth neck and a smaller head, and is generally in proportion about one-fourth as large. The mother Lion is at her fiercest when her little ones are threatened with danger; at other times she shows very little of the Lion nature except when pressed by hunger.

The Lion has also been called the "Lord of the Forest," but this is not an appropriate title, as he does not prefer the forest for a home. He lives in desert arid plains, lightly covered with shrubby vegetation or tracts of low brushwood. In India he prowls along the borders of rivers, and makes his lair in the jungles.

The Lion slumbers during the day in his retreat, and as night comes on he prowls abroad in search of prey. This is not because his eyes are unfitted to see in the daytime—like those of the majority of "night prowlers"—but he seems to think it prudent to keep at home until evening. When the first shadows of twilight appear, he enters upon his campaign. If there is a pool in the vicinity of his haunt, he places himself in ambush on the edge of it, with the hope of securing a victim among the Antelopes, Gazelles, Giraffes, Zebras, Buffaloes, &c., which are led thither to slake their thirst. These animals, well aware of this habit of their enemy, will not approach a pond without extreme caution. If one, however, places itself within reach of their terrible foe, its fate is generally sealed. One enormous bound enables the Lion to spring on its back, and one blow with his paw breaks its back. If the Lion misses his aim, he does not endeavor to continue a useless pursuit, well knowing that he cannot compete in speed with the children of the plains. He therefore skulks back into his hiding-place, to lie in ambush until some more fortunate chance presents itself, or complete night-fall shuts out all hope of success.

The Lion, however, is not disposed to remain long with an empty stomach. Then it is that he approaches Man's habitations, with the hope of surprising the domestic animals. Fences ten feet in height form no obstacle to him, for he will bound over such with ease, when, falling into the midst of the herd, he seizes the nearest.

The amount of strength which he manifests under circumstances similar to these is really extraordinary. A Lion has been known, at the Cape of Good Hope, to carry off a small Cow as a Cat would a Mouse, and, with the burden, leap a wide ditch. It is almost impossible to conceive the muscular force necessary to jump a fence several feet high when carrying a load of several hundred-weight.

The audacity of the Lion increases in proportion to his requirement. When he has exhausted all means of procuring subsistence, and when he can no longer put off the cravings of hunger, he sets no limit to his aggressions, and will brave every danger rather than perish by famine. In open day he will then proceed to where the herds of Oxen and Sheep pasture, entirely disregarding Shepherds and Dogs. At such times he has been known to carry his rashness so far as to attack a drove of Buffaloes—an action which is all the bolder as a single one, unless it is taken by surprise, is well able to defend itself.

The Lion seems to delight in the tempests of wind and rain, so common in Southern Africa; his voice mingles with the thunder, and adds to the terror of the timid animals, on whom he then boldly advances. He usually, however, waits in ambush, or creeps insidiously towards his victim, which with a bound and a rush he dashes to the earth.

"In South Africa," says Capt. Burton, "the Lion is seldom seen, unless surprised asleep in his lair of thicket; during my journey I saw but one, although at times his roaring was heard at night. Except in darkness or during violent storms, which excite the fiercer Carnivora, he is a timid animal, much less feared by the people than the angry and agile Leopard. When encountered in the daytime, he stands a second or two gazing; then turns slowly round and walks as slowly away for a dozen paces, looking over his shoulder; he then begins to trot, and when he thinks himself out of sight bounds like a Greyhound."

If attacked, however, he will show fight as the following experience, not likely to be often repeated, will testify: "Being about thirty yards off the foe," says Dr. Livingstone, "I took a good aim at his body, through the bush, and fired both barrels into it. The men then called out: 'He is shot! he is shot!' Others cried: 'He has been shot by another man, too; let us go to him!' I did not see any one else shoot at him; but I saw the Lion's tail erected in anger behind the bush and, turning to the people, said: 'Stop a little till I load again.' When in the act of ramming down the bullets, I heard a shout. Starting and looking half round, I saw the Lion just in the act of springing upon me. I was upon a little height. He caught my shoulder as he sprang, and we both came to the ground below together. Growling horribly close to my ear, he shook me as a Terrier Dog does a Rat. The shock produced a stupor similar to that which seems to be felt by a Mouse after the first shake of the Cat. It caused a sort of dreaminess, in which there was no sense of pain or feeling of terror. It was like what patients partially under the influence of chloroform describe, who see all the operation, but feel not the knife. This singular condition was not the result of any mental process. The shake annihilated fear, and allowed no sense of horror in looking round at the beast. This peculiar state is probably produced in all animals killed by the Carnivora, and, if so, is a merciful provision by our

Creator for lessening the pain of death. Turning round to relieve myself of the weight, as he had one paw on the back of my head, I saw his eyes directed to Mebalwe, who was trying to shoot him at the distance of fifteen yards. His gun, a flint one, missed fire in both barrels. The Lion immediately left me, and attacking Mebalwe, bit his thigh. Another man, whose life I had saved before, after he had been tossed by a Buffalo, attempted to spear the Lion while he was biting Mebalwe. He left Mebalwe and caught this man by the shoulder; but at that moment the bullets he had received had taken effect, and he fell down dead. The whole was the work of a few moments, and must have been his paroxysm of dying rage. In order to take out the charm from him, the Bakatla, on the following day, made a huge bonfire over the carcass, which they declared to be that of the largest Lion they had ever seen. Besides crunching the bone into splinters, he left eleven teeth-wounds in the upper part of my arm."

Dr. Livingstone says: "The same feeling which has induced the modern painter to caricature the Lion, has led the sentimentalist to consider the Lion's roar the most terrific of all earthly sounds. We hear of the majestic roar of the king of beasts. It is, indeed, well calculated to inspire fear, if you hear it in combination with the tremendously loud thunder of that country, on a night so pitchy dark that every flash of the intensely vivid lightning leaves you with the impression of stone-blindness, while the rain pours down so fast that your fire goes out, leaving you without the protection of even a tree, or the chance of your gun going off. But when you are in a comfortable house or wagon, the case is very different, and you hear the roar of the Lion without any awe or alarm.

"The silly Ostrich makes a noise as loud, yet it never was feared by man. To talk of the majestic roar of the Lion is mere majestic twaddle. On my mentioning this fact some years ago, the assertion was doubted; so I have been careful ever since to inquire the opinions of Europeans who had heard both, if they could detect any difference between the roar of a Lion and that of an Ostrich. The invariable answer was that they could not, when the animal was at a distance. The natives assert that they can detect a variation between the commencement of the noise of each. There is, it must be admitted, a considerable difference between the singing noise of a Lion when full, and his deep gruff voice when hungry. In general, the Lion's voice seems to come deeper from the chest than that of the Ostrich; but to this day I can distinguish between them with certainty only by knowing that the Ostrich roars by day and the Lion by night."

"Attempts to deprive the Lion of his prey are of frequent occurrence in the interior of Africa. Indeed, it is no unusual thing to find a number of natives residing near such pools of water as are frequented by Antelopes, other wild animals, and their constant attendant, the Lion, subsisting almost altogether in this way, or on carcasses which the Lion has not had time to devour before the return of day, when it is his habit to return to his lair."

Mr. Anderson mentions, as a remarkable circumstance connected with a Rhinoceros hunt, that "While following the trail of the animal, we came to a spot where one or two Lions, probably taking advantage of his crippled condition, had evidently attacked him, and, after a desperate scuffle, had been compelled to retreat. This is the only instance I know of Lions daring to attack a Rhinoceros, though I have seen it stated in print that they will not only assail, but can master the horned monster."

In former times Lions were numerous even in Europe. According to Herodotus, Aristotle, and Pausanias, they were abundant in Macedonia, Thrace, and Thessaly; but for centuries in these countries they have been unknown. Arabia, Syria, and Babylonia used also to contain large numbers. In Arabia and on the confines of Persia and India at the present date they are scarce.

We may form some idea of their number in ancient times by the quantity absorbed annually in the combats which were so much in favor with the Romans. In a very brief interval, Sylla had slaughtered a hundred Lions, Pompey six hundred, and Caesar four hundred.

In this age the Lion is rarely met with except in Africa, where every day its numbers are diminishing, and from whence it will soon completely disappear if the present rate of slaughter is continued. Our grand-children probably will know the Lion only from our descriptions.

Several varieties of the Lion are distinguished. The most ferocious is the Brown Lion of the Cape. In the same neighborhood lives another, much less dangerous, the Yellow Cape Lion. After these we may enumerate the Lion of Senegal, the Barbary Lion, and the Lion of Persia and Arabia.

THE TIGER.

The Tiger is as high on the limbs as the Lion; but it is more slender, active, and stealthy, closely resembling, in figure and movements, the domestic Cat, which serves as the type of the entire genus. Its coat is very handsome, being of a yellowish fawn color above and a pure white beneath; everywhere irregularly striped by brown transverse bands. Its tail, which is very long, is ringed with black, and contributes not a little to its beauty. It has also white around the eyes, on the jaws, and on the back of each ear.

The Tiger is peculiar to Asia. It inhabits Java, Sumatra, a great part of Hindostan, China, and even Southern Siberia as far north as the banks of the river Obi.

The Tiger makes its lair in jungles or densely wooded districts bordering on water-courses. Like the Lion, it has a den, to which it retires for rest; from whence it steals forth, secretes itself in a wood on the borders of a frequented path, and there, concealed from every eye, awaits its victim. The moment it sees the object of its desire, its eyes flash, and its whole bearing manifests a savage joy; it allows the unsuspecting prey to draw near, and when it is sufficiently close, springs upon it with tremendous velocity. If it scents prey from a distance, it glides through the high grass with the undulating movements of the serpent, almost impossible to be detected by the human eye.

The Tiger has for a long time borne a reputation for cruelty, as little deserved as that for generosity which has been given the Lion. The old Naturalists pretended that the Tiger gloried in shedding blood, and that it never saw a living creature without desiring to destroy it. Nothing can be more untrue. The Tiger does not kill for the pleasure of killing; it kills only to appease its hunger. In doing this, it only conforms to the necessities of its nature; but when it has fed, it does not exhibit any blood-thirsty propensity, but simply defends itself when threatened or attacked.

Tigers will occasionally take to water. In the Sunderbunds especially they are often seen swimming across the various rivers, which form innumerable islands, inhabited only by wild beasts. Invariably, the fore-paw is the Tiger's instrument of destruction. Most people imagine that if a Tiger were deprived of his claws and teeth he would be rendered harmless; but this is an error; the weight of the limb is the real cause of the mischief, for the claws are rarely extended. When the Tiger strikes his victim, the operation is similar to that of a hammer, the Tiger raising his paw and bringing it down with such force as not only to stun a common-sized Bullock, but often to crush the bones of the skull!

Williamson gives an amusing account of the mode by which Tigers are captured in Oude: "The track of the Tiger being ascertained, which, though not invariably the same, may yet be sufficiently known for the purpose, the peasants collect a quantity of the leaves of the prouss, which are like those of the sycamore, and are common in most underwoods, as they form the larger portion of most of the jungles of India. These leaves are smeared with a species of bird-lime, made by bruising the berries of an indigenous tree; they are then strewed, with the gluten uppermost, near to that shady spot to which it is understood the Tiger usually resorts during the noontide heats.

"If by chance the animal should tread on one of the smeared leaves, his fate may be considered as decided. He commences by shaking his paw, with the view to removing the adhesive incumbrance, but finding no relief from that expedient, he rubs the nuisance against his face with the same intention, by which means his eyes, ears, &c., become sticky, and cause such uneasiness as occasions him to roll perhaps among many more of the smeared leaves, till at length he becomes completely enveloped, and is deprived of sight. In this situation he may be compared to a man who has been tarred and feathered. The anxiety produced by this strange and novel predicament soon shows itself in dreadful howlings, which serve to call the watchful peasants, who in this state find no difficulty in shooting the mottled object of their detestation."

THE LEOPARD.

The Leopard is smaller and more active than the Tiger and larger than the Panther. It is arboreal in its habits and finds in the spots or rosettes which decorate its tawny skin a provision highly favorable to concealment among the foliage, wherein it lurks, until some passing animal approaches sufficiently near to enable it to spring upon its unsuspecting prey.

The activity of the Leopard is almost beyond belief. Mr. Andersson, speaking of his Dogs, says: "They were, I conjectured, from their steady, unbroken, deep bay, close upon the haunches of their enemy, yet I could not see distinctly either the Dogs or the object of the pursuit, when all at once a magnificent Leopard sprang right before me, from the topmost branches of a tall acacia, clearing with a single bound all his fierce assailants. I was so astounded at the magnitude of the leap—without having witnessed it one can hardly form a notion of the distance oversprung—that, looking first at the tree, and then at the spot on which the beautiful beast had alighted, I could not withdraw my eyes from the scene of its exploit."

From the propensity of the Leopard to ascend trees, especially when pursued, it has in India obtained the name of the lackree-bang or Tree-tiger. "Leopards," says Mr. Williamson, "will not ascend trees which have not some underwood growing near them; their usual haunts are found in those close woods of which the intervals are grown up with thorns, etc., and especially where there are old trees with low boughs, favoring their access to the more shady parts of the foliage.

"The royal Tiger will not touch anything but of its own killing, but Leopards are not quite so fastidious, and may be allured by the scent of meat. I have heard this doubted; but the following fact, which occurred while the corps to which I was then attached was at Hazary-bhang, in the Ram-ghur country, puts the matter out of doubt. The sergeant-major of our battalion had killed an Ox for his winter provision, and had hooked up the joints within his hut, which was on the right flank of the line, close to the grenadier bell of arms. The sentry stationed there gave the alarm that some large animal had entered the hut, in which there were several apartments. A light was brought, and numbers crowded the place, but nothing could be seen for awhile. All were about to retire, when it was discovered that a Leopard was clinging to the thatch with his claws, just above where the meat was hanging. No sooner did the animal perceive that he was discovered than he quitted his hold, springing suddenly down, and darted through the doorway, clawing several as he passed, and giving the poor sentry in particular a scratch in the face which laid him up for several weeks."

"Nightly," says Sir W. C. Harris, "may his low half-smothered growl be heard as he prowls round the fold; and in spite of the baying troops of Watch Dogs that are maintained for the protection of the flock, he not unfrequently contrives to purloin mutton. Viewed in his wild state, few animals can surpass the lurking Leopard in point of beauty, his brilliant orange and white skin, which shines like silk, being richly studded with open rosettes, sometimes of the most intense sable, at others disposed as if a Cat had been walking over him with her paws tarred. Nor is he less distinguished for elegance and grace. His every motion easy and flexible in the highest degree, he bounds among the rocks and woods with an agility truly amazing; now stealing along the ground with the silence of a Snake—now crouching with his fore-paws extended, and his spotted head laid between them, while his chequered tail twitches impatiently, and his pale eyes glare mischievously upon his unsuspecting victim."

THE PANTHER.



Panther Surprised by Tree Snake.

The Panther is a pretty animal, about three feet in length, not including the tail, and is distinguished from the preceding Felidae by its deep yellowish-brown coat, speckled with numerous spots. These spots, quite black on the head, are disposed in a rose-like fashion over the other parts of the body, being formed of five or six little black patches grouped in a circular manner around a piece which is of the same color as the ground of the coat. For a long time, and even sometimes now-a-days, the Panther has been frequently confounded with the Leopard, to which certainly it bears a great resemblance. From this error has arisen grave contradictions as to its history, and much uncertainty with regard to the limits of its natural locality.

It appears to be demonstrated, however, that the veritable Panther is not found in Africa, but only in India, Japan, and the neighboring islands, such as Java, Sumatra, &c. The island of Java possesses a variety which is completely black. This is the famous Black Panther, the terror of Java and Sumatra.

The Panther ascends trees with agility, into which it pursues Monkeys and other climbing animals. It is a ferocious and untamable animal, and inhabits only the wildest forests. No Carnivore, not even the Tiger, is more unconquerable, and its pursuit is proportionably dangerous. It rarely attacks Man without being provoked; but it is irritated at the merest trifle, and its anger is manifested by the lightning rapidity of its onset, which invariably results in the speedy death of the imprudent being who has aroused its fury. Its power, nimbleness, and stealth surpass anything that can be imagined; and it is these qualities which render it so dangerous.

Notwithstanding its ferocity when wild, the Panther is easily tamed when captured young and is then as mild and affectionate as a Dog.

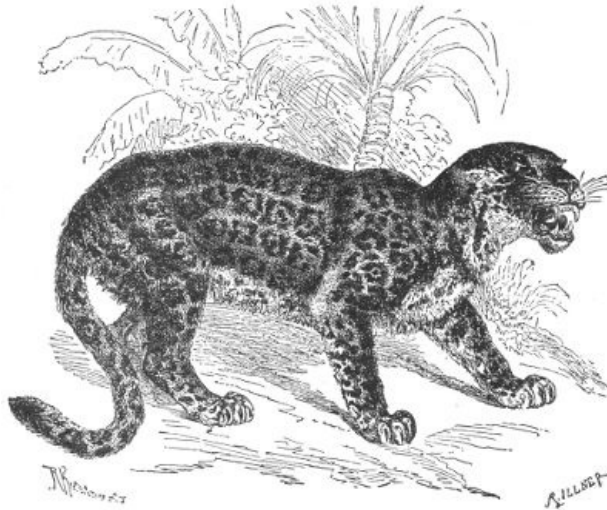
The Panther is especially fond of young Birds, but is frequently disappointed in his search by finding that a Snake has preceded him and secured the prize, as illustrated. During his roving, the Panther spies a nest and begins at once to climb the bough on which it is built just as the father Bird returns with food for the Birds. At the sight of the fearful enemy near his nest, he utters a series of low pitiful shrieks. The mate answers him from the distance and comes flying swiftly towards him. But the Panther does not allow himself to be turned from his purpose; on the contrary, the parents' alarm makes him feel assured that the nest contains a prize for him. Meanwhile the Snake's rest has become disturbed during the clamor and just as the Panther raises his head to peer into the nest, the head of the Snake with wide open jaws shoots hissing upon him. He falls backward startled! He shares the abhorrence of many animals for the Snake, and also fears its sharp bite. One moment he hesitates as to whether to give up the hoped-for prize, then slowly retreats.

The Panther not only climbs the trees to secure the Birds and small climbing animals, but lurking in concealment among the foliage it springs upon the Antelopes or other large game which happens to approach its hiding place.

A tame Panther in the possession of Mrs. Bowdich was left at liberty to go where he pleased, and a boy was appointed to prevent him from intruding into the apartments of the officers. His keeper, however, generally passed his watch in sleeping, and Sai, as the Panther was called, roamed at large. On one occasion Sai found his servant sitting on the step of the door, upright, but fast asleep, when he lifted his paw, gave him a blow on the side of the head, which laid him flat, and then stood wagging his tail as if conscious of the mischief he had committed. He became exceedingly attached to the governor, and followed him everywhere, like a Dog. His favorite station was at a window of the sitting-room, which overlooked the whole town. There, standing on his hind-legs, his fore-paws resting on the ledge of the window, and his chin laid between them, he appeared to amuse himself with what was passing underneath. The children also stood with him at the window, and one day, finding his presence an incumbrance, and that they could not get their chairs close, they united their efforts to pull him down by the tail. He one day missed the governor, who, being in the hall, surrounded by black people, was hidden from view, Sai wandered in search of him, and having at length found him seated writing at a table, the Panther immediately sprang from the door on to his neck, put his head close to the governors, rubbed his head upon his shoulder, and tried to evince his happiness.

When on board a ship at anchor in the river Gaboon, an Orang-Outang was brought for sale, and lived three days on board. "I shall never," writes Mrs. Bowdich, "forget the uncontrollable rage of the one, or the agony of the other, at this meeting. The Orang was about three feet high, and very powerful in proportion to his size, so that when he fled with extraordinary rapidity from the Panther to the farther end of the deck, neither men nor things remained upright when they opposed his progress; there he took refuge in a sail, and although generally obedient to the voice of his master, force was necessary to make him quit the shelter of its folds. As to the Panther, his back rose in an arch, his tail was elevated and perfectly stiff, his eyes flashed, and as he howled he showed his huge teeth; then, as if forgetting the bars before him, he tried to spring on the Orang, to tear him to atoms."

THE JAGUAR.



JAGUAR.

The Jaguar is the Leopard of the American forests, and nearly approaches to the Tiger of India in strength and daring. The Jaguar may be distinguished from the Leopard by a bold streak or two of black extending across the chest from shoulder to shoulder. The rosettes on the body are very large, open and rather angular, with a central spot or two in each, and a central chain of black dashes extends along the spine. The size of the Jaguar varies, but usually exceeds that of the Leopard. Its form is more robust and less agile and graceful. The limbs are short, but exceedingly thick and muscular, the head square and larger, and the tail comparatively shorter. The Jaguar is the most formidable of all the American members of the Cat family. It prefers the marshy and wooded districts of the warmer latitudes, and haunts the vast forest along the larger rivers. He climbs and swims with equal facility, and preys on the larger domestic quadrupeds, on Peccaries and Monkeys, and also on Tortoises and Fishes. Sonnini saw the scratches left on the smooth bark of a tree without branches forty feet high. Humboldt heard the Jaguar's yell from the tops of the trees, followed by the sharp, shrill, long whistle of the terrified Monkeys, as they seemed to flee. It takes Birds in their nests and Fish in the shallows and makes havoc in some districts among Horses, Cattle and Sheep.

The Jaguar is also called the American Tiger; it is the largest carnivorous animal of the New World. It almost equals the Tiger in size, as well as in blood-thirstiness; it measures nearly seven feet from the end of the nose to the root of the tail. It is not Zebra-striped like the Tiger, but spotted in the same manner as the Panther. Its markings are most numerous on the head, thighs, legs and back, but always irregular in shape. The ground color of the coat is of a bright tawny hue above, and white beneath. The Jaguar is spread over nearly the whole of South America and of the warmer parts of North America. It inhabits the great forests traversed by rivers, and actively pursues various aquatic Mammals. Like the Tiger, it swims with ease and passes the day in inaction among the islets of the great lagoons and rivers. In the evening it seeks its food, and levies a heavy tribute on the immense herds of wild Cattle and Horses that graze in the Pampas of the Plata. With a single blow of its paw it breaks the back-bone of its victims.

At the setting and rising of the sun it gives utterance to two cries, which are well known to the natives and to hunters. It is by this means that it announces to living nature the commencement and the termination of its feeding operations, and thus excites terror or joy. In certain parts of South America, Jaguars were so numerous, that, according to Azara, in the seventeenth century, two thousand were killed every year at Paraguay. At the present time many are yet to be found in that region, although their numbers are considerably diminished.

THE PUMA OR COUGAR.



Pumas Fighting over Vultures.

The Puma or Cougar, formerly improperly called the American Lion, is an animal about four and a half feet long, and of an uniform fawn color without any spots. It inhabits Paraguay, Brazil, Guiana, Mexico and the United States. It has the general appearance of a Lioness, without possessing its dimensions.

This animal is alike remarkable for stealth and agility. It makes great ravages among the herds, and differs from the other Cats, in slaying numerous victims before it commences to feed. To carry off the smaller domestic animals, it visits human habitations during the night. It prefers living in the open country, yet it climbs trees; its agility is such, that at one bound it can ascend upwards of twenty feet.

The Puma is easily tamed, when it knows its master, and receives his caresses with pleasure. No inconvenience results from allowing it to run at liberty. The celebrated English actor, Kean, had a Puma which followed him like a Dog, and kept close to him in the most crowded assembly.

THE OCELOT.

The Ocelot, one of the most beautiful of the Cat family, is a little more than three feet in length. The color of its fur is a greyish fawn, marked with large spots of a bright fawn, edged with black. Its habits are entirely nocturnal; it feeds on Monkeys, Rodents and Birds, climbing the trees in their pursuit with great swiftness. It is found in various parts of North and South America.

Like the Puma, it rapidly becomes attached to Man. Azara has seen one which, although it enjoyed the greatest liberty, would never leave its master.

THE LYNXES.

The animals belonging to the Lynx family differ from the other Felidae in their longer coat, their shorter tail, and their ears, which are terminated by a tuft of hair. A great number of varieties of Lynx are known, as well in the Old as in the New World. The principal ones, however, are the European Lynx, the Canada Lynx and the Caracal.

THE EUROPEAN LYNX.

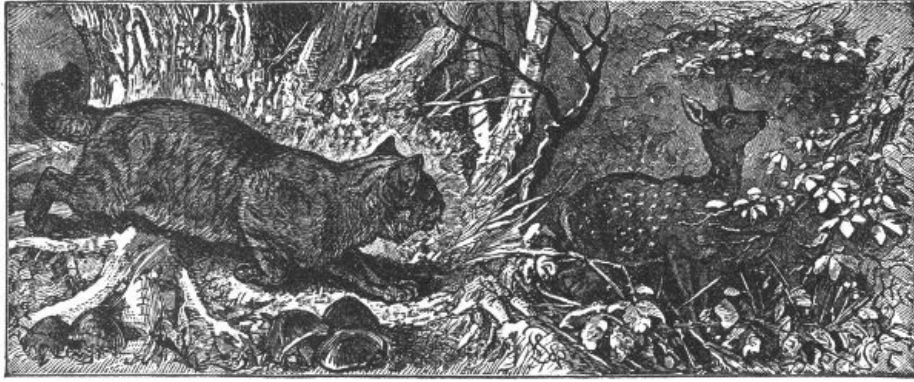
The European Lynx is well known in the great forests of Northern Europe and in Asia; it is also found in some of the Alps and Pyrenees, as well as in the Sierras of Spain. This animal measures from thirty to thirty-six inches, not including the tail, which is four inches long. The upper parts of its body are of a bright red color, with small brown spots, while the under parts are white. On each side of its face it has an addition of white hairs, which resemble whiskers.

The name of "Loup-cervier" sometimes given to it, probably originated from its howling like a Wolf during the night. It nimbly climbs trees in pursuit of prey. Martens, Ermines, Hares and Rabbits are its favorite food. It does not, however, eat the flesh of larger victims, unless its hunger is extreme; but generally is satisfied by sucking out the brain.

Taken young, it becomes accustomed to captivity, and is fond of being caressed, but it will return to its wild life if opportunity offers, so really never becomes attached to its master. It is an extremely cleanly animal, and, like the Cat, passes a large portion of its time in washing and cleansing its fur.

The European Lynx is not much smaller than the Wolf, and is said to be rather shy than bold, never attacking Man except in self-defence, and using his claws as his principal weapons. This animal frequents mountainous and thickly-wooded districts, and confines himself to a limited hunting ground, not hunting in a pack, but usually in pairs, the mother being frequently followed by her young ones. The Lynx usually reposes during the day in such a position as to perceive either the approach of danger or of prey, going forth at twilight or early dawn to seek for food. Mr. Lloyd tells us that if the Lynx fails in his spring, he does not pursue his prey to any great distance, but slinks back to his retreat, in proof whereof he relates the following anecdote: "Some years ago, while a peasant was occupied with agricultural labors in the spring, he observed that some Sheep feeding in the distance shied when passing near a boulder on the hill-side. Inclination for the green grass, however, having at length got the better of their fears, they once more approached the spot, when out dashed a large Lynx from his ambush, and made several bounds towards them; but as the poor creatures had the start of him, they were so fortunate as to escape his clutches. Seeing that his efforts were fruitless, the beast now turned about and retreated to his hiding place, which the peasant observing, he hastened home for his gun, and stealthily approaching the spot, shot him while in his lair."

THE CANADA LYNX.



LYNX ATTACKING FAWN.

The Canada Lynx in size and coloring closely resembles the European species last mentioned. It is about three feet in length, besides the tail, which measures from four to five inches. It is retired in its habits, keeping away even from the dwellings of the first settlers in the forests. Its fine long fur enables it to resist the cold of the high latitudes in which it lives. It is found north of the Great Lakes, as far southward as the Middle States, and occasionally near the sea coast.

When alarmed or pursued, the Canada Lynx leaps or bounds rapidly in a straight direction from danger, and takes to a tree when hard pressed by Dogs. It is very strong, and possessing remarkably large and powerful fore-legs and claws, is able to climb trees of any size; and can leap from a considerable height to the ground without seeming to feel the jar, alighting on all four feet at the same instant, ready for flight or for battle.

The food of the Canada Lynx consists principally of Birds and small quadrupeds. Occasionally it may carry off some small live stock of the farmer, but it usually prefers such game as may be met with in the depths of the forest in which it lurks.

THE CARACAL.



Caracal Defending His Booty from Jackals.

The Caracal is about the size of the European Lynx. Its fur is red above, without spots, and its chest is fawn colored, speckled with brown. It is the Lynx of the ancients, and inhabits the north and east of Africa, Arabia and Persia. Its habits differ very little from those of the Lynx. It always retains, when in captivity, its savage disposition and a great desire for liberty.

The Caracal lies in wait for young Antelope and overpowers them without special exertion, tearing with his sharp teeth the artery of the throat. The dexterous hunter seldom enjoys his prey in peace for, as all large animals of prey pursue the small, so the bold, intruding Jackal presses him from all sides, waiting his chance to snatch part whenever possible. Our illustration shows such a scene. The Jackal generally has a bad time in a combat with the Caracal. The Caracal has never yet been tamed in any menagerie. Even the Arabs of the Soudan fear him. In the illustration he has been aggravated to the highest pitch by the attacks of the Jackal. With his long bushy ears lying flat, lips drawn backward and one sharp, pointed claw raised, he stands ready to strike and bite. Several of the Jackals have already felt his weapons. Despite this they howl and press around him until he has had his fill and leaves the rest of his meat for the persistent beggars.

The Caracal is said to occasionally hunt in packs like Wild Dogs. But this is uncommon; they usually hunt singly or in companies of two or three, creeping towards their victim and springing suddenly upon it.

In captivity, Caracals are very irritable, and sometimes display great ferocity. Dr. Charleton saw one kill and destroy a Hound in a moment, although the poor creature defended itself to the uttermost. They retire to a corner of their den, crouching sullenly, and resenting every attempt at familiarity; when irritated, the ears are laid close to the head, the eyes glare with malignant fury, the teeth are displayed, and they utter a hiss not unlike that of a Cat, and quite different from the growl of a Lion or Tiger. In their wild state they avoid man, but are dangerous foes when hard pressed or wounded.

THE OUNCE AND SERVAL.

These are two members of the Cat family that seem but little known.

In size, the Ounce is between the Panther and Leopard. The color of its coat is not yellow, but grey, and its spots are much more irregular than on these animals. It is a native of Asia.

The Serval is also named the Cat-pard or Tiger Cat. It is only about thirty inches long. It is found in the forests of Southern Africa; also in Abyssinia and Algeria. It lives on small animals, particularly Monkeys and Rodents. Its savage nature cannot be changed by taming. Its fur, which is varied with bars and black spots on a buff ground, is quite valuable.

THE CHEETAH.

The Cheetah or Hunting Leopard forms the transition between the Cat and Dog families. By its physical organization and its character it belongs, in fact, to both these classes. It has weak, non-retractile claws, which are unfitted for tearing purposes; but in its teeth it unmistakably shows its affinity to the Cat family. Its limbs are also longer, and the body more slender than that of the Cats, from whence results a greater aptitude for hunting. Its tail is curled over on itself at the extremity, a disposition very common in Dogs, but which is not observed in the Cats. Its mildness, obedient temper, and attachment when tame, naturally define its place on the confines of the Feline and the Canine family.

The Hunting Leopard inhabits Southern Asia and various parts of Africa. It is about four feet in length, and twenty-six inches in height. Its fur is very elegant, being a bright fawn color above, perfectly white beneath, and everywhere interspersed with black spots. The tail is barred with twelve alternately white and black rings. A quantity of hair, longer than on other parts of the body, grows on the back of the head and neck, forming a scanty mane.

The Cheetah seizes its prey by a succession of bounds remarkable for their rapidity. In India and Persia has been adopted the habit of training it to hunt certain animals, its natural docility allowing it to be readily trained for this service. The custom of employing the Cheetah for hunting goes back to a very remote period, for the Arab Rhazes speak of it in the tenth century.

In Mongolia the following is the method of conducting this sport. The sportsmen start off on horseback, carrying the Cheetah either on a Horse, or in a carriage specially constructed for the purpose. The animal is chained, and its eyes blindfolded. The places which Gazelles frequent are sought out. As soon as one is perceived, the hunters stop, the Cheetah is unfastened, and its eyes unbandaged and the game is pointed out to it. Immediately, under cover of the high vegetation and brushwood, the beast glides off in pursuit, taking advantage, with unequalled tact, of the slightest breaks in the ground to conceal its movements. When it considers that it is sufficiently near its victim, it suddenly shows itself, dashes on with terrible impetuosity, springs on the prey after a succession of prodigious bounds and immediately pulls it to the ground.

Its master, who has followed the events of the chase, then enters upon the scene. To detach it from its victim, he throws it a piece of flesh, speaks gently to it, and caresses it; after which he again covers its eyes, and replaces it on the saddle or in its conveyance, while the assistants carry off the prey.

This kind of hunting is very popular in Mongolia, and a well-trained Hunting Leopard attains an extraordinary price among the inhabitants.

In captivity, the Cheetah is familiar, gentle and playful, becoming greatly attached to those who are kind to it. When pleased it purs; and mews like a Cat when in distress.



ESQUIMAU DOGS.

The many different kinds of Dogs that are spread over the entire surface of the globe, with the Wolves, Jackals and Foxes, and their numerous smaller relatives are all grouped under the family of Canidae, which is derived from the Latin word Canis, meaning a Dog. All the members of this family are digitigrade. Though they walk on their toes, like the members of the Felidae, or Cat family, their claws are neither sharp nor retractile like those of the Cat and they cannot serve either for attack or defence.

Nearly all the members of this family have long tails, more or less clothed with hair, and their tongue is smooth, and in this respect different from the Cats.



NEWFOUNDLAND DOG.

They are the most intelligent of the Carnivora. Their senses, particularly that of smell, are strongly developed.

Some Naturalists claim that the Dog is a tamed Wolf, others that he is a well-educated Jackal, but there can be little doubt that he constitutes a genus set apart for the service of mankind, although there are such numerous varieties of domestic Dogs. It is impossible to discover in which of the past ages, the Dog became the servant of Man. The oldest traditions and the most ancient history show us the Dog as the friend and the servant of mankind.

Volumes might be written relating stories of which Dogs are the heroes. Every day in ordinary life we see something of this kind, and which, although of such frequent occurrence, is none the less curious. As examples of the past we might call to memory the Dog of Ulysses, the model of fidelity; the Dog of Montargis, the vanquisher of crime; of Munito, the brilliant player of dominoes. It is not necessary to mention the Newfoundland Dog and the Dog of Mount St. Bernard, as preservers of human life; their wonderful exploits are too well known to require special instances as examples. Nor is it necessary to speak of the numberless instances of intelligent Dogs going for provisions for their masters, and serving them in curious ways—like the shoe-black's Dog, who was trained to plant his muddy paws on the best polished boots, so as to bring more business to his master, the man of the brush. We should never come to an end if we attempted to tell of all the exploits of this valuable companion of man.

It is also useless to attempt to mention all the various species of Dogs that are found scattered over all the inhabited parts of the world; but certain varieties may be divided into classes. The Sporting Dogs, for instance, are usually divided into two classes—the Running Dogs or Hounds, and the Setters or Pointers. The first follow rapidly on a track or scent, howling and crying all the way, and only stop when they have captured or lost their game. The second follow silently on the trail of the game, and only stop pursuing it when the scent announces that they are close to the object of their search. It is then that they are said to be pointing or setting. Setters generally lie down and wait for the sportsman, while the Pointers stand.

Among the Running Dogs might be mentioned the Greyhound, the Hounds of Saintonge and of Poitou, English Foxhounds, Harriers and Beagles, Turnspits, Bull-dogs, Mastiffs, etc. The principal sporting Dogs are the Pointers, Setters, Land Spaniels and Water Spaniels.

It is almost impossible to class all the different kinds of Dogs in groups, with the many races and sub-races now existing. Some Naturalists have divided all these different varieties into three classes—the Matins, the Spaniels, and the Mastiffs, and although this method may have its faults, it also has the advantage of being easy to remember and sufficient for practical use.

It is among the Matins that the largest-sized Dogs are found. The ordinary Matin—the great Danish Dog—is as large as a good-sized Donkey; under this class are also found the Spotted Danish Dog, the Little Danish Dog, the different varieties of Greyhounds, the Pyrenean Shephard's Dog, the Alpine Dog, and the St. Bernard Dog.

The Spaniels comprise the Wolf Dog, the Chinese Dog, the Siberian Dog, the Esquimaux Dog—the two latter being used to draw sledges across the snow—the French and English Spaniels, and what is classed as the Small Spaniel, including a great number of varieties of "Lap Dogs," which are the favorite home pets, in spite of the fact that they are particularly remarkable for their ugliness, and their small size. The principal Lap-dogs are the King Charles, Cocker, Blenheim, Small Poodle and the Small White Dog of Cuba, or Havanese Dog, etc. Then we come to the Turnspits, with straight and crooked legs; the St. Domingo Dog; the large Water Spaniel—the most faithful and intelligent of all dogs; the Little Water Spaniel, Poodle, Newfoundland Dog; Stag, Fox and Hare Hounds; Bloodhounds, Pointers and Setters.

Among the Mastiffs are placed the Great Dog or English Mastiff, an animal that is very courageous, and a great fighter; the Thibit Mastiff, the Small Mastiff, the Pug, the Bull-dog, the Terrier, and Bull Terrier, the Turkish Dog, remarkable for its almost naked skin, and last of all, our common Cur Dog, with no distinct characteristics.

Then we have a class of Dogs distinct from these friends and servants of mankind. These live either entirely wild or half-wild, and are scattered over various parts of the globe. These are the Dingo, or New Holland Dog, which is very destructive to domestic animals, and even to cattle; the Dhale, or East Indian Dog, which in packs, pursues Deer, Gazelles, etc., and which, when collected in troops, does not fear to fight with the Lion or Tiger; the Wild Dog of Sumatra; the Cape of Good Hope Dog and the Maroon Dog of America.

THE HYENA DOG.



HYENA DOGS.

The Hyena Dog might be classed with these wild and half-wild Dogs, although it is usually given a distinct genus. As the name indicates, it has several points of resemblance with the Hyena. This Dog inhabits South Africa. It is about the size of a Wolf, but not so strong as that animal. Its coat is of a deep gray color speckled with spots of various colors. It has large pointed ears and the tail is long and bushy. Although like the Hyena, it is very fond of putrid flesh, the Hyena Dog also feeds on living prey, especially Gazelles, Antelopes, etc. To pursue and capture these, the Hyena Dogs collect in troops, which are sometimes very numerous, and under the direction of a chief, they hunt with an intelligence unsurpassed by the best pack of Hounds. When the game is taken they divide it equally, but if any of the larger Carnivorous animals approach to take a share in the feast, they all unite against the intruder. Even Leopards and Lions have been driven off by a troop of these fierce Hyena Dogs.



WOLF.

Wherever the Wolf is found it is especially dreaded by the owners of flocks and herds, and it is considered the most destructive quadruped met with in Europe. Both in their habits and their physical structure they are very closely related to the Dog. The sense of smell in the Wolf is very acute, but its speed is not great. It wearies out its victim by untiring perseverance and when in full chase it persistently follows the track of the fugitive.

The Wolf is found throughout the whole of Europe, excepting Great Britain and the neighboring islands, where it has been exterminated. It also inhabits the cold and temperate regions of Asia and America. In some natural excavation situated in the woods, the Wolf takes up its abode. From here it steals forth at night to prey upon all the weaker animal life.

Among the varieties of the Common Wolf, it is necessary to mention the Black Wolf, which inhabits the North of Europe, and the Black Wolves of the Himalayas; the Dusky Wolf and the Prairie Wolf, which lives in troops on the great plains of North America; the Red Wolf, which leads a solitary life on the pampas of La Plata and in Texas and Mexico; lastly, the Mexican Wolf or Coyotte, and the Java Wolf. In the glacial regions of the two continents, White Wolves are found.

Although our Domestic Dogs and Wolves in a wild state are deadly enemies, yet when Wolves are captured quite young and tamed, they often become quite friendly with the Dogs of the home, and they are even considered safe playmates of the children in some instances, although they are rather treacherous, and probably few mothers would consider them safe. Yet a lady mentioned by Mr. Lloyd in this "Scandinavian Adventures" tells of a pet Wolf which she found trustworthy. "This Wolf became so faithful and attached that when we took a walk about the estate, and he was with us, he would crouch beside us when we rested, and would not allow anyone to approach nearer than about twenty paces; for if they came closer he would growl and show his teeth. When I called him he would lick my hand, at the same time always keeping his eyes fastened on the intruder. He went about the house and in the kitchen in the same manner as a Dog, and was much attached to the children, whom he would lick and play with. This continued until he was five months old. He had his kennel in the lower yard near the gate, and in the winter-time when the peasants came with charcoal, he would leap on to the stone fence, where he would wag his tail and whine until they came up to him and patted him. At such times he was always desirous of searching their pockets, that he might ascertain if they had anything good to eat about them. The men became so accustomed to this that they used to amuse themselves by putting a piece of bread in their coat pockets to let him find it out, and he ate all that they gave him. Besides this, he ate three bowls of food daily. It was remarkable that our Dogs used to eat with him out of the same bowl, but if any strange animal attempted to share the food with him, he would soon show anger."

"At one time," says Mr. Lloyd, "I had serious thoughts of training a fine Wolf in my possession as a pointer, but was deterred, owing to the liking she exhibited for the neighbor's pigs. She was chained in a little enclosure, just in front of my window, into which these animals, when the gate was left open, ordinarily found their way. The devices the Wolf employed to get them into her power were very amusing. When she saw a Pig in the vicinity of the kennel she, evidently with the purpose of putting him off his guard, would throw herself on her side or back, wag her tail most lovingly, and look innocence personified. And this amiable demeanor would continue until the grunter was beguiled within the length of her tether, when in the twinkling of an eye the prey was clutched.

"When the Wolf is hungry, everything is game that comes to his net. In the Gulf of Bothnia he often preys upon Seals. When that sea is frozen over, or partially so, as is generally the case soon after the turn of the year, he roams its icy surface in search of the young of the Gray Seal, which at that season breeds among the hummocks in great numbers; and finding this an easy way of procuring sustenance, he remains on the ice until it breaks up in the spring. It not unfrequently happens, however, that during storms large fields of ice, on which numbers of Wolves are congregated, break loose from the shore or the land-ice; in this case, as soon as the beasts perceive their danger, but see no possibility of escape, they rush to and fro, keeping up the while a most woeful howling, heard frequently at a great distance until they are swallowed up by the waves."

The vision and hearing, but more particularly the sense of smell in the Wolf, are very fully developed. These faculties are of great service in enabling it to obtain food and avoid danger.

When suffering from hunger it loses all caution, and becomes a scourge to the farmers' flocks and a source of danger even to Man. In broad daylight, under such circumstances, without being seen, it will draw near a flock of Sheep, eluding the vigilance of the dogs, it will dart forward, seize a victim that it has singled out, and bear it off with such velocity as often to defy pursuit. This exploit accomplished, it returns time after time to the scene of its previous success, until destroyed or driven from the neighborhood.

When it succeeds in obtaining entrance to a sheepfold, the havoc it commits is fearful, for it makes a general massacre among the inmates. The slaughter terminated, it carries away a victim for immediate use. It afterwards takes a second, third, and fourth, which it conceals in different places in the neighboring woods. Nor does it return to its retreat until daybreak, devoting the last moments to secreting its booty.

This craving for slaughter, preceding the act of hiding the carcasses, rather denotes foresight than ferocity; the Wolf is not, therefore, the monster of cruelty pictured by Buffon.

The Wolf often destroys Dogs, its most deadly enemy; and resorts to stratagem the better to accomplish its purpose. Should it see a Puppy about a farmyard, it approaches, and attracts attention by frisking and making all kinds of gambols to gain its confidence. When the youngster, seduced by these overtures, responds to them, and leaves the friendly shelter of its home, it is immediately overpowered, and carried off. Against a vigorous Dog, capable of defending itself with success, the stratagem is different. Two Wolves arrange between themselves the following plan:— One shows itself to the hoped-for-victim, and endeavors to make the Dog follow its track into an ambuscade, where the second Wolf is concealed. Both suddenly assail it at once, and through their combination obtain an easy victory.

Under ordinary circumstances the Wolf does not molest Man, but even flies from his presence. In cases of extreme hunger, on the contrary, it attacks him, looking out for an unguarded moment in order to take him unawares. If the Man is on horseback or accompanied by a Dog, its first efforts are directed against the quadrupeds.

During the winter, when the ground is covered with snow, in the great plains of Germany, in the vast steppes of Russia and Poland, Wolves are most dangerous. "Hunger drives the Wolf from the wood," says a proverb. Allied in immense troops they range the country in every direction, and become a terrible scourge.

In those plains of Siberia that are infested by Wolves a sledge journey is far from agreeable, for frequently a band of these ferocious brutes persistently follow travelers. If the sledge stops for only a second, the Men and Horses are lost; safety exists only in flight. The struggle on such occasions is fearful. The Horses, mad with terror, seem to have wings. The Wolves follow on their track, their eyes flashing with fire. It is a terrible situation to be placed in to behold these black spectres tearing across the surface of the white shroud of snow, thirsting for your blood. From time to time a report is heard; a Wolf falls. More audacious than the others, the victim had tried to climb the sledge, and one of the travelers has shot it. This incident gives some advantage to the fugitives; for the carnivorous troop halt for a few seconds to devour the body of their companion.

Wolves are not hunted with Hounds that run by scent, for it would only be possible to overtake them with Greyhounds, as they are endowed with great speed and endurance. The method generally adopted for their destruction is to post the hunters around the covers which a Wolf frequents. These measures being taken, the grizzly marauder is started by Bloodhounds, specially trained for the purpose. The Wolf dashes past the sportsmen, either successfully running the gauntlet or getting shot.

THE JACKAL.



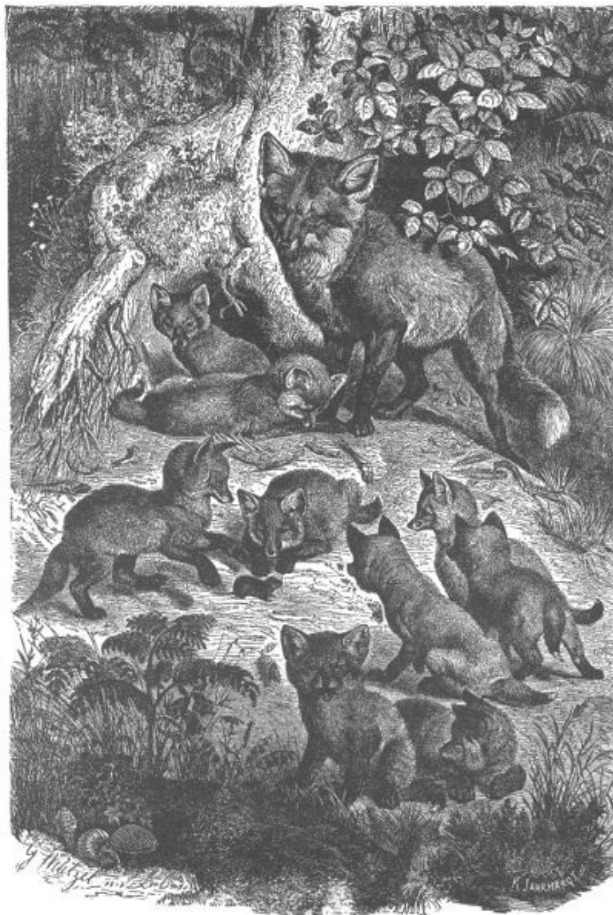
JACKAL.

The Jackal, five or six varieties of which are known, is common to the whole of Africa, all the warm regions of Asia, and to portions of Southern Europe. It is about the same length as the Fox, but stands a little taller. Its coat is of a greyish-yellow color above, and white beneath; its tail is tipped with black at the extremity. 70

Jackals live together in troops, which are sometimes composed of more than a hundred individuals. Although their eyes are adapted for seeing in daylight, they usually sleep during the day, and do not go abroad until night to seek their food. To keep together they are constantly howling, and their voice is sad, loud and unmusical. Their voracity and audacity are unparalleled. They enter habitations, when opportunity presents itself, and sweep off everything eatable they can reach; devouring even boots, Horse harness and other articles made of leather. In the desert they follow the caravans, prowl all night around their encampment, and endeavor to carry off anything chance may throw in their way. After the start of the caravan they rush upon the deserted halting-place, greedily fighting for all the refuse. Captain Williamson tells us that "Mr. Kinloch, who kept a famous pack of Hounds, having chased a Jackal into a jungle, found it necessary to call off his Dogs, in consequence of an immense herd of Jackals, which had suddenly collected on hearing the cries of their brother, which the Hounds were worrying. They were so numerous that not only the Dogs were defeated, but the Jackals rushed out of cover in pursuit of them; and when Mr. Kinloch and his party rode up to whip them off, their Horses were bit, and it was not without difficulty that a retreat was effected. The pack was found to have suffered so severely as not to be able to take the field for several weeks. 71

"The Jackal is very watchful. He will wait at your door, and will enter your house, and avail himself of the smallest opening for enterprise; he will rob your roost, and steal Kids, Lambs, Pigs and sometimes even take a Pup from its sleepy mother; he will strip a larder or pick the bones of a carcass, all with equal avidity. It is curious to see them fighting, almost within reach of your stick, to reach the expected booty.

"Both Jackals and Foxes sham death to admiration. After having been almost pulled to pieces by Dogs and left to all appearance lifeless, they sometimes gradually cock their ears, then look askance at the retiring enemy, and when they think themselves unobserved, steal under a bank, and thus skulk along till they find themselves safe, when, setting off at a trot or a canter, they make the best of their way to some place of security."



FOXES AT HOME.

These animals are distinguished from Wolves and Dogs by their longer and more bushy tail, and by their elongated and more pointed muzzle. They have a most offensive odor; and dig holes in the ground, wherein they reside and rear their young. They live upon Birds and other animals, but never attack any but such as have no power of resistance. The cunning of the Fox has always furnished a subject fertile in amusing anecdotes. Their attachment to their young is well illustrated in the following little narrative extracted from Mr. Lloyd's "Scandinavian Adventures:"

"A Fox having slaughtered a whole flock of Goslings, M. Drougge, to whom they belonged, resolved to attack her and her cubs in their 'earth.' This, however, was so deep that night set in before any satisfaction could be obtained. Some days after, on revisiting the kula (or 'earth'), it was found deserted, but, after some search, five cubs were found in a newly-made retreat, and deposited in an old hen-house belonging to the Lansmann, from whence, however, the mother nearly released them during the succeeding night; for in the morning the building was found undermined, and the half-rotten floor nearly bitten through. The cubs were now removed to an unoccupied room in the dwelling-house itself; and even here, by burrowing under the foundations of the building, as she was discovered to be doing during the two following nights, her attempts to free the prisoners were renewed. But the matter did not rest here; for one night shortly after, a continuous noise was heard in the attic, where, in consequence, the Lansmann proceeded to ascertain the cause of the disturbance. On his way up the stairs he was startled by an animal apparently resembling a Dog, running hastily past his legs, to which circumstance he at the time paid little attention; but as, when he reached the attic, he found everything quiet, he returned to his bed again. On the following morning, however, it was discovered that the Fox had been the cause of the uproar; for, with the intention of getting access to her cubs, she had been endeavoring to make an aperture in the chimney, and it then became perfectly clear that it was the Fox herself which, in her hurry to escape, had nearly upset the Lansmann, while mounting the steps the night before. The room below, in which the cubs were confined, was now examined, but they were nowhere to be seen. At length, however, their cries were heard in the flue of the stove, the whole of which structure it was necessary to take down before they could be extricated."

THE FENNEC FOX.

The Fennec Fox is a remarkable little animal found in Nubia and other parts of Northern Africa, where it resides in burrows excavated in the sand. Its body, head included, does not measure more than thirteen inches in length, while its tail, which is very bushy, is about eight inches long. Its head is narrow, with a pointed muzzle. Its eyes are large, and the iris of a deep blue color; the sides of its face are margined by long thick whiskers, while its enormous ears, which are very broad at the base, erect, and pointed, give a very singular appearance. The hair covering the body is of a pale fawn or cream color, shading into white beneath.

Bruce describes the Fennec as being a white Weasel. He had several of these successively in his possession, and says: "They were all known by the name of Fennec, and no other, and said to inhabit the date villages, where they build their nests upon trees." Of one, which he kept, he tells us: "Though his favorite food seemed to be dates or sweet fruit, yet I observed he was very fond of eggs. Pigeons' eggs and small Birds' eggs were first brought him, which he devoured with great avidity, but he did not seem to know how to manage the egg of a hen; when broken for him, however, he seemed to eat it with the same eagerness as the others. When he was hungry, he would eat bread, especially with honey or sugar. It was observable that a Bird, whether confined in a cage near him or flying across a room, engrossed his whole attention. He followed it with his eyes wherever it went, nor was he at this time to be diverted by placing biscuit before him, and it was obvious, by the great interest he seemed to take in its motions, that he was accustomed to watch for victories over it, either for his pleasure or his food. He seemed very much alarmed at the approach of a Cat, and endeavored to hide himself, but showed no symptom of preparing for any defence. He suffered himself, not without some difficulty, to be handled in the day, when he seemed rather inclined to sleep, but was exceedingly restless when night came, always endeavoring to make his escape, and though he did not attempt the wire, yet with his sharp teeth he soon mastered the wood of any common bird-cage."

THE COMMON FOX.

The Common Fox is still found throughout Europe. For ages past it has had a reputation for cunning, which has given it great notoriety. "As cunning as a Fox" is one of the most common adages in the languages of nations.

The Fox never attacks animals capable of resistance. In the twilight it ventures out in quest of its prey, when it wanders silently around the country, prowling about the covers and hedges, hoping to surprise Birds, Rabbits or Hares, its usual prey.

If it fails to secure such delicate food, however, it will eat Field Mice, Lizards, Frogs, &c. It does not dislike certain fruits, and it is especially fond of grapes. To domestic Fowls it is terribly destructive. When during its nightly prowling the crow of a Cock strikes its ear, it turns at once in the direction of the welcome sound. It wanders around the poultry yard, examining and observing all the weak points by which an entrance might be gained. When at last successful in reaching the Hen-roost, a reckless carnage among its occupants is made, and this not so much to satisfy a craving for blood as to provide store for the future. With this object, one by one the victims are carried off, and concealed in the woods or its den.

If all efforts to enter the Hen-roost are unsuccessful, then Reynard undertakes to ruin it in detail, and to slay in one or more months those which he cannot kill in a day. With this intention he installs himself on the margin of a wood, close to the farm, and anxiously watches every movement of the poultry. If his prey wander into the fields, his attentions are doubled; seizing the moment when the Watch-dog is out of sight, he creeps towards them, draws near his victim without being seen, seizes, strangles and carries it off. When these manoeuvres have once succeeded, they are repeated till the poultry yard is empty.

The following story, narrated to me by an old woodman, also illustrates their cunning. Two Foxes, located in a neighborhood where Hares abounded, adopted an ingenious plan for capturing them. One of them lay in ambush on the side of a road; the other started the quarry and pursued it with ardor, with the object of driving the game into the road guarded by his associate. From time to time, by an occasional bark, the associate in ambush was notified how the chase was succeeding. When a Hare was driven into the road it was immediately pounced on, and both Foxes devoured it in thorough good fellowship. Nevertheless, it sometimes happened that the Fox who kept watch miscalculated his spring, and the Hare escaped. When, as though puzzled at his want of skill, he resumed his post, jumped on to the road, and several times repeated the movement. His comrade arriving in the middle of this exercise, was not slow to comprehend its meaning, and irritated at being fatigued to no purpose, chastised his clumsy associate; but a tussle of a few minutes sufficed to expend the bad humor, and they were ready to try again.

The adult Fox is also assisted by its young in procuring food when they become old enough. Some observers say that these family excursions are undertaken for the education of the cubs. When on a hunt to obtain aquatic Birds, among the reeds and rushes that margin the borders of lakes and rivers, Foxes always proceed with extreme caution, and take especial care not to become unnecessarily wet.

One of the most frequent tricks of the Fox, and which shows an unusual amount of intelligence, consists in simulating death when surprised by the hunters, and there is no hope of safety by flight. It may then be handled, kicked about in every direction, even lifted by the tail, hung up in the air, or carried thrown over one's shoulder, without showing the slightest sign of life. But as soon as released, and opportunity for escape offers, it will hurry away to the great amazement of those so cleverly fooled.

The Fox most frequently inhabits a burrow or "earth," which it excavates among stones, rocks, or under the trunk of a tree, at the edge of a wood; at other times it digs its subterraneous retreat on cultivated land; always it is careful to have it on an elevated slope, so as to be protected against rain and inundations.

At times it appropriates the burrow of a Rabbit or Badger, and re-arranges it to suit itself.

Its dwelling it divides into three parts: The first part is the place from whence it examines the neighborhood before coming out, and from where it watches for a favorable moment to escape its persecutors, when pursuit has driven it home. Then comes the store-room, a place with several outlets, where the provisions are stored away. Lastly, behind the store-room, quite at the bottom of the burrow, is the den, the sleeping chamber and real habitation of the animal. The Fox seldom regularly inhabits its burrow, except when rearing young. After that period it generally sleeps in a cover, near a spot where it thinks plunder is to be had, sometimes at a distance from its burrow.

THE WEASEL FAMILY.



WEASELS AND ERMINES.

The Weasels and their many small relatives—the Ermines, Martens, Otters and many others—are usually classed with the Dog and Cat families and the Civets and Hyenas, under the second great division of the flesh-eating animals or those that walk on their toes; known as the Digitigrade Carnivora.

The fierce little Weasel, which is taken as a type of the whole Weasel family is the smallest of all the carnivorous animals. It does not often measure more than six inches in length. It is found all over the temperate part of Europe, although the most of its relatives prefer the cold climate of the far North. Its boldness and courage are wonderful, and it will often seize and kill animals very much larger than itself.

A Weasel has even been seen to attack an Eagle, and after allowing himself to be carried high into the air, he has succeeded after a long, hard fight in biting through the throat of the Eagle. Then both fall to the ground, and the Eagle dies, although the Weasel is not hurt, except the wounds in his skin made by the Eagle's talons, which soon heal.

Of all the animals belonging to this family, the Weasel is most easily tamed, and it soon shows a great affection for its master.

THE ERMINE.

This little animal is very much like the Weasel in size and form, but it usually prefers a colder climate, and makes its home in the northern regions of Sweden, Norway, Russia, Siberia and Arctic America. These animals do not often measure more than ten inches in length (not including the tail) but their skins are very valuable. They bring a high price, and a very important trade in them is carried on. In summer, the Ermine is of a beautiful brown color above and white below, while the tail is tipped with black. In winter the whole coat becomes a brilliant white, with sometimes a slightly yellow tinge, the tip of the tail remaining black. This is the season in which the fur is most valuable.

THE MARTENS.



MARTEN SEEKING FOOD IN THE TREES.

There are three species of Marten that make their home in Europe and Western Asia—the Pine Marten, the Sable and the Beech or Stone Marten. These all have large, open ears, and long bushy tails, and they live principally upon the trees, where, creeping from branch to branch, they hunt the small Birds and Squirrels. They are usually found in the gloom of dense forests.

The Beech or Stone Marten is found in all parts of Europe, not only in the woods, but often in thick hedges and vineyards wherever there is shelter for it to creep along and hunt its prey. It will often make its home near a farm house and destroy with great fury the small domestic animals.

The Sable is eagerly sought after on account of its fur. Its home is in the northern part of Europe, in the coldest parts of Russia and Siberia. The Turks, Russians and Chinese are the principal purchasers of their skins, and they distribute them in trade, far and wide, through Europe and Asia. The winter coat of the Sable is almost black and very close, and is much more valuable than when the animal is in summer dress.

The Russian exiles in Siberia hunt the Sable, and when in search of this animal they are exposed to the perils of famine, climate and wild beasts.

The Pine Marten is found in Northern Europe and North America. It owes its name to its supposed preference for the cones of the pine tree, as the Beech Marten is thought to select the fruit of the beech. The Pine Marten is of considerable size; its color yellowish, blended in some parts with a blackish tint; head lighter; throat yellow; tail long, bushy, and pointed. The fur varies in different individuals, both in color and fineness.

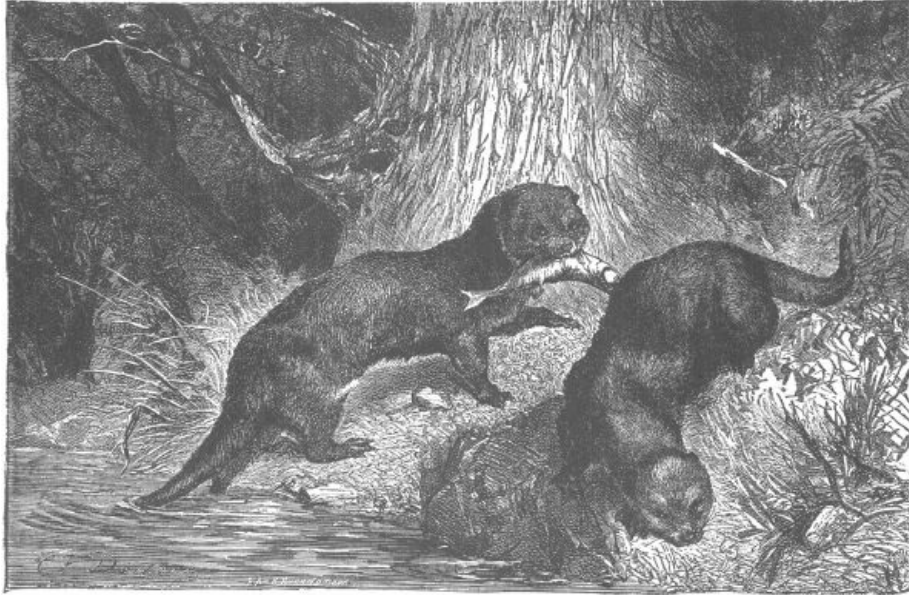
This animal lurks in the thick woods, where its prey—Squirrels, Mice, Birds and their eggs—abound. It feeds likewise on Insects, Fish and the smaller Reptiles, and also on berries, nuts and honey. It is active and sprightly, and we are told by Dr. Godman that the Pine Marten frequently has his den in the hollows of trees, but very commonly takes possession of the nest of some industrious Squirrel, which it enlarges to suit its convenience, after putting the builder to death.

These animals are caught for the sake of their fur, which is, however, inferior to that of the Sable Marten. A Partridge's head with the feathers is the best bait for the log traps in which this animal is taken. It often destroys the hoards of meat and fish laid up by the natives, when they have accidentally left a crevice by which it can enter.

The Marten, when its retreat is cut off, shows its teeth, sets up its hair, arches its back, and makes a hissing noise like a cat. It will seize a dog by the nose, and bite so hard that, unless the latter is accustomed to the fight, it allows the animal to escape.

It may be easily tamed, and it soon acquires an attachment to its master, but it never becomes docile. Its flesh is occasionally eaten, though it is not prized by the Indians.

THE OTTERS.



OTTER FISHING FOR HIS DINNER.

The Otters prefer to live in or near the water, and they are formed to find great enjoyment in this life. Their webbed feet, their slender shape and flattened head make them very active in darting through the water for their prey. They are usually found along the edges of lakes, rivers and streams, where they either dig out a burrow communicating with the water, or make their home in some natural crevice near the bank of the stream. They feed principally upon fish, and they cause a great deal of trouble in the waters near their home, as they are not satisfied with killing simply to satisfy their hunger, but often hunt and kill the Fish, etc., simply for the sake of killing.

79

Unlike the most of the Weasel family, the Otters will eat vegetables, although they prefer an animal diet. The skin of the Otter has always been a fur of great value, for it is soft, close and durable. The coat of this animal, like that of the Beaver and almost all of the aquatic Mammals, is composed of two layers—the one next to the skin formed of short, fine, downy hair; the other, which grows through it, is more glossy, longer and coarser.

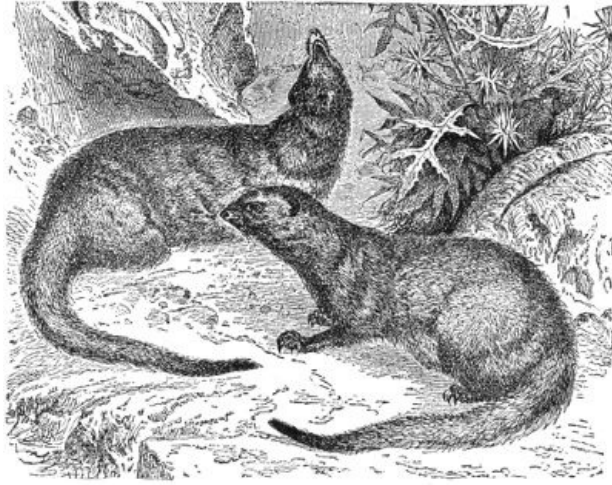
Otters are found in all parts of the world, but they are most plentiful in Europe and America. The Common Otter measures about two feet and a quarter from the tip of the nose to the tail—which is from twelve to fifteen inches in length. The usual color of the fur is brown, shading to darker tints.

In Kamschatka and on the coasts of the North Pacific Ocean, there exists a species of Otter, which differs from all other species in the softness and brilliancy of its fur, and its living almost entirely in the water. It measures more than a yard in length and is very mild in disposition. The skins of the Sea Otters are very high in price, and are increasing in value, as these animals are becoming very scarce.

The Civets are the best known of the family classed as the Viverridae which comprises not only the two kinds of Civets—the African and the Indian Civet—but the Mangousts, the Genets and many small relatives. The Civets are the largest of this family, although they are not often larger than a Fox. For many years they were very popular, because of the perfume which they furnish and which bears their name. This is secreted in small glands which pour it into a double pouch. Since musk has become better known, the use of the Civet has been less popular, but at one time it formed a valuable article of trade. Each year Africa and India exported to Europe large quantities which was used in medicine and perfumery.

The Indian Civet inhabits not only the Indian Continent, but also the neighboring islands. It differs from the African Civet in having a longer and rougher coat. Both are fawn-colored, marked with stripes or brown spots.

THE MANGOUSTS.

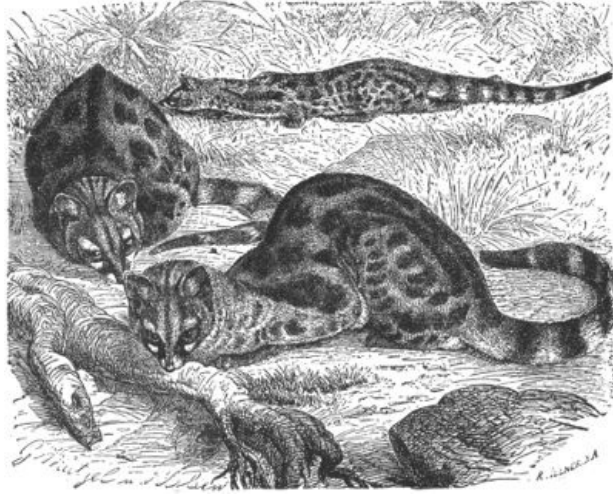


MANGOUSTS.

These are small animals found in the warmest parts of Africa and Asia. They have a low body, but are very rapid in their movements, and their legs are so short, they have the appearance of crawling rapidly along the ground instead of running. Their tail is long and thick at the root, and their skin is silky and marked with colored rings.

The Mangousts make their home in marshy places where there are plenty of Reptiles. They prefer these to any other food, although they attack small animals and Birds. They also search for the eggs of Reptiles, and such Birds as build on the ground. They sometimes manage to get into poultry yards, when, like the Ferrets and Weasels, they kill all that can be found, only eating their brains and drinking their blood.

THE GENETS.



GENETS.

The Genets are handsomer little animals than others of this family. Their silky fur, speckled with black spots on a fawn-colored ground, has a very pretty appearance, and is an object of considerable trade.

The Common Genet is found in the south of France and Spain, and throughout the African Continent, and makes its home in low grounds near the rivers. The claws of the Genets are retractile, that is, capable of being drawn back, like those of the Cat. These animals are very successful in hunting Rats and Mice, and they also climb trees and hunt for young Birds.

AMPHIBIOUS CARNIVORA.

The Seals, Walruses, Sea-Elephants and Sea-Lions, etc., are grouped in a family known as the Amphibious Carnivora—or the flesh-eating animals that live both on the land and in the water. Some Naturalists object to this classification, and say that the word Amphibia should only be applied to the Batrachians—like the Frogs and the Reptiles that can breath either in the water by means of gills, or in the air by means of lungs.

But this expression has been altered from its true meaning, and what are now called Amphibia, are the animals like the Seals, etc., which are organized for living in the water, but which can, with difficulty move about on the land.

Very curious animals are found in the Seal family. Their bodies are long and cylinder-shaped, with many of the characteristics of the Fishes; and their limbs are converted into fins by being provided with broad connecting webs. The fur of these various animals is composed of a woolly compact coat, the thickness and fineness of which increases with the severity of the climate they inhabit; and which is covered by rather coarse hairs lubricated with oil, the object of which is to prevent the water from penetrating to the skin. A thick layer of fat protects the body against cold, especially in the species which inhabit the frigid regions.

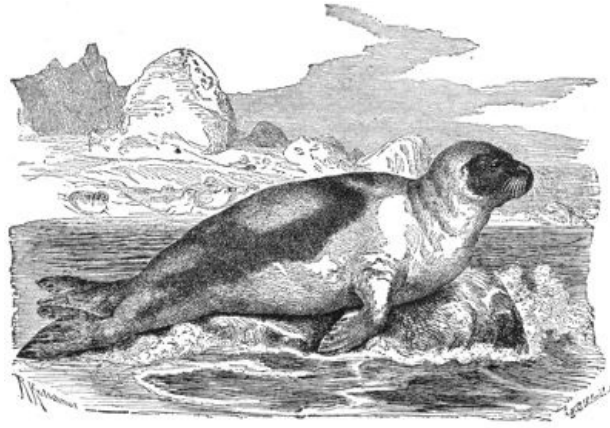
The Seal family live in numerous troops, and feed on Fishes, Mollusks, Crustaceans, etc. They are famous divers, and although they must come to the surface to breathe, they can remain a long time under water. This is explained by a peculiarity in their circulation. They are provided with reservoirs in which the blood accumulates while the lungs are inactive; and the animal is not suffocated while under water, because suffocation only comes from the stoppage of circulation as soon as the breathing is suspended, and in this case the circulation continues all the time the animal is under water; and it is only when the blood overruns these reservoirs that it is necessary for them to return to the surface of the water to breathe.

Owing to this precaution of nature the Amphibia can wander freely about in the depths of the ocean in search of their food.

As their members are badly fitted for locomotion on land, the Amphibia only leave the water when they want to sleep, or while their babies are very young, and feed on the mother's milk. But these clumsy little fellows soon grow strong enough to dive to the bottom of the ocean with their mother, and search for food among the small Fishes, etc.

The Amphibia do not live in very warm regions, and they increase more and more in number in proportion as one advances towards the poles. They are found on the coasts of Europe—in the North Seas, the British Channel and the Mediterranean; and in southern latitudes of the Pacific, along the coast of Southern Chili and upon the shores of New Zealand.

THE COMMON SEAL.



COMMON SEAL.

The Common Seal, a species frequently seen upon our northern coasts, measures from three to five feet in length, and is of a yellowish grey color, spotted with patches of brown. These animals are met with in greater numbers as we approach the Arctic seas, and afford the principal means of support to the Esquimaux of Labrador, and the inhabitants of the coast of Greenland.

"The Seal," says Mr. Low, "swims with vast rapidity, and before a gale of wind is full of frolic, jumping and tumbling about, sometimes wholly throwing itself above water, performing many awkward gambols, and at last retiring to a rock or cavern, of which it keeps possession till the storm is over."

"Seals seem to have a great deal of curiosity; if people are passing in boats, they often come quite close up to the boat, and stare at them, following for a long time together. The church of Hay, in Orkney, is situated near a small sandy bay, much frequented by these creatures, and I observed when the bell rang for divine service, all the creatures within hearing swam directly for the shore, and kept looking about them as if surprised rather than frightened, and in this manner continued to wonder as long as the bell rang."

They are exceedingly docile and intelligent, and when tamed will be quite friendly with the Esquimaux Dogs and spend much of their time with them on the icy shore.

THE SEA-LIONS.

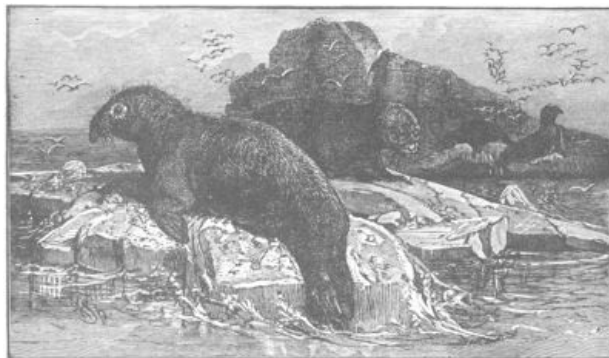


Sea Lions in Battle.

The Seals belonging to this group differ from the others in having prominent external ears. The fingers of the front flippers are nearly stiff and immovable, while those of the hind pair are considerably extended by a web, and supported by small flattened claws.

The Sea-Lion, or Maned Seal, is an animal of gigantic size, measuring from fifteen to twenty feet in length, or even more; it is of a dull tawny color, and the neck of the male is covered with a sort of mane, composed of hair considerably longer and more crisp than that which covers the rest of the body. These formidable creatures are extensively distributed along the coasts of the Pacific ocean, more especially in the vicinity of the Straits of Magellan, and the neighboring islands. After choosing their home, the Sea-Lions will fight fiercely for the rights of possession, and, as illustrated on page [87](#); this is probably one of the most interesting and clumsy battles that can well be imagined.

THE SEA-ELEPHANTS.

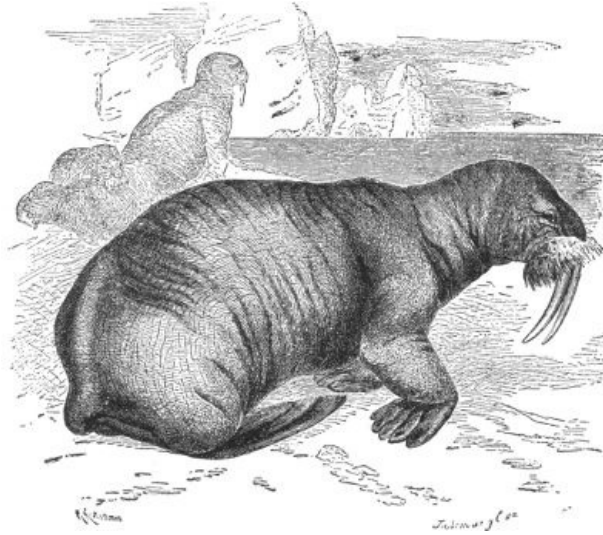


SEA ELEPHANTS.

The appearance of the Seals belonging to this group are very curious. The head is broad and short, with a tuft of bristles over each eye. The upper lip is longer than the lower; the nostrils are wrinkled, and can be blown up into a crest. The whiskers are very long; the fore-feet are rather small and oblong, with five elongated claws.

The Sea-Elephant is very numerous in the southern latitudes of the Pacific, more especially upon the coasts of Terra del Fuego and Chili, as well as upon the shores of New Zealand. The full-grown creature measures eighteen to twenty feet in length, and from the abundance of oil obtained from its carcass, is the subject of important fisheries.

THE WALRUS OR MORSE.



WALRUS.

These enormous animals closely resemble seals, both in the shape of their body and the structure of their limbs, but are distinguished by the shape of their head, and by the enormous tusks which project from their upper jaw. These remarkable weapons sometimes measure two feet in length, and are of proportionate thickness. The great size of the bones of the face required for holding these teeth renders their appearance peculiarly striking, their nostrils being pushed so far upwards that, instead of being situated at the extremity of the snout, they are placed near the top of the head.

Their food seems to consist of sea-weed (which they detach from the soil by means of these tusks, which act like garden rakes), as well as of animal substances. They frequently measure from twenty to twenty-five feet in length, and a full-sized Bull Walrus, weighing three thousand pounds, will yield six hundred pounds of blubber, from which excellent oil is procured. Its hide is used for harness, shoe soles, and the rigging of ships, as well as for the manufacture of glue.

FOR a long time these curious little animals puzzled the Naturalists. Aristotle defined them as Birds with wings of skin. After him, Pliny and other Naturalists fell into the same error of classifying them with the Birds; but after many centuries the different characters that fix the rank of these animals in the scale of created beings are well known, and they are placed where they belong, in the great family of Mammals, and classed as the Cheiroptera, or animals with winged-hands—as the word Cheiroptera comes from two Greek words meaning wing and hand.

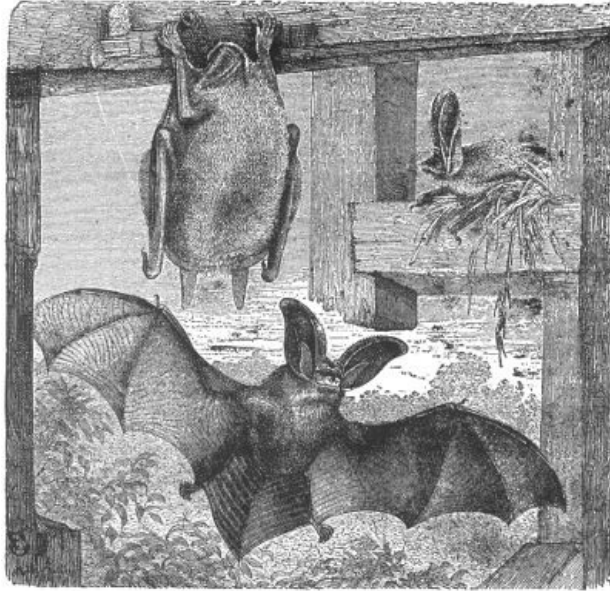
All the fingers of the hand (with the exception of the thumb, which is short, has a nail, and is quite free) are immoderately long, and united by means of a transparent membrane which is without hair. This membrane covers also the arm and forearm, and is simply a prolongation of the skin of the flanks, composed of two very thin layers. It also extends down the hind legs, where it is more or less developed, according to the species; but it never reaches the toes of the feet, which are short and have nails.

It is owing to this membranous sail that Bats direct their course through the air in the same manner as Birds. When they are at rest they fold their wings around them, covering their bodies as if in a mantle, similar to our closing an umbrella to diminish its volume when it is no longer required. This comparison is still more exact when we note that the curiously long fingers of the animal perfectly correspond to the ribs or rods of the umbrella.

Bats do not descend to the ground if it can possibly be helped, for they are very awkward and slow in attempting to walk along the ground; and besides this, when on the ground they find themselves in a very inconvenient position to resume their flight. Their case is then almost the same as that of high-soaring Birds, which, full of grace and assurance aloft, are compelled to resort to the most painful efforts to ascend again from low levels.

The Bats are classed as nocturnal animals, as they hunt their prey at night, and spend the day in caverns, lofts, church spires and old ruins, or the trunks of trees. Their eyes, although small, are organized for seeing, not in complete darkness but in the twilight, or in the feeble light of the moon and stars.

THE LONG-EARED BATS.



LONG EARED BATS.

The Long-eared Bat is one of the most interesting of the whole race. Its ears are twice as long as its head, and very nearly as long as the body, being an inch and a half from the base to the point. Within these large ears are what are known as the lesser ears, which are fine and transparent, and can be expanded and contracted by their owner to produce a beautiful feathery appearance, or festoon-like foldings.

This Bat measures about eighteen inches from tip to tip of its expanded wings.

THE LONG-NOSED BATS.



LONG NOSED BATS.

There are several varieties of these Bats having a long nose and Fox-like face. The best known is commonly called Roussette by the French, because of its being generally of a red or brown color; and Kalony, or Flying Fox, by the English. It is the largest of the Bat family. There are some which attain the size of a Squirrel, and sometimes measure four feet across the wings.

The animals belonging to this family inhabit Africa, Asia and the Oceanic Islands.

THE VAMPIRES.

The Vampires are the most dreaded of the Bat family. They are characterized by two nasal leaves situated above the upper lip. Wonderful tales have been told of their appetite for blood, and although their power of sucking the blood of the larger animals has been exaggerated, the tales concerning them are by no means devoid of foundation, neither are we surprised that such spectral visitants should have received the once terrible name of "vampire," by which they are designated.

Mr. Gardner, during his travels in the interior of Brazil, stopped at Riachao. He says:

"For several nights before we reached this place, the Horses were greatly annoyed by Bats, which are very numerous on this sierra, where they inhabit the caves in the limestone rocks; during the night we remained at Riachao the whole of my troop suffered more from their attacks than they had done before on any previous occasion. All exhibited one or more streams of clotted blood on their shoulders and backs, which had run from the wounds made by these animals, and from which they had sucked their fill of blood.

"When a small sore exists on the back of a Horse, they always prefer making an incision in that place. The owner of the house where we stopped informed me he was not able to rear Cattle here, on account of the destruction made by the Bats among the Calves, so that he was obliged to keep them at a distance, in a lower part of the country; even the Pigs were not able to escape their attacks."

These singular creatures, which are productive of so much annoyance, are peculiar to the continent of America, being distributed over the immense extent of territory between Paraguay and the Isthmus of Darien. Their tongue, which is capable of considerable extension, is furnished at its extremity with papillae, which appear to be so arranged as to form an organ of suction, and their lips have also tubercles symmetrically arranged. These are the organs by which they draw the life-blood both from man and beast. These animals are the famous Vampires of which various travellers have given such wonderful accounts.

Gardner says: "The molar teeth of the true Vampire, or Spectre Bat, are of the most carnivorous character, the first being short and almost plain, the others sharp and cutting, and terminating in two or three points. Their rough tongue has been supposed to be the instrument employed for abrading the skin, so as to enable them more readily to abstract the blood; but Zoologists are now agreed that such supposition is altogether groundless. Having carefully examined in many cases the wounds thus made on Horses, Mules, Pigs and other animals, observations that have been confirmed by information received from the inhabitants of the northern parts of Brazil, I am led to believe that the puncture the Vampire makes in the skin of animals is effected by the sharp hooked nail of its thumb, and that from the wound thus made it abstracts the blood by the suctorial powers of its lips and tongue. That these animals attack men is certain, for I have frequently been shown the scars of their punctures in the toes of many who had suffered from their attacks, but I never met with a recent case. They grow to a large size, and I have killed some that measure two feet between the tips of the wings."

A very similar account of the Vampires is given by Humboldt:

"Our great Dog was bitten, or as the Indians say, stung at the point of the nose by some enormous Bats that hovered round our hammocks. The Dog's wound was very small and round, and though he uttered a plaintive cry when he felt himself bitten, it was not from pain, but because he was frightened at the sight of the Bats, which came out from beneath our hammocks. These accidents are much more rare than is believed even in the country itself. In the course of several years, notwithstanding we slept so often in the open air, in climates where Vampire Bats and other species are so common, we were never wounded. Besides, the puncture is in no way dangerous, and in general causes so little pain that it often does not awaken the person till after the Bat has withdrawn."

INSECTIVORA—INSECT-EATERS.

THE quadrupeds which compose this small but numerous group live principally upon insects, and have their molar teeth studded with sharp points. The habits of the different families are extremely varied. Some for instance, like the Hedgehog, seek their food on the ground, while others like the Tupaia, hunt for it on trees. The Moles, on the other hand, find their subsistence deep in the soil, and live entirely under the ground; while the Desmans, and some species of the Shrew Mice live in or near the water.

The Insect-eaters are usually divided into three families—the various kinds of Moles, which are too well known to require special description; the Shrew Mice and their numerous small relatives, including the Water, the Oared and the Elephant Shrew, the Desmans, etc.; and the Hedgehogs—including the Long-eared and the Common Hedgehog, the Tupaia, and other members of this curious prickly family.

THE SHREWS.

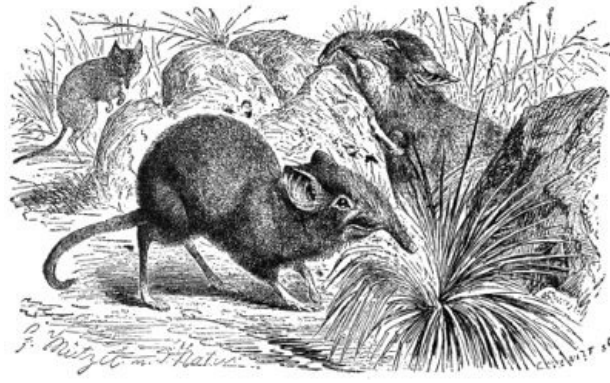
The Common Shrew is a pretty little creature, remarkable for its square tail, which is about two-thirds as long as the body. It lives in meadows, and has been falsely accused by the ignorant of causing by its bite a disease in Horses, and even of witchcraft. The truth seems to be that the Shrew has a strong and peculiar odor, which is very repugnant to Cats; they drive away and kill the Shrew Mouse, but never eat it. It is apparently this circumstance that has been the origin of the prejudice against the supposed venomous bite of this animal, and of the danger of its attacking Cattle, as well as Horses. It is, however, neither venomous nor capable of biting, for it cannot open its mouth sufficiently wide to seize the double thickness of an animal's skin, which is especially necessary in biting; and the Horse malady attributed by the ignorant to the bite of the Shrew Mouse is a swelling which proceeds from an internal cause, and has nothing to do with the bite, or rather puncture, of this little creature. Its usual abodes, especially in winter, are hay-lofts, stables and barns attached to farm yards; it lives upon insects and decayed animal substances.

THE WATER-SHREWS.

These little animals are slightly larger than the real Shrews, which they very much resemble, and from which they are further distinguishable by the facility with which they swim and dive, owing to the fringed condition of their feet.

The Water-shrew frequents fresh, clear streams and ponds, constructing in their banks long winding burrows, terminating in a chamber lined with moss and grass. "When born they are," Mr. Austen tells us, "curious pinky-white little creatures, but very unlike their parents." A small colony of these Shrews frequently inhabit the same spot, and towards the cool of the evening may be observed searching for food, and sporting with each other in the water; now hiding behind stones or large leaves, as if to elude their companions, and then darting out to engage in a general skirmishing chase, diving and swimming with the greatest activity, and occasionally taking a plunge into their holes. By constantly traversing the same ground, in going and returning from their burrows, they gradually tread down a path among the grass and herbage, by which their presence may readily be discovered by an experienced eye. When under water, their fur is covered with multitudes of tiny air-bubbles that shine like silver and have a beautiful effect when seen against the dark surface of the body.

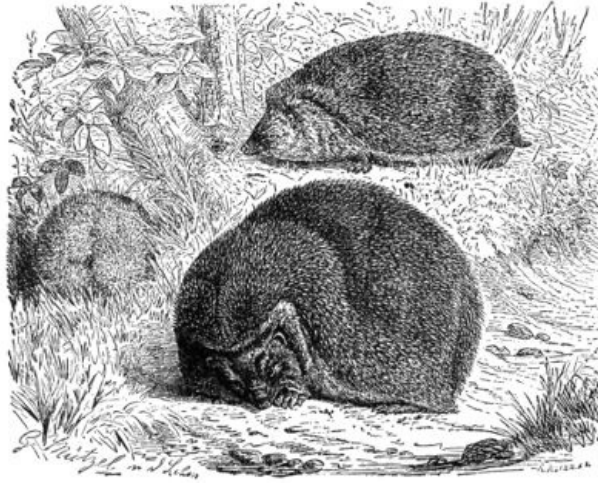
THE ELEPHANT SHREW.



THE ELEPHANT SHREW.

This little creature has received its name from its long nose which somewhat resembles the trunk of the Elephant on a small scale. This species is found in South America, where they may be seen in search of prey among the bushes, retiring quickly to their burrows when they find themselves observed. They are leaping animals, and love to sit erect, basking in the full heat of the sun.

THE HEDGEHOGS.



HEDGEHOGS.

The Hedgehogs owe their name to the singular texture of their hair, which consists of real spines, capable of being thrown erect at the will of the animal. They frequent the woods and hedgerows, living in a burrow excavated in some bank, wherein it passes the winter in a lethargic condition. It lives principally upon insects, but does not refuse fruits and other vegetable substances. Hedgehogs do not stir out during the day, but they run or walk about the whole night long. They rarely approach dwellings, and prefer elevated and dry places, although they are sometimes found in meadows. If laid hold of, they do not try to escape or defend themselves, either with their mouth or feet, but they roll themselves up into a ball as soon as touched.

As they sleep during winter, the provisions which they are said by some to accumulate during the summer would be useless to them. They do not eat much, and pass a considerable time without food.

Their flesh is sometimes eaten by the gipsy race, who envelope the carcass in soft clay, and then roast it among the heaped fuel of their camp-fire.

THIS order is usually known as the Edentata, which means animals which are toothless; and yet this does not infer that all the animals included in this group are completely devoid of teeth, although this really is the case with several species—but in the majority of these animals only the incisors are missing, so that there is an empty space in the front of their jaws.

All the animals of this group have their limbs terminated by very strong claws, which are used for climbing or scratching. Some of these animals instead of being clothed with hair, are covered with scales—a peculiarity which adds to the strangeness of their appearance; they are all rather clumsy in form, slow in their motions and possessed of very little intelligence.

Their habits and manner of feeding differ much in the various families—some living on vegetables, others on animal substances; some burrowing in holes, others living on trees. All are natives of the warm regions, both of the Old and New World; and the larger number of them are found in South America. They never attain great size, the largest species measuring about three feet in length, not including the tail.

The Edentata, or Toothless Quadrupeds, include five families—the Sloths, Armadillos, Ant-eaters, Aard-vark and Pangolins.

THE SLOTH FAMILY.



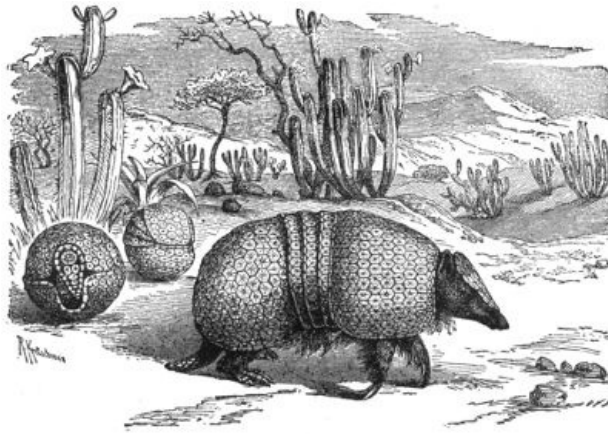
SLOTHS.

The Sloths are a strange kind of animal, which, from their more prominent characteristics and climbing habits, were for a long time classed among the Monkeys. When they are examined on the ground they appear deformed and incapable of active motion, for they can only move with extreme slowness. This peculiarity is the origin of their name. In fact, their fore-legs are so much longer than the hind ones, that in walking they are obliged to drag themselves along on their knees.

But if we follow its motions on a tree, in the midst of those conditions of existence which are natural to it, the Sloth leaves on our mind a very different impression. We then recognize that there is in them no want of harmony, and that they, like every other creature, possess the means of protecting themselves from the attacks of their enemies. They embrace the branches with their strong arms, and bury in the bark the enormous claws which terminate their four limbs.

As the last joint of their toes is movable, they can bend them to a certain extent, and thus convert their claws into powerful hooks, which enable them to hang on trees. Hidden in the densest foliage, they browse at their ease on all that surrounds them; or, firmly fixed by three of their legs, they use the fourth to gather the fruit and convey it to their mouths. Their coat is harsh, abundant and long; and they have neither tail nor any visible external ear. They are natives of the forests of South America; the two best known being the Unau and the Ai, which are found in Guiana, Brazil, Peru and Columbia.

THE ARMADILLOS.



ARMADILLOS.

This family is remarkable for the very peculiar nature of their coat, which, at first sight, might lead to their being taken for Reptiles. Instead of being clad in hair, like other Mammals, they have the upper part of the head, the top and sides of the body and the tail protected by a scaly covering, very hard in its nature. This covering is composed of a number of bony plates, arranged in parallel rows and of various shapes; it is not separate from the skin, but forms a very curious modification of it. On the head, and fore-part of the body, these plates are firmly fixed to one another; but on the middle of the back they are possessed of a certain amount of mobility, so as to move one over the other. In this way, the animal has the power of executing various bending and stretching movements, for instance, of rolling itself up into a ball whenever it is attacked.

When pursued it makes hastily for its burrow, but if unable to gain it, or to dig a temporary retreat, it partially rolls itself into a ball, and allows itself to be turned about by its enemy without attempting to move. The Armadillo, we are told, in Nicaragua is kept not only by the people of the ranches, but by the inhabitants of some of the little towns, to free their houses from ants, which it can follow by scent. When searching for ants about a house, the animal puts out its tongue and licks the ants into its mouth from around the posts on which the houses are raised a little above the ground. It has been known to dig down under the floors, and remain absent for three or four weeks at a time. They are said to dig down in a straight direction when they discover a subterranean colony of ants, without beginning at the mouth or entrance of the ant-hole. They are very persevering when in pursuit of ants; and while they turn up light soil with the snout, keep the tongue busy taking the insects. The burrows of this Armadillo are several feet long, winding and generally dug at an angle of 45 degrees. The South American negroes, however, dig them up from their holes, whither they have been driven by Dogs. Their flesh is considered very delicate, and is roasted in the shell.

THE ANT-EATERS.



ANT-EATER OR ANT BEAR.

The Ant-eaters feed upon a variety of insects. They are specially organized for procuring this food. Completely destitute of teeth, the head is terminated by an elongated tube, which encloses a very long tongue, something like a worm. This slender tongue, being darted into the ant-hills, all the interstices where the insects take refuge yield numerous victims, which adhere to it through the gummy secretion with which it is covered. The Ant-eaters are armed with sharp claws, useful both as instruments for scratching and weapons of defence.

The most remarkable species is the Great Ant-eater, the largest of the family. It grows to more than a yard and a half in length, from the tip of its long nose to its tail. Its coat is rough, abundant and of a dark color. The tail, covered with very long and extremely bushy hair, has the power of being raised like a plume, and is more than a yard in length. The strength of this animal is so great that it can defend itself successfully against the ferocious Jaguar, which it either hugs, like a Bear, or tears to pieces with its formidable claws.

It lives in damp forests in which its insect food is most abundant.

There are two other species of the Ant-eater, which live more or less on trees and enjoy, on this account, one of the characteristics which are peculiar to American Monkeys—that of grasping branches firmly with the tail, a portion of which is bare of hair underneath, and capable of being twisted round any object. These species are the Tamandua, an Ant-eater about three feet long, which divides its time between the ground and the thick foliage of trees; and the Little, or Two-toed Ant-eater, so called because it has only two toes, instead of four, on the front feet. This latter species is a native of Brazil and Guiana. It but seldom descends to the ground, and is not much larger than a Rat.

THE PANGOLINS.

The Pangolins are also Ant-eaters, but the peculiar nature of the covering of their bodies will not allow them to be classed with the preceding family. The hair of their coat is glued together so as to form large scales, inserted in the skin in nearly the same way as the nails of a Man, and lapping one over the other, like the slates of a roof. From their strong resemblance to Reptiles, the name Scaly Lizard has been applied to these creatures.

The Pangolin (from the Javanese word Pangoeling, meaning to roll into a ball) have short legs, furnished with stout claws; they are devoid of any external ear and have no trace of teeth. Their method of feeding is exactly the same as that of the Ant-eaters; but their head, although elongated in shape, is not quite so long, and their tongue is less slender.

They dwell in forests, where they dig burrows, or lodge in the hollow of trees. When they are attacked, they roll themselves into a ball, like the Armadillo; at the same time their scales are erected, forming an impregnable buckler. This family possesses several species.

The Pangolins are of medium size; they never exceed a yard in length. They are natives of the Old World exclusively; India and the Malay Isles, the south of China, and a great part of Africa, are the regions in which they are usually found.

Although the animals look at first sight like curious, heavy-bodied Lizards, they have warm blood, and nourish their young like the rest of the Mammalia. The Pangolin lives in burrows in the earth, or sometimes in the large hollows of colossal trees which have fallen to the ground. The burrows are usually made in light soil on the slope of a hill. There are two holes to each gallery: One for entrance, and another for exit. This is quite necessary on account of the animal being quite incapable of curving its body sideways, so that it cannot turn itself in its burrow.

The bodies of Pangolins are very flexible vertically—that is, they can roll themselves up into a ball, and coil and uncoil themselves very readily—but they cannot turn round within the confined limits of their burrows.

“In hunting them,” says M. Du Chaillu, “we had first to ascertain by the foot-marks, or more readily by the marks left by the trail of the tail, which was the entrance and which the exit of the burrow, and then making a trap at one end, drive them out by the smoke of a fire at the other, afterwards securing them with ropes.

“Their flesh is good eating. Those I captured were very lean, but I was informed by the natives that they are sometimes very fat.”

THE order of animals to which the well known and widely distributed Rats and Mice belong, is a very large one, including animals that are adapted, according to the genus, either for running, jumping, climbing, flying or swimming. They are armed with sharp claws, enabling them to climb trees or burrow in the earth. But the special characteristic of all the animals of this group, is that they possess only two kinds of teeth—incisors and molars. The incisors, two in number, in front of each jaw, are very remarkable. Their office is to cut, as with shears, roots and branches, and they are wonderfully constructed for this purpose. These teeth are long, stout and curved, and being covered with enamel on their front face only, they wear away more behind than in front; and by rubbing one against the other naturally form a bevelled edge. They therefore keep a hard edge that is always sharp-cutting, ready for sawing through or gnawing tough substances.

Another strange thing about these teeth is that they always keep the same length, notwithstanding their continual wear. The fact is, they have no roots, and grow from the base in the same proportion as they are worn away at the top.

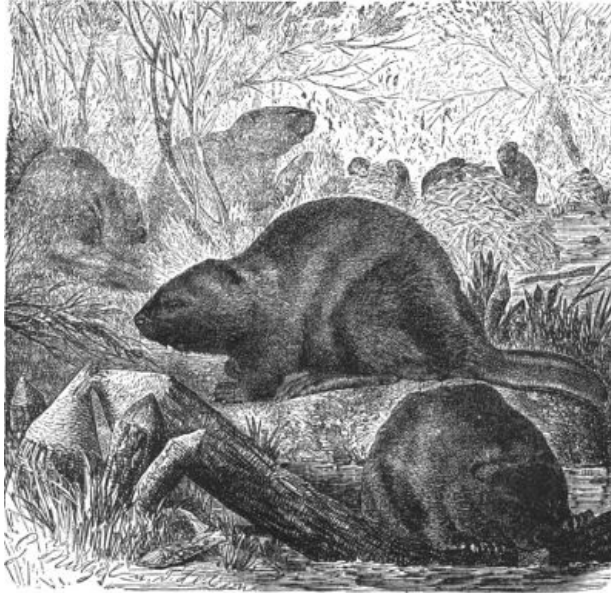
Many of the Gnawing Quadrupeds have their hind limbs much larger than the front ones, so that they leap rather than walk, giving them the appearance of the Kangaroo and others belonging to the Marsupial family. The animals of the Rodent order feed mainly on seeds, fruit, leaves, grasses and occasionally on roots and bark. Some of them, however, such as the Rat, are omnivorous, and will even eat flesh.

A great number of the Rodents have their bodies covered with fine, soft and prettily-colored hair. For instance, the small Grey Squirrel and the Chinchilla both furnish furs of value; and the coats of the Beaver and the Rabbit are used in some of our manufactures.

The Rodents are not usually divided into very distinct families, as their natural characteristics are not clearly marked. In the family of Rats and Mice a large number may be grouped. These form the Mus species, from the Latin, Mus, meaning Mouse or Rat. The most of the members of this family are too well known to require more than mere mention. This family includes besides what are known as the Rats and Mice proper, the Field Rats and Mice, the Dormice, Ondatras, Musquash or Musk Rats, Lemmings, Hamster Rats and Jerboa Rats.

Grouped with the Chinchillas we find the Lagotis, the Viscacha, and the Ctenomys. Then come the Porcupine family, the family of Ground Hogs, Guinea Pigs and the Agoutis. The Beavers and the extensive Squirrel family are then followed by the Marmots and Woodchucks, the Prairie Dogs, and the large family of Hares and Rabbits.

THE BEAVERS.



BEAVERS.

These animals, which are celebrated all over the world for their industrious habits and their intelligence, do not possess a very pleasing appearance. The thick-set shape of the large head, small eyes, cloven upper lip which shows its powerful incisors, the long and wide tail, flattened like a spatula and covered with scales—combine to give the animal an awkward appearance. The hind feet are larger than the fore, and are fully webbed. 100

The Common Beaver is an aquatic animal; the structure of its feet and tail enables it to swim with perfect facility. As these animals live principally upon the bark of trees and other hard substances, their front teeth are excessively strong, and by their assistance they are enabled to cut down trees of considerable size, to be used in the construction of the curious edifices for the erection of which they have been long celebrated. Their mode of building, as adopted by the Beaver of America, is described by Hearne with great exactness.

“The situation chosen is various where the Beavers are numerous. They tenant lakes, rivers and creeks, especially the two latter for the sake of the current, of which they avail themselves in the transportation of materials. They also choose such parts as have a depth of water beyond the freezing power to congeal at the bottom. In small rivers or creeks in which the water is liable to be drained off when the back supplies are dried up by the frost, they are led by instinct to make a dam quite across the river, at a convenient distance from their houses, thus artificially procuring a deep body of water in which to build. 101

“The dam varies in shape; where the current is gentle it is carried out straight, but where rapid it is bowed, presenting a convexity to the current. The materials used are drift wood, green willows, birch and poplar, if they can be secured, and also mud and stones. These are intermixed without order, the only aim being to carry out the work with a regular sweep, and to make the whole of equal strength.

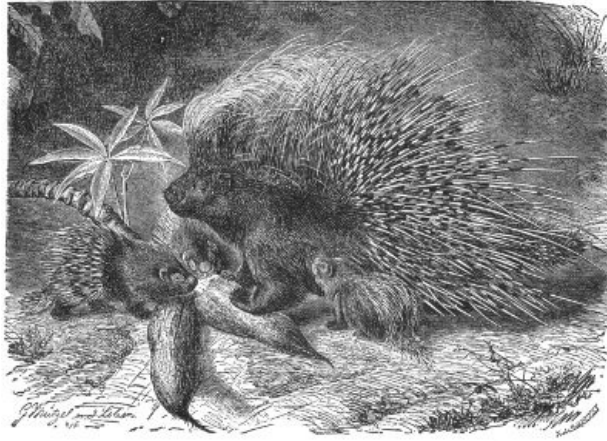
“Old dams by frequent repairing become a solid bank, capable of resisting a great force of water and ice; and as the willows, poplars and birches take root and shoot up, they form by degrees a sort of thick hedgerow, often of considerable height. Of the same materials the houses themselves are built, and in size proportionate to the number of their respective inhabitants, which seldom exceeds four old and six or eight young ones. The houses, however, are ruder in structure than the dam, the only aim being to have a dry place to lie upon, and perhaps feed in.

“When the houses are large it often happens that they are divided by partitions into two or three, or even more compartments, which have in general no communication except by water; such may be called double or treble houses rather than houses divided. Each compartment is inhabited by its own possessors, who know their own door, and have no connection with their neighbors, more than a friendly intercourse and joining with them in the necessary labor of building.

“So far are the Beavers from driving stakes, as some have said, into the ground when building, that they lay most of the wood crosswise, and nearly horizontal, without any order than that of leaving a cavity in the middle, and when any unnecessary branches project they cut them off with their chisel-like teeth and throw them in among the rest to prevent the mud from falling in; with this is mixed mud and stones, and the whole compacted together. The bank affords them the mud, or the bottom of the creek, and they carry it, as well as the stones, under their throat, by the aid of their fore-paws; the wood they drag along with their teeth.

“They always work during the night, and have been known during a single night to have accumulated as much mud as amounted to some thousands of their little handfuls. Every fall they cover the outsides of their houses with fresh mud, and as late in the autumn as possible, even when the frost has set in, as by this means it soon becomes frozen as hard as a stone, and prevents their most formidable enemy, the Wolverine, or Glutton, from disturbing them during the winter. In laying on this coat of mud, they do not make use of their broad flat tails, as has been asserted—a

mistake which has arisen from their habit of giving a flap with the tail when plunging from the outside of the house into the water, and when they are startled, as well as at other times. The houses, when completed, are dome-shaped, with walls several feet thick."



PORCUPINES.

The Porcupines are singular animals, endowed with a very peculiar faculty, that of causing their body, which is covered with quills, to bristle up, and thus forming for themselves a formidable armor. The small family of Porcupines is divided into four genera—Porcupines proper, the Brush-Tailed Porcupine, the Canadian Porcupine and the Prehensile Porcupines.

COMMON PORCUPINES.

The species often called the Crested Porcupine, inhabits Italy, Greece, Spain, Northern Africa, and different parts of Asia. We shall describe it, which will serve to characterize the whole genus.

This Porcupine is one of the largest Rodents; its average length exceeds twenty-four inches. The principal features are very powerful upper incisors, short thick toes, furnished with strong claws, a large head, small eyes, short ears, a slightly split mouth, and thick-set shape, combined with an awkward and clumsy gait.

The body of this animal is covered with pointed quills from eight to nine inches long. By means of the action of an enormous muscle, which moves at the will of the animal, these can bristle up and radiate in all directions. The tail is rudimentary, and is not, like the back, covered with quills, but with entirely hollow, white tubes, which produce a sharp sound when they clash together. The muzzle is furnished with long and strong whiskers; the head and neck are covered with flexible hair, which is not prickly, but is susceptible of standing on end.

Under ordinary circumstances, the quills of the Porcupine lie close down on its body, and no one would suppose that at a moment's warning they could become formidable weapons. But let anger or fear seize upon the animal, and a whole forest of bayonets spring up. If assailed, the Porcupine turns its back to the enemy, and places its head between its fore-paws, at the same time uttering a hollow grunting noise. If the assailant will not be intimidated, the Porcupine endeavors to thrust its quills against the body of the foe. The wounds thus inflicted are much to be dreaded; for not only are they difficult and tedious to cure, but frequently the detached barbs adhering in the flesh are almost impossible to extract.

The Porcupine is a shy, solitary and nocturnal animal. It inhabits unfrequented localities, and hollows out deep burrows with several entrances. At night it comes forth to procure its food, which consists of herbs and fruit.

The flesh of the Porcupine is good food, with somewhat the flavor of pork. It is, doubtless this similarity, and also the grunting noise which it makes, to which it owes its name of Porcupine, as they were originally called *Porcus Spinatus*, or "Prickly Pigs."

THE BRUSH-TAILED PORCUPINE.

The Sunda Islands possess a species of Porcupine which is distinguished from the preceding by a long tail. This is the Malacca Porcupine, or Brush-tailed Porcupine. It is smaller than the common species, and is found in Sumatra, Java and Malacca.

THE CANADIAN PORCUPINE.

America also possesses some species of Porcupines. The most remarkable is the Urson, or Canadian Porcupine, which is found north of the 46th degree of latitude. It is as large as the European species, and it inhabits pine forests, feeding principally on the bark of trees, and its den is hollowed out underneath their roots. When attacked, it draws its legs beneath its body, sets up its quills, and lashes around with its tail.

The Indians hunt it for the sake of its flesh, which is good, and also for its skin, from which they make caps, after having plucked out the quills, which are used by them for pins.

PREHENSILE-TAILED PORCUPINES.

Prehensile Porcupines are characterised by a partly bare, prehensile tail, and hooked and sharply-pointed claws, which enable them to climb trees. Their quills are not long, and are frequently hidden under their hair. They have a depressed forehead, and not a prominent one, like that of common Porcupines. They are principally met with in South America.

THE SQUIRREL FAMILY.

The Squirrels are pretty little animals, distinguished by their graceful forms and bushy tails. The Common Squirrel lives in tree-tops and feeds upon fruit and nuts. During the fine summer nights the voices of the Squirrels may be heard, as they chase each other in the tops of the trees. They appear to dislike the heat of the sun, and remain during the day in their nests, coming out in the evening to play and to feed. The nest is warm, neat and impervious to rain; it is generally placed in the fork of a tree. They construct it by interlacing twigs with moss, pressing and treading on their work to make it firm and capacious, that their little ones may repose in safety. The only opening to this nest is at the top, just sufficiently wide to allow the Squirrel to pass in and out; above the aperture is a kind of conical roof, which completely shelters it, and allows no rain to enter the nest.

At the commencement of winter the coat of the Squirrel is renewed, the hair being redder than that which falls off. They comb and smooth themselves with their paws and teeth, and are very neat.

GREY SQUIRRELS.

"The Grey Squirrels of North America," says Audubon, "migrate in prodigious numbers, crossing large rivers by swimming with their tails extended on the water, and traverse immense tracts of country where food is most abundant. During these migrations they are destroyed in vast numbers. Their flesh is very white and delicate, and affords excellent eating when the animal is young."

THE FLYING SQUIRRELS.

The Flying Squirrels are so called from having the skin of the sides spread out between the fore and hind legs, so as to constitute a sort of parachute, whereby there are enabled to sail through the air to some distance, and thus take prodigious leaps from tree to tree.

The Flying Squirrels are gregarious, traveling from one tree to another in companies of ten or twelve together. They will fly from sixty to eighty yards from one tree to another. They cannot rise in their flight, nor keep in a horizontal line, but descend gradually, so that in proportion to the distance the tree they intend to fly to is from them, so much the higher they mount on the tree they fly from; that they may reach some part of the tree, even the lowest part, rather than fall to the ground, which exposes them to peril. But having once recovered the trunk of a tree, no animal seems nimble enough to take them. Their food is that of other Squirrels, including nuts, acorns, pine-seeds, berries, &c.



PRAIRIE DOGS.

Between the lively, graceful, well-proportioned Squirrels and the Marmots, with their squat bodies and sluggish movements, there is a great difference. Yet, notwithstanding this, the Marmots are allied to the Squirrel.

The Marmots are characterised by very long, powerful incisors, strong claws, indicating burrowing habits, and by a tail of medium length, somewhat thickly garnished with hair. They have short limbs, and from that results the slowness of movement peculiar to them.

The Marmots inhabit different chains of mountains in Europe, Asia and North America. They have nearly all the same habits; so that it will suffice if we speak of the common species, the only one, in fact, which has been well studied.

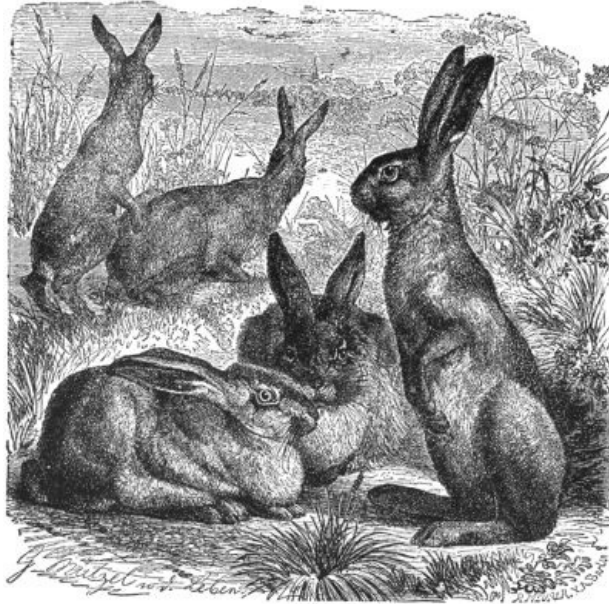
The Common Marmot lives on the high peaks of the Swiss and Savoy Alps, in the vicinity of the glaciers. It forms small societies, composed of two or three families, and digs out burrows on the slopes exposed to the sun. These burrows have the form of the letter Y; the galleries are so very narrow that it is with difficulty the human hand can be inserted into them. At the extremity of one of these oblique shafts is found a spacious chamber of an oval form, in which the proprietors rest and sleep.

The Marmots in a state of nature live exclusively on herbage. They crop off the shortest grass with wonderful rapidity. During fine weather they love to stretch themselves out, frisk, play or bask in the rays of the sun. Remarkable for caution, they never leave their retreats without taking the greatest precaution; the old venturing first, after carefully inspecting the neighborhood, then the others following. Feeding, playing, or basking, they lose nothing of their vigilance, for as soon as one has the slightest suspicion of danger, it utters a sharp bark of warning, which is quickly repeated by those near it, and in an instant the whole band rush into their burrow, or fly towards some place of concealment.

After the Alpine Marmot, we may mention the Quebec Marmot, the Maryland Marmot, or Woodchuck, which is peculiar to various parts of North America, and the Bobac or Poland Marmot.

The Prairie Dog is an allied species, which lives in extensive communities in the wild prairies of North America; their villages, as the hunters term their burrows, extending sometimes many miles in length. They owe their name to the supposed resemblance of their warning cry to the bark of small Dog.

HARES AND RABBITS.



RABBITS.

The animals composing this family have twenty-two molar teeth, formed of vertical layers joined to each other; the ears are very large and funnel-shaped, covered with hair externally, almost nude internally; the upper lip cleft; the tail is short, furry and ordinarily elevated; the hind feet are much longer than those in front, and are provided with five toes, while the fore feet have only four; the claws are but little developed; the feet are entirely covered with hair, above as well as below.

It would be superfluous to describe the Hare in detail; the animal is too well known to render it necessary. As, however, it might be confounded with the Rabbit, which it much resembles, it may be remarked that the Hare has the ears and the thighs longer, the body more slender, the head finer, and the coat of a deeper fawn color.

The Hare inhabits hilly or level regions, forest or field; but it is most frequently found in flat or slightly elevated districts. It does not burrow, but chooses a form or seat, the situation of which varies with the season. In summer it is on the hillocks exposed to the north, in the shade of heaths or vines; in winter, it is found in sheltered places facing the south. It is often found crouched in a furrow between two ridges of earth, which have the same color as its coat, so that it does not attract attention.

During the daytime, the Hare does not generally stir from its retreat; but as soon as the sun approaches the horizon it goes forth to seek food—consisting of herbs, roots and leaves. It is very fond of aromatic plants, such as thyme, sage and parsley. It is also partial to the bark of some varieties of trees.

No animal has so many enemies as the Hare. Snares and traps are set for it by poachers. Foxes, Birds of Prey, and sportsmen, aided by Dogs, are all its persecutors.

To guard itself against so many perils, the poor creature has ears endowed with extraordinary mobility, and which catch the faintest sounds from a great distance; four agile and very muscular limbs, which rapidly traverse space, and transport their owner quickly from its pursuers. In a word, its defence consists in perceiving danger and fleeing from it.

The Rabbit is closely allied to the Hare in its form and external aspect, the two differ greatly in habits. The Rabbit lives in societies, and retires into burrows. It is not found on the open plain, but chooses for its home places where there are hillocks and woody banks. Like the Hare, the Rabbit has not a preference for day; but towards evening it comes forth and gambols about in the glades or nibbles the dewy herbage.

It has also, like the Hare, many enemies, and to escape them it takes refuge in its subterranean dwelling. As it has not the speed of the Hare, it would be rapidly overtaken by Dogs if it trusted to its powers of flight. Its fear or anger is expressed in a singular fashion, namely, by striking the ground with its hind foot; some say it does this to warn its fellows of danger.

Besides our well known Wild Rabbits, many fine species have been imported from different countries and trained as pets.

The Wild Rabbit, also called the Warren Rabbit, is said to be a native of Africa, from whence it passed into Spain, then into France and Italy, and successively into all the warm and temperate parts of Europe and America.

Among the different breeds of domestic Rabbits must be mentioned the Angora Rabbit, originally derived from Asia Minor. Like the Cats and Goats bearing the same name, it is celebrated for the length and fineness of its hair. It is bred for its fur, which is of value.

Not only is the flesh and the hair of the Rabbit utilized, but its skin is also employed in the manufacture of gelatine.

The domestic Rabbit is, therefore, a valuable animal. Not so the wild Rabbit, for, by its rapid

multiplication, its burrowing habits, and its herbivorous tastes, it is to the agriculturist a veritable scourge. For this reason it is hunted with perseverance, ferrets being frequently employed in some countries to drive it from the depths of its warren.

THE PICAS AND THE CALLING HARES.

These Rodents differ from the Hares and Rabbits in having ears of moderate length, and in the nearly equal development of all their limbs. They are principally inhabitants of Siberia and the north of Europe; their voice is sharp and piercing, and they are destitute of any tail; they are all of small size, none of them exceeding the dimensions of a large Rat.

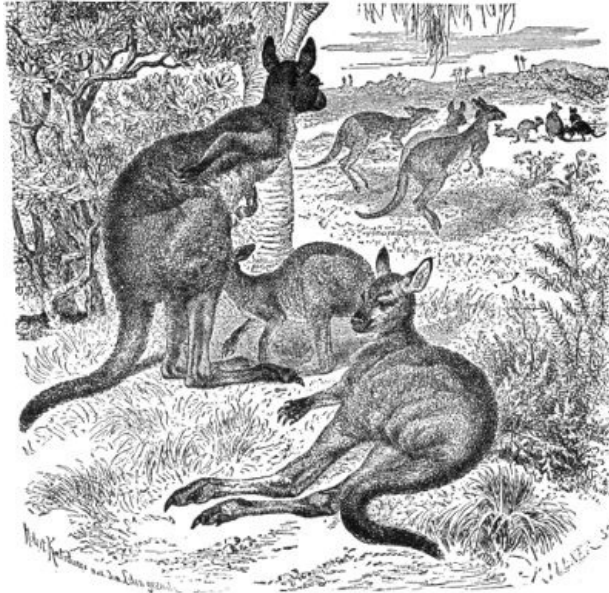
The Pica is about the size of a Guinea Pig, and covered with yellowish-red hair. It inhabits the loftiest summits of mountains, and employs itself, during the summer, in collecting and drying a supply of herbage for winter use. The heaps of hay thus accumulated are of extraordinary dimensions, sometimes measuring as much as six or seven feet in height, and are invaluable to the hunters of Sables, affording fodder for their Horses at a period when no other provender is obtainable.

The Calling Hare inhabits the southeastern parts of Russia, and the slopes of the Ural mountains, and also the western side of the Atlantic chain. The head is long; the ears large, short, and rounded; there is no tail. There are twenty molar teeth, five on either side of each jaw. The body is only six inches in length. The fur is of a greenish-brown color, hoary underneath.

A CURIOUS pouch, or fur bag, in which they carry their babies while they are still too young to run about by themselves is the distinguishing feature of the members of this group of animals. The name of the order, Marsupialia, comes from the Latin, marsupium, meaning a pouch or bag.

When these babies are born they are the most helpless of all young animals, as they are not fully developed, and the mother places them in this pouch where they remain, like Birds in a nest, until they are strong enough to run about by themselves; and for a long time after that, they make use of this pouch, by hiding in it in times of danger or when the mother is escaping from an enemy; and the little ones could not keep up with her unless carried in this pouch.

There are several different animals that belong to this family of Pouched Quadrupeds, like the Wombats, Bandicoots, Phalangers, Dasyures, etc., but the most important are the Kangaroos and the Opossums.



GIANT KANGAROOS.

The Kangaroos vary in size, some being, when erect, as tall as a Man, while others are not so large as a Rabbit. They are remarkable for the small size of their fore-legs in proportion to their hind ones, and the slender make of the fore parts of their body. When eating, their fore-feet are placed on the ground, but they usually sit upright, resting entirely on the hind-feet and tail, with the body slightly bent forwards.

There are a few species, however, in which the body is in better proportion. In the Tree Kangaroos of New Guinea, for instance, the tail is very bushy, and the fore-legs almost as long as the hind ones.

The Great Kangaroo inhabits New South Wales, and Southern and Western Australia. It lives on low grassy hills and plains in the open parts of the country, feeding upon the low bushes and herbage, and sheltering itself in the high grass during the heat of the day.

The Jerboa Kangaroo is so called on account of the length and slenderness of its hind-legs similar to those of the Jerboa Rats.

"Like other members of this family, the Jerboa," says Mr. Gould, "constructs a thick grassy nest, which is placed in a hollow, scratched in the ground for its reception, so that when completed it is only level with the surrounding grass, which it so closely resembles that, without a careful survey, it may be passed unnoticed.

"The site chosen for the nest is the foot of a bush, or any large tuft of grass. During the day it is generally tenanted by one, and sometimes by a pair of these little creatures, which, lying coiled in the centre, are perfectly concealed from view. There being no apparent outlet, it would seem that after they have crept in, they drag the grass completely over the entrance, when the whole is so like the surrounding herbage that it is scarcely perceptible. The natives, however, rarely pass without detecting it, and almost invariably kill the sleeping inmates, by dashing their tomahawks or heavy clubs at the nest.

112

"The most curious circumstance connected with the history of the Jerboa Kangaroo is the mode in which it collects the grasses for its nest, carrying them with its tail, which is strongly prehensile; and, as may be easily imagined, their appearance when leaping towards their nests, with their tails loaded with grasses, is exceedingly grotesque and amusing.

"The usual resorts of the Jerboa Kangaroo are low grassy hills and dry ridges, thickly intersected with trees and bushes. It is a nocturnal animal, lying curled up in the shape of a ball during the day, and going forth as night approaches in search of food, which consists of grasses and roots; the latter being procured by scratching and burrowing, for which its fore-claws are admirably adapted. When startled from its nest, it bounds with amazing rapidity, and always seeks the shelter of a hollow tree, a small hole in a rock, or some similar place of refuge."

113

THE OPOSSUMS.

The Opossums were the first Marsupial Quadrupeds known to Naturalists. They are peculiar to the American continent. They have fifty teeth. Their tongue is rough, and their tail, which is partially denuded of hair, prehensile.

The Virginian Opossum is found in Southern States. It destroys poultry of which it sucks the blood, but does not eat the flesh. It feeds on roots and fruits, climbing the trees, and suspending itself by the tail from the branches; in this position it swings itself to and fro, and by catching hold of the neighboring branches, passes from tree to tree. It hunts after Birds and their nests, and when pursued, feigns to be dead, and will endure great torture without showing any sign of vitality.

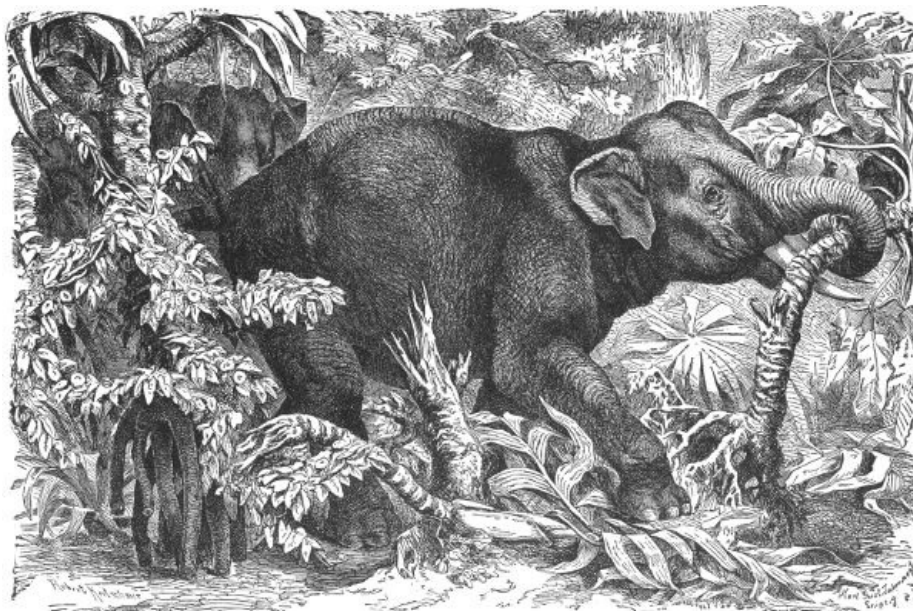
The Opossum excavates a burrow near a thicket not far distant from the abode of Man, and sleeps there during the whole day. While the sun shines it does not see clearly, and therefore feeds and plays during the night. Although its mode of life resembles that of the Fox and the Polecat, it is much less cruel, and has also inferior means of defence. It runs badly, and although its jaws are large, they are not strong.

"The Opossum," says Audubon, "is fond of secluding itself during the day, although it by no means confines its predatory rangings to the night. Like many other quadrupeds which feed principally upon flesh, it is both frugivorous and herbivorous, and when very hard pressed by hunger, it seizes various kinds of insects and reptiles. Its gait when traveling, and when it supposes itself unobserved, is altogether ambling—in other words, it, like a young foal, moves the two legs of one side forward at once. Its movements are rather slow, and as it walks or ambles along, its curious prehensile tail is carried just above the ground, and its rounded ears are directed forwards."

There are several species of Opossum found in South America, but none in the Antilles or the West Indies.

Their method of hunting their prey is interesting. An Opossum is seen slowly and cautiously trudging along over the melting snow, by the side of an unfrequented pond, nosing as it goes for the fare its ravenous appetite prefers. Now it has come upon the fresh track of a Grouse or Hare, and it raises its snout and snuffs the keen air. It stops and seems at a loss in what direction to go, for the object of its pursuit has taken a considerable leap or has cut backwards, before the Opossum entered its track. It raises itself up, stands for a while on its hind-feet, looks around, sniffs the air, and then proceeds. But now at the foot of a noble tree, it comes to a full stand. It walks round the base of the large trunk, over the snow-covered roots, and among them finds an aperture, which it at once enters. Several minutes elapse, when it re-appears, dragging along a Squirrel, already deprived of life; with this in its mouth it begins to ascend the tree. Slowly it climbs; the first fork does not seem to suit it, for perhaps it thinks that it might be there too openly exposed to the view of some wily foe, and so it proceeds, until it gains a cluster of branches intertwined with grape-vines; and there composing itself, it twists its tail round one of the twigs, and with its sharp teeth demolishes the unlucky Squirrel, which it holds all the while in its fore-paws.

ALL the animals of this great order are classified under the name Pachydermata, which is derived from two Greek words meaning thick-skinned. In nearly all of them the toes are rendered motionless by a horny covering which surrounds them, called a hoof, which blunts them to the sense of touch; and the form of this hoof helps to divide the order into families. There are three divisions in the Pachydermata—the Elephant family, known as the Proboscidae (from the Latin word proboscis, meaning a trunk); the family of ordinary Pachydermata, including the Hippopotamus, Rhinoceros, Hyrax, Tapir, Wild Boar, Phacochores and Peccari; and the family of Solipedes, the name of which is derived from the Latin words solus, alone, and pes, pedis, a foot, and includes the animals with undivided hoofs, like the Horse, the Donkey, Hemionus, Daw, Zebra and Quagga.



ELEPHANT.

The Elephants are the largest animals that live on the earth, as the Whales are the largest that live in the water. And it is said that if size and strength conferred the right of dominion, these two creatures would be able to divide between them the empire of the world.

The proportions of the Elephant are clumsy, its body is thick and bulky, its gait heavy and awkward, but its general appearance is imposing and noble. These giants of creation have three especially remarkable features, their enormous development of skull; their curious trunk, which is in reality a marvellous nasal organ which performs the duties of arm and hand; and their great tusks, which are nothing but their incisive teeth wonderfully elongated.

These tusks protect the trunk, which curls up between them when the animal traverses woods in which there are many thorns, prickles and thick underbrush. The Elephant also uses them for putting aside and holding down branches, when, with its trunk it plucks off the tops of leafy boughs. The ivory obtained from the tusks of the Elephant is remarkable for the fineness of its grain, whiteness, hardness, and the beautiful polish that can be given to it.

Under the feet is a sort of callous sole, thick enough to prevent the hoofs from touching the ground, and the toes remain encrusted and hidden under thick skin.

The Elephants live in the hottest parts of Africa and Asia, spending the greater part of their time in the swamps and forests. Their food consists mainly of herbs, fruit and grains.

For a long time it was asserted that Elephants could not lie down, and that they always slept standing. It is true that among Elephants as among Horses, are found some that can sleep standing, and only rarely lie down; but generally they sleep lying on their side, like the majority of quadrupeds.

The African Elephant has a head much rounder and less broad than the Asiatic Elephant. Its ears are very much longer and its tusks are generally stronger.

African Elephants live like those of India, in troops more or less numerous; yet they are sometimes found alone—these are called rovers or prowlers.

To these should be added the extinct species of the Elephant family, the famous Mammoth of the far north—a carcass of which was found under the ice in Siberia in 1799, and the wonderful Mastodon of Ohio. The bony remains of the Mastodon are found in America and in Central Europe. The tusks of the Mastodon have been found to be almost straight, while those of the Mammoth are curved round until they nearly form a circle.

THE HIPPOPOTAMUS.



HIPPOPOTAMUS.

The Hippopotamus is an enormous animal. After the Elephant and the Rhinoceros, it is the largest of terrestrial Mammalia. Its head is very bulky and its mouth extends very nearly from eye to eye. All who have seen in the menageries this monstrous mouth opening for a little piece of bread, have been surprised at the frightful appearance of this living gulf, armed with enormous teeth. When it is shut, the upper lip descends in front and on the sides, like an enormous blobber lip which covers the extremity of the lower jaw, and partly hides the underlip; but on the sides it is the lower lip which stands up. The nostrils, which are in front of the muzzle, are surrounded by a muscular apparatus, which closes them hermetically when the animal is under water.

The Hippopotamus inhabits Southern and Eastern Africa; but everything announces that it will not be long in disappearing before civilization, that is to say, the sportsman's gun.

These animals live in troops on the banks of rivers and in their waters. On land, their gait is clumsy and heavy, for their own enormous weight tires them; but they are very quick and active in water, where they lose, by the pressure of the water, a great portion of their weight. And so they pass all day in the water, in which they swim and dive with great facility. When swimming they only let the upper surface of their heads be seen, from the ears to the surface of the nostrils, which allows them to breathe, to see all round them, and to hear the slightest noises. In breathing, they spout out noisily, in the form of irregular jets, such water as has become introduced into their nostrils. This spouting announces to the hunter the presence of the Hippopotamus.

The Hippopotamus feeds on young stalks of reeds, little boughs, small shrubs and water plants, also on roots and succulent bulbs.

Its cry is hoarse, but of incredible depth, power and volume. The habits of this animal are peaceable; its disposition is, in general, mild and inoffensive; it only turns vicious when it is attacked.

Hippopotamus hunting is performed in different ways. Its enemies surprise it at night, on its leaving the water, when it comes to browse in the meadows and the neighboring plains; or attack it by day in the river, either with harpoons or guns, assailing it when it comes to the surface to breathe. The unfortunate animal tries to defend itself. In its sudden action it sometimes overturns the boats containing its enemies. Occasionally, desperate with rage at being wounded, it tries to tear the boats to pieces with its formidable tusks. With one bite it could cut through the middle of the body of a full-grown man.

The natives of Africa hunt the Hippopotamus, first to obtain the ivory furnished by its tusks—an ivory which, without being so good as that of the Elephant, is nevertheless very valuable. The skin, or hide, which is very thick, is also employed in the manufacture of various instruments. The flesh of the Hippopotamus is sought after in South Africa as a delicate morsel.

THE TAPIRS.



INDIAN TAPIR.

The American Tapir is of about the size of a small Donkey. Its skin is of a brown color and nearly naked, its tail of moderate length, its neck strong and muscular, and crested above with an upright mane. This animal inhabits swampy localities in the vicinity of rivers, and is peculiar to the tropical parts of South America, where its flesh is prized by the inhabitants as affording excellent and wholesome meat.

The Tapir is a solitary animal, resting during the day in the depths of the forest, and coming forth at night to collect its food, which consists of fruit, the young shoots of trees, or other vegetables. Its senses of smell and hearing are very acute and at the slightest alarm it can make its way with ease "through bush and through briar," without the slightest danger of injuring its thick, tough hide. It swims and dives well, and can remain for some minutes beneath the water without coming to the surface. The Tapir is peaceable unless attacked, in which case it defends itself vigorously with its strong teeth.

Tapirs, although common in the Brazilian forests, are scarcely ever encountered by hunters during the day-time, so that there is little chance of travelers seeing anything more than the foot-marks of this largest of the tropical American Mammals. Their flesh is of a very rich flavor, something between pork and beef. The young are speckled with white.

The Indian Tapir is larger than the South American Tapir, which it resembles in the shape of its body. Its hair is short and it has no mane. It inhabits the forests of the Island of Sumatra and the Peninsula of Malacca.

THE RHINOCEROS FAMILY.

The Rhinoceroses are large animals, having but three toes on each foot. The bones of the nose are massive and conjoined so as to form a sort of vault of sufficient strength to support one or two solid horns, which are adherent to the skin of the face and constitute formidable weapons either for defence or attack. The structure of these horns is fibrous, as if they were composed of a mass of hairs glued together.

The natural disposition of these animals is stupid and ferocious. They inhabit marshes and other damp localities, and live altogether upon vegetable substances—grass, herbs, or the branches of trees.

There are two species—the One-horned and the Two-horned.

THE ONE-HORNED RHINOCEROS.



ONE-HORNED RHINOCEROS.

The One-horned Rhinoceros, as its name imports, has but a single horn, which is situated upon the middle of the snout; and as this weapon sometimes measures upwards of two feet in length, tapering gradually from the base to the point, sharp at its extremity, and slightly curved towards the back of the animal, it becomes when wielded by its herculean possessor a very deadly instrument; with which, at a stroke, it rips up the most powerful assailant, and is a formidable antagonist even to the Elephant itself.

The skin of this species forms a coat of armor, almost impenetrable by a musket-ball; it is in some parts nearly an inch in thickness.

The One-horned Rhinoceros is an inhabitant of the East Indies, more especially of that portion of the country situated beyond the Ganges; its range, indeed, extends from Bengal to Cochin, China. Slow and careless in his movements, this animal wanders through his native plains with a heavy step, carrying his huge head so low that his nose almost touches the ground, and stopping at intervals, to crop some favorite plant, or in playfulness to plough up the ground with his horn, throwing the mud and stones behind him.

THE TWO-HORNED RHINOCEROS.

The Two-horned Rhinoceros is a native of Africa. It differs remarkably from the preceding species, first by the possession of a second horn of smaller size, situated midway between the larger one and the top of its head, and secondly because its skin, more supple than that of the preceding species, is entirely destitute of folds.

Whether from a limited sphere of vision arising from the extraordinary minuteness of the eyes, which resembling the Pigs in expression, are placed nearer to the nose than in most other animals; or whether from an over-weening confidence in its own powers, the Rhinoceros will generally suffer itself to be approached within even a few yards before condescending to take the smallest heed of the foe, who is diligently plotting its destruction. At length, uttering a great blast or snort of defiance, and lowering its armed muzzle almost to the ground, it charges on its enemies; and bullets, hardened with tin or quicksilver, are used to kill it.

THE BOAR FAMILY.

The members of this extensive family are distinguished by having four hoofs upon each foot; but of these the two middle ones are much the largest, giving the foot much the appearance of being cloven. The lower incisors slant forward, and the canines project in the shape of long and formidable tusks. Their muzzle is prolonged into a snout of peculiar conformation—its margin being dilated and highly sensitive. Its use is to turn up the earth in search of roots, in which operation these animals seem guided by their sense of smell. They eat nearly all sorts of vegetable matter, and may be said to be omnivorous; even flesh not being rejected by their accommodating appetite.

To this family belong the Hogs Proper, the Peccaries, the Wart Hog and the Babiroussas.



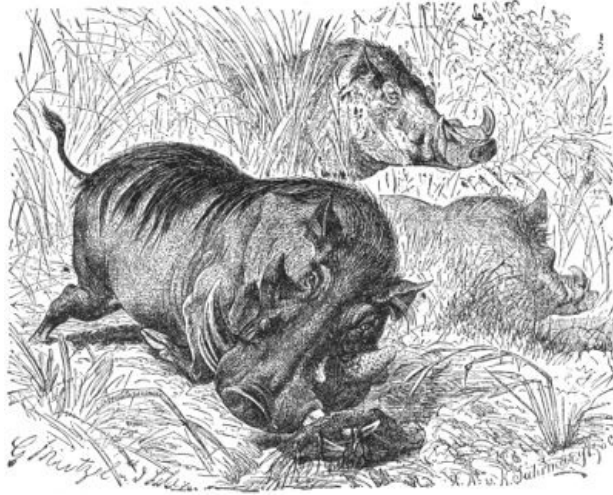
WILD BOARS.

The Wild Boar, supposed to be the stock from which all our domesticated Pigs take their origin, is very different in its habits from the swinish multitudes with which it is looked upon as nearly related; his long prismatic tusks, curving outwards and slightly upwards on each side of his mouth, are weapons which he knows full well how to wield; and from the strength of his neck and the activity of his movements, by their assistance he is enabled to repel the attacks of all ordinary foes.

The chase of the wild Boar has been from remote antiquity one of the most dangerous of field-sports, for when once at bay, the furious creature attacks indiscriminately Men, Dogs and Horses, ripping them with his tusks, and often inflicting frightful wounds upon his assailants.

In India, Boar-hunting is a favorite amusement. The hunters are always armed with javelins, which they throw at the animal as he runs away or rushes to the charge. His assaults are frequently so furious that the Horses will not stand the shock, or if they do are often thrown down and severely injured.

THE WART HOGS.



WART HOGS.

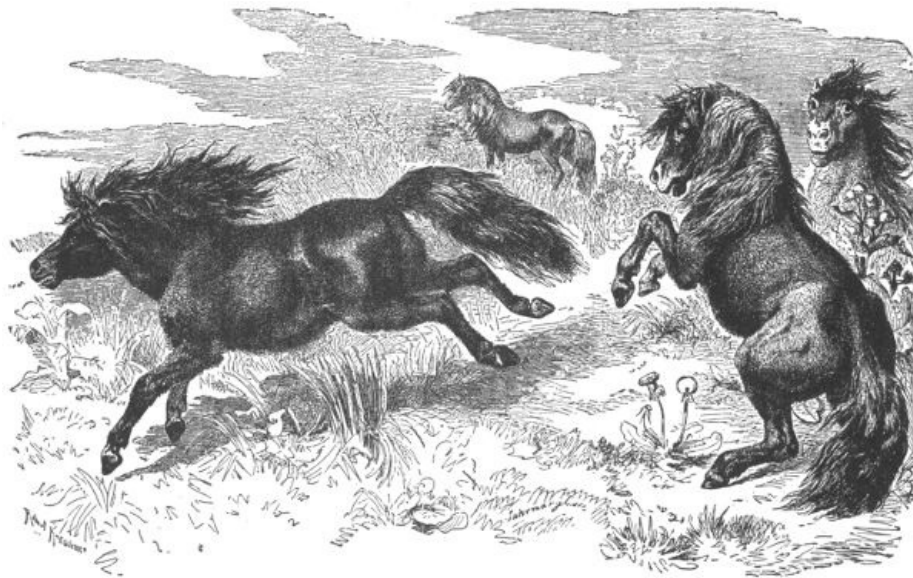
The Wart Hogs, which resemble the true Hogs, are distinguished from them by the structure of their molar teeth. A fleshy excrescence hangs down on each side of their cheeks, which gives them a repulsive appearance. There are several species to be found in Africa, of which country they are natives. They are very courageous, and possessed of immense strength. Their habits are similar to those of the Wild Boar. The Cape Wart Hog, found at the Cape of Good Hope, is probably the best known.

THE PECCARIES.

The Peccaries are animals which are peculiar to America. They resemble the common Pig in their general shape and in their teeth, but their canine tusks do not project from the mouth, and they have no tail.

The Collared Peccary is eaten in South America, and is considered a wholesome article of food. The White-lipped Peccary, which is found in Guiana, is larger and more strongly built than the others.

THE HORSE FAMILY.



SHETLAND PONIES.

This includes all quadrupeds that have but a single toe or hoof on each foot—the Horse, the Domestic Ass (or Donkey), the Hemionus (or Dshikketee), the Dauw (or Peechi), the Zebra and the Quagga.

The subjection of the Horse to Man may be traced back to the most primitive date. Moses recommends the Hebrews to have no dread in war of the Horses of their enemies. We read in the Book of Kings (I Kings iv, 26) that "Solomon had 40,000 stalls for his Horses, and 12,000 horsemen." According to the same book, these Horses were bought in Egypt and brought into the country of the Hebrews.

The remote period to which we can trace back the Horse being employed as a domestic animal, renders it very difficult to determine its original country. Nor is it possible to state where the finest species may be found. The Arabian Horses have long been famous for their beauty and intelligence, the English for their racing qualities, the Norman Horses for their great strength, and the Breton Horses for their hardiness and good temper. And so on through all the different species of past ages, we might mention special characteristics for which they were famous; and in the mixed species which have been brought to this country from time to time, we find traces of these many good qualities.

It is the same with the smaller races of the Horse family, known as the Ponies. The various breeds have different characteristics for which they are noted. But the ones deserving of special mention belong to the race which are natives of a group of islands situated to the north of Scotland. These are called Shetland Ponies and are perfect Horses in miniature. Some of them are scarcely as high as a Newfoundland Dog, yet they are very strong, and will endure any amount of fatigue and privation.



DOMESTIC DONKEY.

The Ass, or Donkey, like the Horse, is the servant and helper of Man, but its domestication is of much less ancient date. The wild type of this animal (known under the names of Kiang, Koulan, Onager, or Dziggetai) is still a native of many of the Asiatic deserts.

They live together in innumerable droves and travel under the guidance of a leader, whom they obey with intelligent submission. If they chance to be attacked by Wolves, they range themselves in a circle, placing the weaker and younger members in the centre, when they defend themselves so courageously with their fore-feet and teeth that they almost invariably come off victorious.

The domestic Donkey carries the heaviest burden in proportion to its size of all beasts of burden. It costs little or nothing to keep, and requires very little care. It is especially valuable in rugged mountainous countries, where its sureness of foot enables it to go where Horses could not fail to meet with accidents.

In energy, nervous power, and in temperament, the Donkey even surpasses the Horse; and it has a greater capacity to endure fatigue.

THE ZEBRA.



ZEBRAS.

The Zebra is larger than the Wild Ass, sometimes attaining the size of a mature Arab Horse. The richness of its coat would suffice to distinguish this creature from every other species of the same genus. The ground color is white tinged with yellow, marked with stripes of black and brown.

This elegant animal is a native of the Cape of Good Hope, and probably the whole of southern, and a part of eastern, Africa. Travelers state that they have met with it in Congo, Guinea, and Abyssinia. It delights in mountainous countries, and, although it is less rapid than the Wild Ass, its paces are so good that the best Horses are alone able to overtake it.

The Zebra lives in droves, but is very shy in its nature; it is endowed with powers of sight that enable it to perceive from great distances the approach of hunters.

THE HEMIONUS OR DSHIKKETEE.

The Dshikkete in its shape and proportions seems to occupy a position intermediate between the Horse and the wild Ass. This indeed is implied by its name, derived from the Greek word hemionos, meaning half-ass. It somewhat resembles a Mule, but its legs are more slender and it is more attractive. Its general color is brown, with black mane and a black stripe across the shoulders; the tail likewise is terminated by a black tuft.

These quadrupeds inhabit the sandy deserts of Asia, especially those of Mongolia or the plains north of the Himalaya, and live in droves often consisting of more than a hundred individuals. Enduring and swift, they are not easily approached, but as both their hides and flesh are much sought after, they are often caught in traps arranged for the purpose, or are shot by hundreds lying in ambush near the salt meadows which they love to frequent. They were said to be as easily broken in as the Horses reared in our meadows and permitted to run at large till they are four or five years old.

THE QUAGGA.

The Quagga is smaller than the Zebra, and resembles the Horse in general shape. His head is small, and his ears are short. The color of head, neck and shoulders is a dark brown, verging on black. The tail is terminated by a tuft of long hair. It is a native of the plateaux of Caffraria, and feeds on grasses and shrubs, and lives in droves with the Zebra.

It is tamed without difficulty. The Dutch colonists were in the habit of keeping them with their herds, which they defended against the Hyenas. If one of these formidable carnivora threatened to attack the Cattle, the domesticated Quagga would attack and beat down the enemy with its forehoofs, trampling it to death.

The geographical range of the Quagga does not appear to extend to the northward of the river Vaal. The animal was formerly extremely common within the colony, but vanishing before the strides of civilization, is now to be found there in very limited numbers, and on the borders only. Beyond, on those sultry plains which are completely taken possession of by wild beasts, and may with strict propriety be termed the domains of savage nature, it occurs in interminable herds. Moving slowly across the profile of the ocean-like horizon, uttering a shrill barking neigh, of which its name forms a correct limitation, long files of Quaggas continually remind the early traveler of a rival caravan on its march. Bands of many hundreds are thus frequently seen during their migration from the dreary and desolate plains of some portion of the interior which has formed their secluded abode, seeking for more luxuriant pastures where, during the summer months, various herbs and grasses thrive.

THE DAUW.

The Dauw seems to take a middle place between the Zebra and the Quagga. It resembles the former in its shape and proportions, and the latter in the color of its coat.

This quadruped is a native of the Cape of Good Hope, and doubtless of many of the mountainous districts of Southern Africa. It lives in arid and desert localities, in droves, and is shy, and difficult to tame.

THIS order of animals is known as the Ruminantia, or the Ruminant Order, because all these animals possess the strange power of ruminating, or of bringing back into their mouth (in order to re-chew it), the food that they have once swallowed.

This power is owing to a complicated structure of their stomach, which is divided into several compartments, and which have been considered, though with some exaggeration, as so many distinct stomachs. The first and largest of these divisions is the paunch, which occupies a large portion of the abdomen. The food is here accumulated after being roughly crushed by the first chewing. After the paunch comes the bonnet or cap stomach. In this cap the food is gradually moulded into small pellets, which ascend again into the mouth, by means of a natural movement, and not a convulsive or irregular one as in other animals; these pellets then undergo a thorough chewing and mixing with the saliva. Such is "chewing the cud."

When the food, thus transformed into a soft and nearly fluid paste descends again into the stomach, it goes straight into a third intestine and from this it at length passes into the digesting stomach or rennet-bag.

The feet of all these animals terminate in two toes which are joined together in a bone called the shank. Sometimes also there exists at the back of the foot two small spurs or toes. In all these animals except the Camels and Llamas—the hoofs, which entirely cover the last joint of the two toes on each foot, act side by side on a smooth surface, and resemble one single but cloven hoof. Thus the origin of the word cloven-hoofed.

The Ruminants are divided in various ways by different Naturalists. Some are satisfied with the division simply into Horned and Hornless Ruminants. But the best classification is into the two large families of the Camels and Common Ruminants. The Camel family includes the Camels and Dromedaries—the beasts of burden in dessert lands, and the Llama, etc., the beast of burden among the mountains.

The Common Ruminants are divided into three tribes—those with hairy and permanent horns, those with hollow-horns, and those that shed their horns.



CAMEL.

Most of the modern Naturalists admit two distinct species of the Camel genus; the Camel proper, which has two humps on its back, and the Dromedary, which has only one.

The individuals of the Camel genus have a small and strongly-arched head. Their ears are slightly developed, still their sense of hearing is excellent. Their eyes, which have oblong and horizontal pupils, are projecting and gentle in expression, and are protected by a double eyelid. Their power of sight is very great. Their nostrils are situated at some distance from the extremity of the upper lip, and, externally, appear only two simple slits in the skin, which the animal can open or shut at will. Their upper lip is split down the centre, and the two halves are susceptible of various and separate movements. These constitute a very delicate organ of feeling. They are also possessed of an extremely acute sense of smell.

This remarkable head is carried with a certain degree of nobility and dignity on a somewhat long neck, which, when the animal moves slowly, describes a graceful arched curve.

Their peculiar body, made more remarkable by the one or two humps on its back, is supported on four long legs, which appear slender in comparison with the mass they bear.

In the Camel proper the color of the coat is chestnut-brown. The hair grows to a considerable length, and becomes rather curly on the humps and about the neck. Below the neck it forms a fringe, which descends over the fore-legs.

THE DROMEDARY.



DROMEDARY.

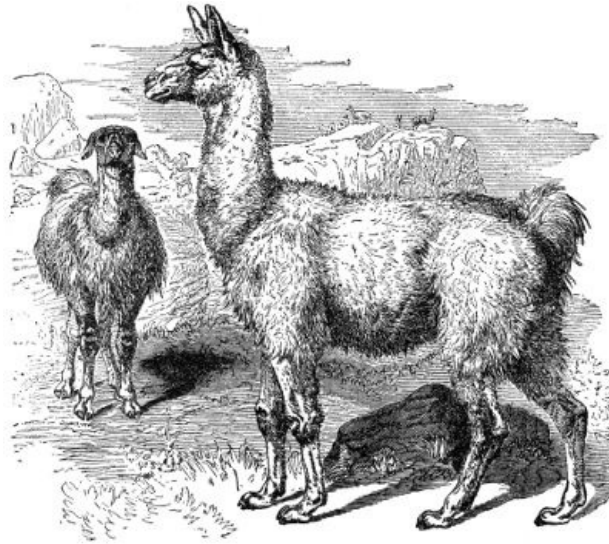
The Dromedary, which is less massive in form and smaller in size than the Camel, has a coat of brownish-grey. Its hair is soft, woolly, and moderately long, more especially about its hump and neck.

The Camel is a native of ancient Bactria. It principally lives in Asia, where it has been used, from antiquity, for domestic and military service. In Africa, where it is acclimatised, it has doubtless existed since the time of the conquest of that country by the Arabs.

The Dromedary is distributed all over a great part of Northern Africa, and a portion of Asia. It seems originally to have been a native of Arabia.

The faculty which the Camel possesses of being able to dispense with drinking for a considerable time, has generally been attributed to the fact that it carries internally a reservoir of water, which it uses in case of necessity. Its digestive organs, like those of other Ruminants, are composed of four different stomachs.

THE LLAMAS.



LLAMA.

The Llamas are to the New World what Camels are to the Old Continent. They are distinguished from the latter animal by the absence of humps on their backs; by their two-toed feet only touching the ground at their extremities; by their soles, which are less flattened; and their shape, which is more slender and graceful.

There are three species of Llama—the Llama proper, the Paca, and the Vicuna.

The Llama was the only beast of burden made use of by the Peruvians at the time America was discovered by Europeans, and it exists nowhere else in a wild state. It is about the height of an under-sized Horse; its head is small and well set; its coat is coarse, and varies in color from brown to black; occasionally it is grey, and even white. The hair on its body is always longer and more shaggy than on its head, neck and legs.

132

The ancient inhabitants of Peru made use of this species entirely as beasts of burden and labor; but since the introduction of Horses into South America their employment has much diminished.

These animals are, however, very useful for the transportation of heavy weights across the mountains, on account of the wonderful sureness of their footing. They walk very slowly, and can carry upwards of a hundred and sixty pounds weight; but they must not be hurried, for if violence is used to quicken their pace they are certain to fall down, and refusing to get up, would allow themselves to be beaten to death on the spot rather than resume their course.

The climate which this animal prefers is that of plateaux, from 10,000 to 11,000 feet above the sea, and in these localities the most numerous herds of Llamas are to be found. The natives fold the domesticated ones, like Sheep, in special enclosures near their cabins. At sunrise they are set at liberty to seek their food. In the evening they return, frequently escorted by wild Llamas; but these take every precaution to avoid being captured.

133

In more ways than one the Llama is most valuable to the inhabitants of the mountains; for the flesh of the young is good and wholesome food, their skin produces a leather of value, and their hair is used for various manufactures.

THE PACA.



PACA.

The Paca inhabits similar localities to the former. It may be recognized by the development of its hair, which is of a tawny-brown color, very long, and falling on each side of the body in long locks.

The Paca is gentle and timid, and allows itself to be led about by those who feed and tend it; but if a stranger attempts to take liberties with it, it kicks viciously, or ejects its saliva over him. Its food is similar to that of Sheep; and its wool is very fine, elastic and long.

THE VICUNA.

The Vicuna is the smallest species of the Llama genus. It is the same size as a Sheep, and strongly resembles the Llama, only that its shape is more elegant. Its legs, which are longer in proportion to the body, are more slender and better formed; its head is shorter and its forehead wider. Its eyes are large, intelligent and mild; its throat is of a yellowish color, while the remainder of its body is brown and white.

The rich fleece of this animal surpasses in fineness and softness any other wool with which we are acquainted. In order to obtain possession of the skin the American hunters pursue them even over the steepest summits of the Andes, when, by driving, they force them into pens, composed of tightly stretched cords, covered with rags of various colors, which frighten and prevent the prey attempting to escape. One of these battues sometimes produces from five hundred to a thousand skins.

THE MUSK DEER.

Although it belongs to the Deer family, the little Musk Deer is often classified with this group because it is without horns, and resembles the Camel family in its teeth and other characteristics. This is a graceful little animal, about the size of a half-grown Fawn of our common Deer. Its tail is very short, and it is covered with hair so coarse and so brittle that it is almost like bristles, but what especially distinguishes it, is its pouch filled with the substance so well known in medicine and perfumery under the name of musk.

The Musk Deer is a native of the mountainous region between Siberia, China and Thibet.

THE HORNED RUMINANTS.

The family of Common Ruminants form a natural group comprehending the greatest number of Ruminants. The feature which distinguishes the animals composing it, not only from the Camel family, but also from all the other Ruminants, is the existence of two horns on the forehead of the male, and sometimes on the female.

The structure of these horns presents various differences, and has caused the division of this large and important family into three tribes, namely, Ruminants with hairy and permanent horns, hollow-horned Ruminants and Ruminants which shed their horns.



GIRAFFE.

This tribe consists of a single genus, that of the Giraffe, which has also but one species.

The height of the Giraffe, the singular proportions of its body, the beauty of its coat and the peculiarity of its gait, are sufficient to explain the curiosity which these animals have always excited.

Its long and tapering head is lighted up by two large, animated and gentle eyes; its forehead is adorned with two horns, which consist of a porous, bony substance, covered externally with a thick skin and bristly hair. In the middle of the forehead there is a protuberance of the same nature as the horns, but wider and shorter. The head of the Giraffe is supported by a very long neck. Along the neck is a short, thin mane. The body is short, and the line of the backbone is very sloping. Its fore-quarters are higher than the hinder—a feature which is observed in the Hyena. Its legs are most extensively developed, and are terminated by cloven hoofs. The skin, which is of a very light fawn-color, is covered with short hair, marked with large triangular or oblong spots of a darker shade.

Giraffes are only found in Africa, and even there they are not numerous. They live in families of from twelve to sixteen members. They frequent the verge of the deserts, and are met with from the northern limits of Cape Colony to Nubia.

The usual pace of the Giraffe is an amble, that is to say, they move both their legs on one side at the same time. Their mode of progression is singular and very ungainly. At the same time as they move their body, their long neck is stretched forward, giving them a very awkward appearance. Their long neck enables them to reach with their tongue the leaves on the tops of high shrubs, which constitute a large part of their food.

RUMINANTS WITH HOLLOW HORNS.

These Ruminants have horns which are covered with an elastic sheath, something like agglutinated hair; they may be divided into two groups.

To the first group belong the Chamois, Gazelle, Saiga, Nyl-ghau, Gnu and Bubale. To the second group belong the Common Goat, the Mouflon or Wild Sheep, the Domestic Sheep and the Ox.

The most remarkable species belonging to the first division all come under the natural group formerly known by the name of Antelopes. It comprehends about a hundred species, which live, for the most part, in Africa. They are generally slender and lightly-made, fleet in running, of a gentle and timid disposition; they are gregarious, and are particularly distinguishable by the different shapes of their horns.

We shall glance at the most remarkable genera resulting from the division of the old general group of Antelopes.

THE CHAMOIS.

The chief characteristic of the Chamois is constituted by the smooth horns which are placed immediately above the orbits. These horns are almost upright, with a backward tendency, and curved like a hook at the end. The horns exist in both sexes, and are nearly the same size in each. The Chamois has a short tail, and no beard.

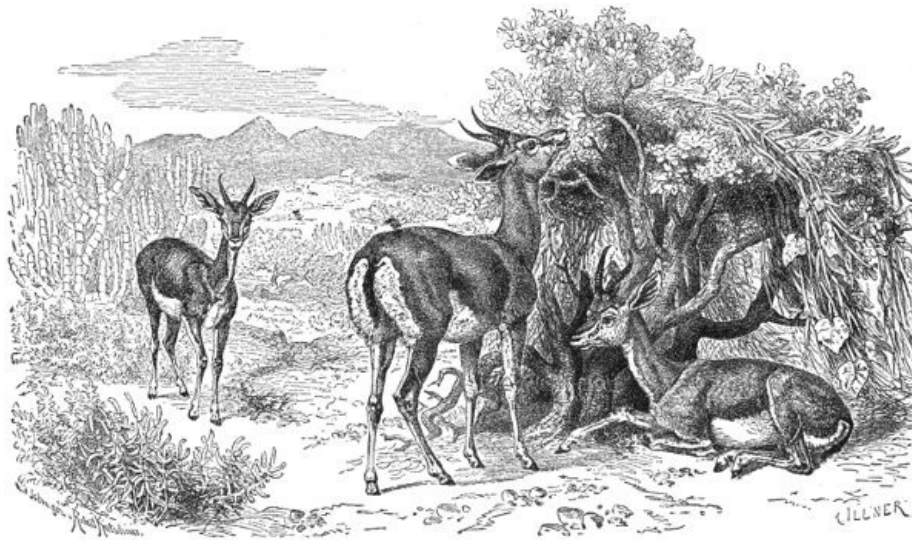
The European Chamois is about the size of a small Goat. It is covered with two sorts of hair—one woolly, very abundant, and of a brownish color; the other, silky, spare and brittle. Its coat is dark brown in winter and fawn-color in summer; its fine and intelligent head is of a pale yellow, with a brown stripe down the muzzle and round the eyes. Its horns are black, short, smooth, and not quite rounded.

This graceful Ruminant inhabits the Pyrenees and Alps, and also some of the highest points in Greece. But from constant persecution it has lately become so rare that few people can boast of having been successful in its pursuit.

The Chamois lives in small herds, in the midst of steep rocks on the highest mountain summits. With marvelous agility it leaps over ravines, scales with nimble and sure feet the steepest acclivities, bounds along the narrowest paths on the edge of the most perilous abysses, and jumping from rock to rock, will take its stand on the sharpest point, where there appears hardly room for its feet to rest; and all this is accomplished with an accuracy of sight, a muscular energy, an elegance and precision of movement, and a self-possession which are without equal. From these facts, it can easily be understood that hunting this nimble and daring animal is an amusement full of danger.

On the approach of winter the Chamois goes from the northern side of the mountains, to the southern, but it never descends into the plain.

THE GAZELLES.



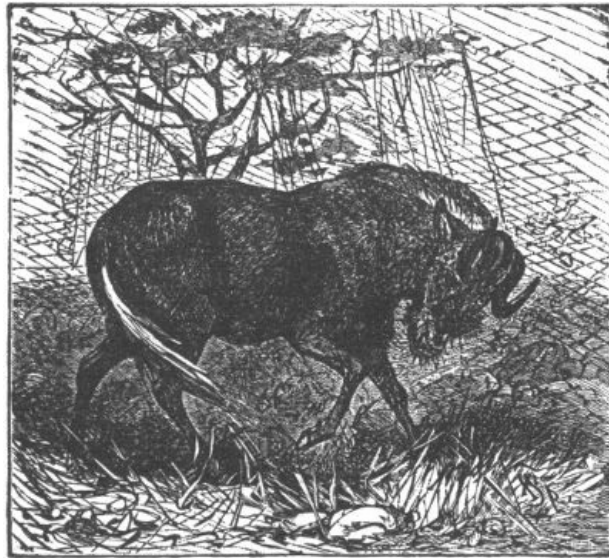
GAZELLES.

The Gazelles are animals of graceful shape, rather smaller in size than the Chamois. The horns are twice bent, in the shape of a lyre, and without sharp edges; the nostrils are generally surrounded by hair.

The eyes of this animal are so beautiful and so soft in expression, its movements are so elegant and so light, that the Gazelle is used by the Arab poets as the type of all that is lovely and graceful.

Gazelles proper are the species of this genus which are generally to be seen in our parks and menageries. Such, for instance, as the Dorcas Gazelle, which inhabits the large plains and Saharian region of Northern Africa. It is the same size as a Roe, but its shape is lighter and more graceful.

THE GNU.



GNU.

The Gnu, sometimes called the Gnu Antelope, inhabits Southern Africa. It is about the size of a Donkey, and is curiously formed. Added to its muscular and thick-set body, it has the muzzle of an Ox, the legs of a Stag, and the neck, shoulders and rump of a small Horse. Its head is flattened, and its brown hair is short. On its neck it has a mane of white, grey and black hair, and under its chin hangs a thick brown beard. It also has horns, something like those of the Cape Buffalo, which first bend downwards and then curve in an upward direction. It is not surprising with such a queer combination, that strange stories were told of this animal in the past, as it has the appearance of being made up of various portions of several other animals.

These strangely constructed animals are found in the mountainous districts to the north of the Cape of Good Hope, and probably throughout a large portion of Africa. They are very wild, and are swift runners and may be seen skimming along in single file following one of their number as a guide.

THE GOATS.

These animals differ among themselves to a wonderful extent in their shape, their color and even in the texture of their fleece. The Goats of Angora in Cappadocia are provided with a soft and silky clothing. Those of Thibet have become celebrated for the delicacy of a kind of wool which grows among their hair, from which Cashmere shawls are manufactured. In Upper Egypt is a race remarkable for the roughness of their coat, while the Goats of Guinea and of Judea are distinguished by the smallness of their dimensions, and by their horns, which are pointed backwards. But whatever may be the cause of these peculiarities, the whole race seems to retain the characters derivable from a mountain origin; they are robust, capricious, and vagabond; they prefer dry hills and wild localities, where they can procure only the coarsest herbage, or browse upon the shrubs and bushes. They are likewise very injurious in forests, where they destroy the young trees by devouring the bark. Their flesh is strong and rank, so that they are seldom eaten; nevertheless, their milk is an article of diet, and the Kid, while young, is tender and nutritious.

THE COMMON GOAT.

The Common Goat inhabits wild and mountainous regions in a state of semi-wildness, seeming to have little regard either for the protection or the neglect of people resident in its vicinity; but although not cared for, like its not very distant relative, the Sheep, it is by no means without its value. The Goat affords milk in considerable abundance; its hair, though more harsh than wool, is useful in the manufacture of various kinds of stuffs, and its skin is more valuable than that of the sheep. The Goat has more intelligence than the Sheep, and soon becomes familiar and attached; it is light, active, and less timid than the Sheep; it is capricious and loves to wander, to climb steep mountains, sleeping frequently on the point of a rock or the edge of a precipice. It is robust, and will feed on almost any plant. It does not, like the Sheep, avoid the mid-day heat, but sleeps in the sunshine, and exposes itself willingly to its full glare. It is not alarmed by storms, but appears to suffer from a great degree of cold.

THE IBEX.

The Ibex combines with the characters of the Goat the agility and fleetness of the Antelopes. "All readers of natural history," says Col. Markham, "are familiar with the wonderful climbing and saltatory powers of the Ibex; and although they cannot (as has been described in print) make a spring and hang on by the horns until they gain a footing, yet in reality for such heavy animals they get over the most inaccessible-looking places in an almost miraculous manner. Nothing seems to stop them nor to impede their progress in the least. To see a flock, after being fired at, take a distant line across country, which they often do over all sorts of seemingly impassable ground, now along the naked surface of an almost perpendicular rock, then across a formidable landslip or an inclined plane of loose stones or sand, which the slightest touch sets in motion both above and below, dividing into chasms to which there seems no possible outlet, but instantly reappearing on the opposite side, never deviating in the slightest from their course, and at the same time getting over the ground at the rate of something like fifteen miles an hour, is a sight not to be easily forgotten."

The Ibex inhabits the most inaccessible summits of the loftiest mountains of Europe, Asia and Africa, and may frequently be seen bounding from rock to rock among the highest peaks of their snow-clad grandeur, climbing cliffs with the activity of a Bird, and disporting itself in regions unapproachable by any other quadruped.

THE BEZOARGOAT.



Goat Defending His Family from a Lynx.

There is a striking resemblance in form, the habit of living and character of the Bezoargoat, (extensively raised in mountainous regions of Asia Minor, Persia and various islands of Greece) and the Stonebuck of the Alps. The body of the Bezoargoat is narrow and the limbs high. The long, strong horns form a uniformly curved arch, and both sexes have strong beards. The skin is colored reddish gray along the sides of the neck, growing lighter towards the body. The thigh is white both underneath and outside. The breast, chin and ridge of the nose is blackish brown. Their nourishment consists of dry grasses, cedar needles, leaves and fruits.

The Bezoargoes are very shy and experts in racing and climbing, venturing the most dangerous leaps with the utmost courage and dexterity. They are able to brave the greatest dangers. There is, nevertheless, a source of danger threatening their young from the Eagle, the Bearded Vulture and the Pardellynx. The Birds of Prey swoop rapidly and unexpectedly from the heights and carry off the young Kid; but the Pardellynx steals slyly upon the herd at pasture. This beautiful, slender, crafty beast of prey, about the size of the Lynx, which is also abundantly found in the Spanish mountains, eagerly hunts the Bezoargoat. Through his exceptionally keen sense of sight and hearing, the crafty, noiseless, sneaking Pardellynx frequently succeeds in stealing upon the herd and despite their watchfulness attempts to overpower one of the flock. The illustration on page [105](#) carries us into the mountain regions of Taurus. A Pardellynx has crept unnoticed upon a family of grazing Bezoargoes and has suddenly sprung upon the back of the old Goat, burying his fangs into the neck of his prize.

THE SHEEP.



MOUNTAIN SHEEP.

The members of this family have horns which, at first directed backwards, wind spirally forwards; their forehead is generally convex, and they are without any beard. In other respects they are closely allied to the Goats. 140

The Common Sheep, like other animals placed at the disposal of mankind, presents innumerable varieties in accordance with the breed or climate to which it may belong. Thus we find in Europe flocks with coarse or fine wool, of large or of small size, with long horns or with short horns—some in which the horns are wanting in the females; others in which they are deficient in both sexes.

The Spanish varieties are distinguished by their fine curly wool and large spiral horns, which exist in the males only; while the English breeds are celebrated on account of the length of their fleece and the delicacy of their mutton.

The Sheep of Southern Russia are remarkable on account of the length of their tails; while those of India and some parts of Africa are distinguished by the length of their legs, pendent ears, coarse wool, and total want of horns in either sex. In Persia, Tartary, and China the tail of the Sheep appears to be entirely transformed into a double globe of fat; and those of Syria and Barbary, notwithstanding the length of their tails, have them loaded with fat, while their wool is intermixed with coarse hair. Everywhere, however, the Sheep is invaluable to the human race, and the care of their flocks one of the earliest occupations of civilized nations.

“This species,” says Buffon, “appears to be preserved only by the assistance and care of Man; it seems unable to subsist by itself. The reclaimed Sheep is absolutely without resource and without defence. The Ram is but weakly armed; its courage is only petulance. The females are still more timid than the males. It is fear that causes them so often to assemble in flocks; the slightest noise makes them throw themselves down headlong or crowd one against the other; and this fear is accompanied with the greatest stupidity, for they know not how to avoid danger.” 141

They appear not even to feel the inconveniences of their situation; they remain obstinately where they are exposed to the rain or snow. In order to oblige them to change their situation and take a certain road, a leader is necessary, whose movements they follow at every step. This leader would himself remain motionless with the rest of the flock, if he were not driven by the Shepherd or excited by the Sheep-dog, which knows well how to defend, direct, separate, reassemble them, and communicate to them all necessary movements.

They are, of all animals, the most stupid and devoid of resources. Goats, which resemble them in so many other respects, have much more sense. They know how to guide themselves, they avoid danger, and easily familiarize themselves with new objects; while the Sheep neither retreats nor advances, and although it stands in need of assistance, does not approach Man so willingly as the Goat, besides—a quality which, in animals, appears to indicate the last degree of timidity or of want of feeling—it allows its Lamb to be taken away without defending it, without anger or resistance, or even signifying its grief by a cry differing from its usual bleat.

Nevertheless, this creature, so helpless and so apathetic, is to mankind the most valuable of all animals, and of the most immediate and extensive use. Alone it suffices for his most pressing wants, furnishing both food and clothing, besides the various uses of the fat, milk, skin, entrails and bones. Nature has not bestowed anything upon the Sheep that does not serve for the advantage of the human race.

THE OX FAMILY.

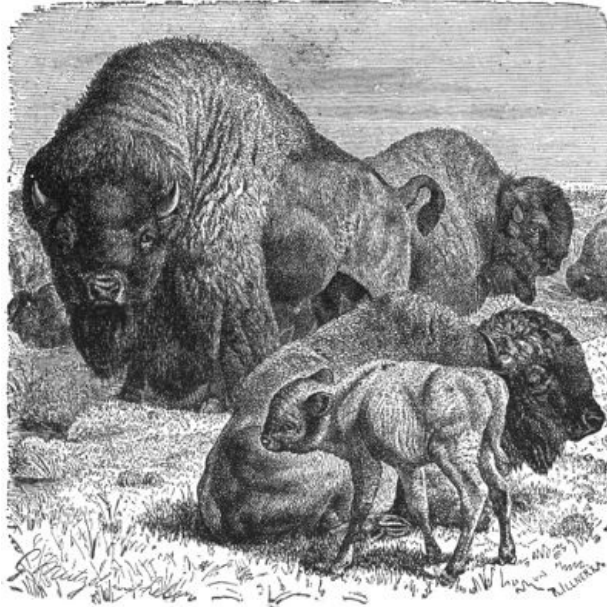


Bisons in Battle.

This family is easily distinguished from the other groups of Hollow-horned Ruminants. It is composed of large, heavy animals, in which the skin of the neck is loose and hanging, forming a large fold called the dew-lap.

There are eight species found in this family—the American Buffalo or Bison, the Musk Ox, the Cape Buffalo, the European Bison or Auroch, the Yak, the Jungle Ox, the Common Buffalo of India, and the Common Ox, or the well known group including our domestic Cattle.

THE AMERICAN BUFFALO.



AMERICAN BUFFALO.

The American Buffalo, commonly known in other countries as the Bison, is a gigantic species which ranges over the temperate and northern provinces of the American continent. It is of thick-set shape, and carries its head low, on a level with its back, while its shoulders are high. Its head is short and large; its horns are small, lateral, far apart, black and rounded. Its head, neck, and shoulders are covered with thick, curly, dark brown hair. Its tail is short, and terminated by a tuft of long hair.

This immense animal inhabits all parts of North America, especially the plateaux on the eastern slopes of the Rocky Mountains. In the spring, herds of thousands of Buffaloes, crowded closely together, make their way up from the south to the north of these vast steppes; in the autumn they migrate again to the south. When the summer comes, these wild troops break up, and the Buffaloes separate into couples or small herds.

American Buffaloes are not ferocious in their nature; they seldom attack Man, but will defend themselves when wounded; they then become formidable adversaries, for their enormous heads, well furnished with horns, and their fore-feet, are terrible weapons. In their migrations, their numbers are so enormous, that as they advance everything that comes in their way is devastated.

THE MUSK OX.

The Musk Ox is much smaller than the Common Ox, and has somewhat the appearance of an enormous sheep. Its forehead is arched; its mouth small; its muzzle completely covered with hair; and its horns, which are very large, are closely united at the base, and bending downwards over the sides of its head, suddenly turn backwards and upwards at the tips. Its long and abundant coat is of a dark brown color. It exhales a strong odor of musk.

143

This animal, which is a combination of the Ox, Sheep, and Goat, inhabits North America below the polar circle, and lives in families of from ten to twenty individuals.

Notwithstanding its apparent heaviness, the Musk Ox climbs over rocks almost as nimbly as a Goat, and its speed across the rocky, rough, barren grounds, (its principal habitat) for an animal so clumsy, is truly astonishing.

THE EUROPEAN BUFFALO.

The European Buffalo, or Auroch, is, next to the Elephant, Rhinoceros and Giraffe, the largest terrestrial Mammals. It is nearly six feet high. Its horns are large, round and lateral, and its tail is long; the front of the body, as far as the shoulders, is covered with coarse, harsh, brown hair; the underneath part of its throat, down to its breast, is furnished with a long pendulous mane, and the rest of its body is covered with short black hair.

This animal is the Urus of the ancients. It formerly lived in all the marshy forests of temperate Europe, even in Great Britain. In the time of Caesar it was still to be found in Germany, but, from the increase of Man and his conquests, it has become more and more rare. At the present time it is only to be found in two provinces of Russia. Very severe orders have been issued by the Emperor of Russia to prevent the destruction of these animals, and not one can be killed without his permission.

THE CAPE BUFFALO.

The Cape Buffalo is distinguished by its large horns, from all the other species peculiar to the Old World, the flattened bases of which cover the top of its head like a helmet, only leaving a triangular space between them. The horns of this African Ruminant are black, while its coat is brown. It lives in numerous herds in the thickest forests of Southern Africa, from the northern limits of Cape Colony as far as Guinea.

When in the open country it is shy and cautious; but is formidable and aggressive when hunted in the woods which form its principal retreat. Buffalo hunting is one of the occupations of the natives of the south of Africa; and it is not unaccompanied by danger, for it often happens that the respective characters are inverted, and it is the Buffalo which chases the hunters.

THE YAK.



YAK.

The Yak, or Horse-tailed Buffalo, has a large tuft of woolly hair on its head, and a sort of mane on its neck; the underneath part of its body, particularly around the legs, is covered with very bushy, long, pendent hair; its tail, which is entirely covered with hair, resembles that of a horse; while its voice is a low and monotonous sound, which becomes harsh and discordant when the animal is excited.

It is found undomesticated on the confines of Chinese Tartary. It is then wild, and dangerous; but when captured and broken in, it proves a useful servant to the inhabitants of Thibet and the north of China, who utilize it as we do our Cattle. Its milk is excellent; and its strength in carrying loads and dragging ploughs and conveyances extraordinary. But it is with difficulty they are tamed, for their disposition is always restless and wilful, and subject to fits of bad temper. Its flesh is highly esteemed, and coarse fabrics are made from its hair.

The tail of this Ruminant has long been valued in the East. Attached to the end of a lance, with the Mussulmen it is the insignia of the dignity of Pacha; and, the higher this dignity, the greater is the number of tails which the possessor of rank has a right to have carried before him. The Chinese also adorn themselves with the tail of the Yak, dyed red, by placing it in their caps. It is moreover employed as a switch for driving away flies.

THE JUNGLE OX.

The Jungle Ox very strongly resembles the Common Ox, but its horns are flattened from front to back, and tend outwards and upwards. These Oxen are reared in a domestic state in the mountainous countries of the northeast of India.

THE COMMON BUFFALO.

The Common Buffalo appears to be a native of the warm and damp parts of India and the neighboring isles, from whence it has spread into Persia, Arabia, the south of Africa, Greece and Italy. It is nearly the same size as an Ox. Its bulging forehead, which is longer than it is wide, bears two black horns, turned outwards. Its coat is coarse and scant, except on its throat and cheeks, and it has a very small dew-lap. It lives in numerous herds in marshy and low plains, where it delights in wallowing. It is of a wild and untractable disposition, particularly towards strangers; and, in order to make use even of those which are the tamest, the more perfectly to control them, a ring of iron is passed through their nostrils. In the cultivation of rice that cereal particularly requiring moist land—their services are most valuable, for their power of draught, even when immersed to the knees in mud, far exceeds all other animals in a similar situation.

The Arna, or Wild Buffalo, must be considered as a variety of this species. Its horns are very large, about five feet long, wrinkled on their concave side, and flat in front. It is principally found in Hindostan.

RUMINANTS WHICH SHED THEIR HORNS.



AMERICAN DEER.

The distinctive characteristic of the animals of this group consists in the texture, shape and manner of growth of their frontal protuberances. These projections, which are called antlers, and not horns, are bony, solid, and more or less branching. They do not have the horny casing which exists in all Hollow-horned Ruminants. They fall off and are renewed at a certain period every year up to a certain age, and it is because of this peculiarity that these animals are known as Ruminants with deciduous horns.

In the full grown animal the antler is composed of a cylindrical or flattened stem, according to the genus, which is called the brow-antler, from which branch out at intervals slighter or shorter additions, called tines or branches. The base of the brow-antler is surrounded by a circle of small bony excrescences, which afford a passage to the blood vessels intended to provide for the growth of the antler; these are called burrs.

There are various terms used to indicate the growth of the antlers. In the first place, on the brow of the young animal, two small elevations or knobs are seen to make their appearance, above each of which there soon grows a projection of cartilage, which finally assumes a bony texture.

Until they become perfectly hard, these two early sprouts are protected from any external friction by a kind of velvety skin, which dries up as soon as the cartilage turns to bone.

The short horns which then adorn its brow take the name of dags. At the commencement of the third year the dags fall off, but soon after they are replaced by other and longer ones, which throw out their first tines; and from this time they are considered as entitled to the name of antler.

The falling off and periodical renewal of these bony projections is really a very curious phenomenon. It seems as if it ought to take several years for the horns to regain, as they do, equal or even larger dimensions than their predecessors; nevertheless, they shoot out all complete in the space of a few weeks. Still, the explanation of this fact is simple enough.

The skin which covers the base of the antlers of this animal is traversed by a large number of blood vessels, which supply the phosphate of lime necessary to solidify the bony parts. Up to the time when the antler has acquired the full growth which it is to attain in each year, this skin continues to receive the requisite flow of blood; it retains, in fact, its living action. But as soon as the growth is complete, and it becomes bony, the burrs increase in size, strangle the vessels, and stop the flow of the alimentary fluid. This skin then withers and comes away from the antler, which, thus laid bare and no longer receiving nourishment, gradually wastes away or decays, and falls off at the end of a few months, again making its appearance in the approaching season.

Nearly all the members of this family are remarkable for the elegance of their shape, the dignity of their attitudes, the grace and vivacity of their movements, the slenderness of their limbs, and the sustained rapidity of their flight. They have a very short tail; moderately sized and pointed ears, and their eyes are clear and full of gentleness.

The coat of Ruminants which shed their horns is generally brown or fawn-colored. It is composed of short, close and brittle hair, which assumes a somewhat woolly nature in the inclement regions of the extreme north, more especially in the winter season.

These Ruminants live in small droves or herds in forests, on mountains or plains, and feed on leaves, buds, grass, moss, or the bark of trees, etc. They are distributed over all the surface of the globe, both in the hottest and coldest climates. The Reindeer and Elk are peculiar to the northern regions of both continents; but numerous species are, on the contrary, found in hot and temperate countries.

The family of Ruminants which shed their horns comprehends three genera—the Reindeer, the Elk, and the Deer proper—all differing in the shape and size of their antlers.

THE REINDEER.



REINDEER.

The Reindeer is of about the size of the Red Deer, but its legs are shorter and thicker. The horns, which exist in both sexes, are divided into several branches; at first they are slender and pointed, but as they grow they extend, and ultimately terminate in broad and toothed palmations. The hair of this animal, which is brown in summer, becomes almost white as winter approaches—a circumstance which accounts for the idea among the ancients, that the "Tarandus" could assume any color it thought proper.

The Reindeer is met with only in the extreme north of Europe and of America. It is more especially a native of Lapland, where it is as serviceable to the sojourner in those icy regions as the Camel to the inhabitants of the sandy desert. The Laplanders keep numerous flocks of them, drive them in summer-time to the mountains of their country, and in winter cause them to return to the plains, where they use them as beasts of burden and of draught, eat their flesh, feed their children with their milk, and clothe themselves with their skins. "These useful animals," says Mr. Lloyd, "not only mainly contribute to the subsistence, but constitute the chief riches of that nomade people. Without the Reindeer, indeed, the Lapp could hardly contrive to exist in the dreary region he inhabits, the needful provender being too scanty to admit of the well-being of other animals, such as Sheep and horned Cattle, which in more southern countries are made subservient to the purposes of Man."

"A large herd of Reindeer," says Lloyd in his *Scandinavian Adventures*, "traversing the open country or the surface of a frozen lake, as the case may be, when the Lapp is changing his encampment, is a very magnificent sight. In the front walks a Man leading a Reindeer, or perhaps the Man quite alone, who only now and then calls to the animals, which, at a few paces' distance, faithfully follow where he leads."

"In the first ranks of the herd one commonly sees many noble males, who proudly elevate their heads, attired with large and branching antlers. The rest of the herd follow one another in close phalanx. It resembles a wondrous moving forest, whose innumerable branched crowns, with their rapid and constantly shifting motion, make the most pleasing impression on the eye and mind of the spectator."

"The Lapp sometimes calls a great herd of Reindeer a sava, or sea, a figurative expression, beautiful as faithful; taken, probably, not only from the immensity of the ocean, but from its surface being in constant undulatory motion."

THE ELKS.



ELK OR MOOSE.

The Elk, or Moose Deer, the typical representative of this sub-family, is an ungainly-looking animal, as large as, or larger than an ordinary Horse. It seems to be raised on legs of disproportionate height. Its muzzle is broad and pendulous; its throat swollen, as if it was afflicted with a goitre; while its hair is rough and of an ashy color of variable shades. The horn of the Elk is at first dagger-shaped, and then divided into strips; but at the age of five years, it assumes the shape of a broad triangular expansion, with prongs upon its outer margin. The weight of these horns increases with the age of the animal, until they weigh fifty or sixty pounds, and present as many as fourteen antlers or projections from each horn. 149

This animal inhabits the forests of the north, both of the European and American continents, where it may be seen in small herds, making its way through the marshy forests. It is an excellent swimmer, and from the peculiar structure of its hoofs, able to cross marshy ground with great facility. The sense of smell in the Elk is exceedingly acute; and when once he scents a pursuer, he darts away with lightning speed, and usually without a single pause till he is four or five miles away from the object of his fear. He frequents in summer low and marshy ground, where water and trees abound; while in winter he resorts to thicker shelter on higher levels. The Elk feeds chiefly by day, in the summer on the bark, leaves and small branches of young trees, and various species of grasses. In the winter he adds to his food the leaves of various firs, and different kinds of lichens. 150

THE DEER PROPER.

The animals classified under this title include a large number of species distributed over the warm and temperate regions of both continents. The animals are remarkable for their grace and agility. The various species differ somewhat in the shape of their antlers, and the color of their coat, which is sometimes all of a fawn-colored shade, sometimes dotted over with white spots during their youth, and sometimes mottled during the whole of their life. The principal species are the Common Stag, or Red Deer, the Large Stag of Canada, or Wapiti, the Virginian Stag, the Axis, the Porcine Deer, the Fallow Deer, and the Common Roe.

THE RED DEER.

The Red Deer is certainly one of the most beautiful of European animals, owing to the majestic antlers which adorn its head, and its stately and graceful bearing. This quadruped is about the size of a small Horse. Its coat, which varies according to the season, changes from light brown in summer to greyish in winter. It has generally a very gentle and timid disposition, and dreads the presence of Man, taking flight at the slightest alarm. On the contrary, when not disturbed, it manifests an amount of laziness which contrasts strangely with its extraordinary agility.

When arrived at a certain age, and in full possession of all its strength, the Stag loves solitude, and in localities where possible, confines itself during the whole summer to thickets and woods, scarcely coming forth except at night to search for sustenance; this done, it again retires to the thickest brake, to rest and digest its food. At the end of autumn it visits the plains, making its way into badly-enclosed gardens, where it satisfies its appetite with the agriculturist's cereals and fruit. If there should not be a sufficiency of the latter on the ground, the Stag increases the supply by standing upright against the trunk of the tree, and using its antlers as a pole to knock down enough to satisfy its appetite.

The favorite food of the Red Deer is grass, leaves, fruits and buds; but as none of these can be found in winter, it is compelled to eat moss, heath and lichens. When the ground is covered with snow it will feed upon the bark of trees. At this season of the year these animals assemble in numerous herds under the tallest trees of the forest, to obtain shelter from the north wind, when they crowd closely against one another for warmth.

The Stag produces every year a new head of horns; and its age is generally indicated by them. At six years of age it is said to possess a full head; in the following years, and up to the end of its life, it is known as a Royal Stag.

THE CANADIAN STAG.

A magnificent species of Stag is found in North America, which is called the Large Stag of Canada, or Wapiti. This animal bears some resemblance to the Elk. It is easily tamed, and soon becomes used to confinement. The North American Indians catch it in snares when young, and rear it with care. At maturity they harness it to their sledges during the winter, and its powerful frame enables it to draw heavy loads. Its flesh, which is excellent, forms a large portion of the Red Man's sustenance.

THE VIRGINIAN DEER.

The Virginian Deer is common in the United States, where it is the favorite animal of chase. It is larger than the Fallow Deer, and is excessively abundant in some portions of this country; but so many of them are annually slaughtered that, before a hundred years are past, says Audubon, this animal will have become an extraordinary rarity. Their death is generally accomplished by the hunter stalking on them unawares, when they are shot; or driving them from cover when their favorite passes (which are easily distinguished by the experienced) are guarded by marksmen.

THE SAMBOO, AXIS AND PORCINE DEER.

The Indian continent and Malay Islands produce several very remarkable species of Stags. First let us mention the Samboo, or Aristotle Deer, so called because it was first described by that celebrated philosopher of antiquity; then the Axis, a very elegant animal with a fawn-colored coat speckled with white, and horns furnished with only two branches; and lastly, the Porcine Deer, which owes its name to its small size and massive shape. In Bengal, these two last named species are reared in a domesticated state, and fattened for the table.

THE FALLOW DEER.

The Fallow Deer holds a middle place in size between the Red Deer and the Roe. Its height, at the withers, is little more than ten hands. It may be easily recognized by its horns, which are round at the base, and palmated above. Its coat, like that of the Axis, is fawn-colored or brown, dotted over with white spots, which in summer are very distinctly marked, but are scarcely perceptible in winter. Its habits differ but slightly from those of the Red Deer.

The Fallow Deer is found over a large part of Europe, in the north of Africa and also in Asia Minor.

THE COMMON ROE.

The Roe Deer is one of the most elegant and graceful representatives of this group. It does not measure much more than a yard in length. Its horns are small, and very simple in their shape. They are composed of a deeply indented stem, which is straight for the greater part of its length, and furnished at the top with two branches, forming a fork at the extremity. Its coat is a uniform fawn-color, the shade of which varies with the season.

The Roes frequent young woods and thickets in the vicinity of cultivated ground, where they delight to crop the buds and shoots, thus doing considerable mischief in plantations. They are timid, intelligent and gentle; the least unaccustomed noise frightens them. Still, all their precautions are not sufficient to protect them against the multitude of huntsmen eager for their capture—an eagerness the more excusable as the Roe furnishes the finest venison.



Whale Attacked by Bloodheads.

THE Whale family, or the Cetacea, are really aquatic animals, although they resemble Fishes externally. Their whole structure—their lungs instead of gills for breathing, their heart, and their manner of feeding their young, all show that they belong to the Mammals. Only, instead of being organized for living on land, they are better suited for the water. Some of them reach an enormous size, and are the giants of the animal kingdom.

Their body, more or less spindle-shaped, is terminated in a tail which is very broad and forms a fin. This fin or tail is not vertical, as in Fishes, and it is the principal agent for moving these living masses.

On the back of most of the Cetacea there is another fin, which is merely a part of the skin. They have no hind fins, and their great front fins or arms are of little use for locomotion through the water, but serve to balance their movements.

The skin of the different members of the Whale family is generally quite hairless, which very rarely happens in the case of other Mammalia. The largest of other animals are small when compared with many of the Cetacea. These great creatures swim quite rapidly, however. Because of the air contained in their chest, and the great quantity of grease with which their tissues are charged, and the great strength of their tail in pushing them forward, they move easily through the waves, looking for the Fish, Molluscs and Crustacea, which they eat in enormous quantities.

The Whale family is first divided into two classes, the Blowing Cetacea, and the Herbivorous Cetacea. The Herbivorous class includes the Manatees and the Duyongs who live on the weedy, shallow shores around the islands and mouths of rivers, and feed on the sea-weed.

The class of Blowing Cetacea includes the Whale proper, the Rorquals and the great Cachalot or Sperm Whale, in which the head constitutes in itself one-third, or even one-half of the total length of the creature, the Whalebone Whale; and a second division containing the Dolphin, the Porpoise, Narwhal, etc., in which the head is in the usual proportion to the body.

We hear surprising stories of the Whales of past ages which measured from one or two hundred feet in length; and from the skeletons that have been discovered, it is found that even if they did not reach this great length, it is probably true, as Goldsmith claims, that they were very much larger in the past than now. It is the same as with the quadrupeds, the huge Mastodons, etc., from the skeletons that have been dug up from time to time it is evident that there must have been terrestrial animals twice as large as the Elephant, but these, being rivals with mankind for the large territory required for their existence, must have been destroyed in the contest. And in the sea, as well as upon land, Man has destroyed the larger tribes of animals.

The Whale is the largest animal of which we have any certain information; and the various purposes to which, when taken, its different parts are converted, have made us well acquainted with its history. Of the Whale proper, there are no less than seven different kinds; all distinguished from each other by their external figure or internal formation. They differ somewhat in their manner of living; the Fin-fish having a larger swallow than the rest, being more active, slender and fierce, and living chiefly upon Herrings. However, they are none of them very voracious; and, if compared to the Cachalot, that enormous tyrant of the deep, they appear harmless and gentle. The history of the rest, therefore, may be comprised under that of the Great Common Greenland Whale, with which we are best acquainted.

The Great Greenland Whale is a large, heavy animal, and the head alone makes a third of its bulk. It is usually found from sixty to seventy feet long. The fins on each side are from five to eight feet, composed of bones and muscles, and sufficiently strong to give the great mass of body which they move, speed and activity. The tail, which lies flat on the water, is about twenty-four feet broad, and, when the Whale lies on one side, its blow is tremendous. The skin is smooth and black, and in some places marbled with white and yellow; which, running over the surface, has a very beautiful effect.

The Whale makes use only of the tail to advance itself forward in the water. This serves as a great oar to push its mass along; and it is surprising to see with what force and celerity its enormous bulk cuts through the ocean. The fins are only made use of for turning in the water, and giving direction to its course. The Mother-whale also makes use of them, when pursued, to bear off her young, clapping them on her back, and supporting them, by the fins on each side, from falling.

The outward or scarf skin of the Whale is no thicker than parchment; but this removed, the real skin appears, of about an inch thick, and covering the fat or blubber that lies beneath; this is from eight to twelve inches in thickness; and is, when the Whale is in health, of a beautiful yellow. The muscles lie beneath; and these, like the flesh of quadrupeds, are very red and tough.

Nothing can exceed the tenderness of the mother for her young; she carries it with her wherever she goes, and, when hardest pursued, keeps it supported between her fins. Even when wounded, she still clasps her baby; and when she plunges to avoid danger, takes it to the bottom; but rises sooner than usual, to give it breath again.

It seems astonishing how a shoal of these enormous animals find subsistence together, when it would seem that the supplying even one with food would require greater plenty than the ocean could furnish. To increase our wonder, we not only see them herding together, but usually find them fatter than any other animals of land or sea. We likewise know that they cannot swallow large Fishes, as their throat is so narrow, that a Fish larger than a Herring could not enter. How then do they subsist and grow so fat? A small insect which is seen floating in those seas, and which Linnaeus terms the Medusa, is sufficient for this supply.

These insects are black, and of the size of a small bean, and are sometimes seen floating in clusters on the surface of the water. They are of a round form, like Snails in a box, but they have wings, which are so tender that it is scarcely possible to touch them without breaking. These serve rather for swimming than flying; and the little animal is called by the Icelanders, the Walfischoas, which signifies the Whale's provender. They have the taste of raw muscles, and have the smell of burnt sugar. These are the food of the Whale, which it is seen to draw up in great numbers with its huge jaws, and to bruise between its barbs, which are always found with several of these sticking among them.

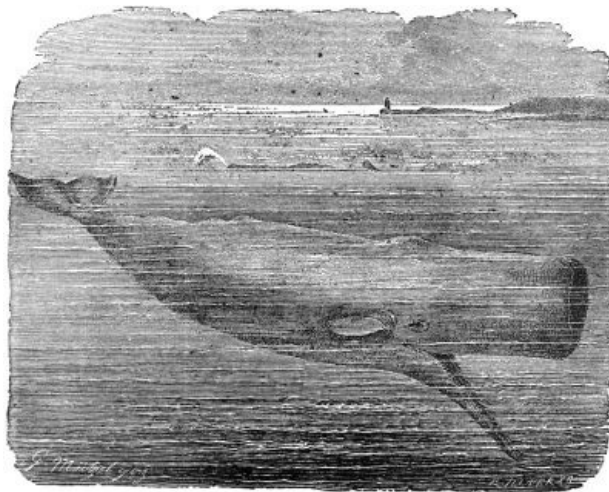
As the Whale is a meek animal, it is not to be wondered that it has many enemies, willing to take advantage of its disposition, and inaptitude for combat. There is a small animal, of the Shell-fish kind, called the Whale-louse, that sticks to its body, as we see shells sticking to the bottom of a ship. This hides itself chiefly under the fins; and whatever efforts the great animal makes, it still keeps its hold and lives upon the fat, which it is provided with instruments to reach.

The Sword-fish, however, is the Whale's most terrible enemy. "At the sight of this little animal," says Anderson, "the Whale seems agitated in an extraordinary manner; leaping from the water as if with affright. Wherever it appears, the Whale perceives it at a distance, and flies from it in the opposite direction. I have been myself," he continues, "a spectator of their terrible encounter. The Whale has no instrument of defence except the tail; with that it endeavors to strike the enemy; and a single blow taking place, would effectually destroy its adversary; but the Sword-fish is as active as the other is strong, and easily avoids the stroke; then bounding into the air, it falls upon its great enemy, and endeavors, not to pierce with its pointed beak, but to cut with its toothed edges. The sea all about is soon dyed with blood, proceeding from the wounds of the Whale, while the enormous animal vainly endeavors to reach its invader, and strikes with its tail against the surface of the water, making a report at each blow louder than the noise of a cannon."

The Whale has still another deadly enemy—the tribe of Bloodheads, known as the Wolves of the ocean. This is a species of Whale and, like the Whale, also belongs to Mammalian animals. Although the Bloodheads in relation to the enormous Whale may be termed small, they wage war in troupes of five or ten, undaunted and impassionately attacking the huge monster who usually succumbs to the

assault. They, therefore, deserve the name assigned them by Linneus, "Torment of the Whale." They are even more blood-thirsty than the Shark in boldness, killing Seal and smaller Fish in masses.

The Whale when attacked by these Fish of Prey appears to become at first paralyzed with fear and hardly makes any effort to defend himself, although it would hardly benefit him to do so as the Bloodheads are the swiftest of the Whale family, swimming with extraordinary quickness and dexterity. The "Wolves of the Sea" encircle the gigantic, clumsy Whale like a pack of Hounds around a pursued and exhausted Deer. Some of them attack him at the head and forefins, others attack him from underneath, while others attack the lips, and when he opens his gigantic mouth, attempt to slash apart his tongue. Finally the giant becomes angered. He whips the water with his tail and his front fins with tremendous force, snorts powerful streams out of the nostrils of his colossal head; dives under and shoots up in an endeavor to shake off his enemies and to dispatch them with his fins. Often this terrific combat, as illustrated on page [88](#), lasts for a considerable length of time, ending mostly with the downfall and death of the Whale. The Bloodheads tear him apart in a horrible manner until death ensues, after which they feast for days with pleasure on the immense carcass, and then start in search of further prey.



SPERM WHALE.

In these Cetaceans the head is of vast size and excessively vaulted, or arched, especially in front. The upper jaw has no whalebone nor teeth of any kind, excepting a few rudiments. The lower jaw, which is very narrow and much elongated, is armed on each side with a lengthy row of teeth of considerable size and conical shape, the points of which when the mouth is shut, are received into corresponding depressions in the upper jaw.

The upper region of their prodigious head is made up of vast caverns filled with an oily fluid, which on cooling becomes solid, constituting the valuable substance generally known by the name of "spermaceti." It is not, however, in the vaults of the head only that this fat is found. It appears to be distributed through various excavations in the body, and to be diffused even among the dense mass of blubber which envelopes the exterior of the animal.

The peculiar odorous substance, so well known under the name of "ambergris," is likewise obtained from the Cachalot.

How many species of these monstrous creatures exist in the ocean we cannot tell, seeing that the observations of the Whale-fishermen are generally by no means sufficiently precise for the purposes of Natural History. That which appears to be most frequently met with is the Great-headed Spermaceti Whale.

This giant of the deep has merely a callous hump upon its back, in place of a dorsal fin. On each side of its lower jaw are from twenty to twenty-three large conical teeth. The "blow hole" through which it respire is a single orifice, situated on the top of the head—not a double aperture as in most other Cetaceans. The species seems to be widely distributed, but its range is principally confined to the oceans south of the Equator.

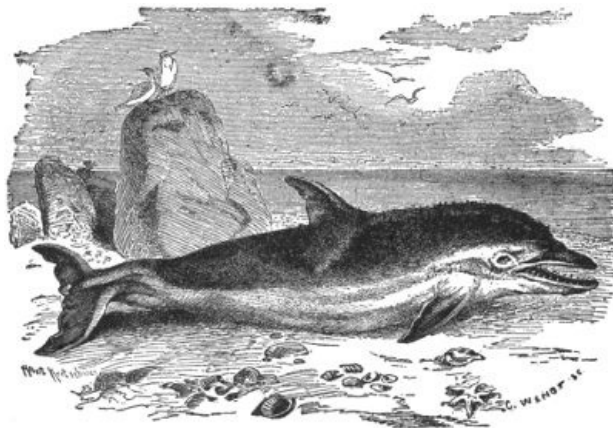
THE WHALEBONE WHALES.

These Whales resemble the Cachalots, both in the vastness of their bulk, and in the disproportionate size of their head, when compared with their entire length. Their forehead, however, is considerably flatter than that of the Spermaceti Whales, and they have no true teeth. Instead of the usual implements of mastication, their upper jaw, which somewhat resembles a great boat turned keel upwards, or the roof of a house, has its under surface densely furnished with plates of a substance called "whalebone," consisting of horny plates resembling the blades of scythes, placed transversely. These becoming thinner towards their edges, are fringed with a long hair-like border, so that the whole apparatus forms an immense sieve.

The Whalebone Whale—long considered as the largest animal at present in existence—according to the testimony of the Rev. Captain Scoresby, seems rarely, if ever, to exceed seventy feet in length; a size, which, although prodigious, is exceeded by some other Cetaceans. Its back is unprovided with a dorsal fin. The blubber, or elastic fat beneath its skin, which is sometimes several feet in thickness, furnishes immense quantities of oil, in search of which whole fleets were formerly fitted out, until the entire race of these Whales has become almost extinct. At a very recent period these leviathans of the ocean were not uncommonly met with on the British coast; but generally they have been compelled to retire for safety to the recesses of the ice-bound coasts of the north, and even there they are rarely to be encountered, their number appearing to constantly diminish.

In addition to the large supplies of oil fat, commerce was indebted to them for the whalebone, formerly so abundant, consisting of broad plates of that black, flexible, horny substance, sometimes measuring eight or ten feet in length; and of these a single individual has been known to furnish eight or nine hundred from each side of the roof of its mouth, as well as upwards of twenty tons of oil. Notwithstanding its colossal size, the Whalebone Whale is very harmless, living principally upon the small animals that crowd the seas to which it resorts, straining them from the surrounding water by means of its sieve-like mouth.

THE DOLPHINS.



DOLPHIN.

These animals are easily distinguished from the others of the Whale family by their arched forehead, the beak-like jaws, and the beauty and elegance of their movements in the water. For many ages the Dolphin has been noted for its intelligence and docility, its affectionate disposition being quite as noticeable among the water animals, as that of the Dog or the Elephant among quadrupeds. 157

They usually swim in companies, leaping and tumbling over one another with amusing playfulness. They live principally upon Fishes, which, from the swiftness of their movements, they have no difficulty in catching.

People have always had a great idea of the strength of the Dolphin, and at one time it was said of those who attempted to perform impossibilities, that they "wanted to tie a Dolphin by the tail." It is principally with the assistance of this powerful tail that the Dolphin swims with such rapidity, and that it has gained for itself the title of "Sea-arrow."

When the Dolphins—which go in numerous troops and in certain order—meet a ship, they follow it, so as to catch the Fish which the refuse thrown from the ship attracts in quantities. At whatever speed the ship may be, either sailing or steaming, they keep up with it, and play about among the waves, bounding, turning over and over, and never tiring of frisking and tumbling, affording continual amusement to the crew.

Many authors have said that the Dolphin leaps high enough above the surface of the water to jump on board small vessels. They say that in this case the animal curves its body round with force, bends its tail like a bow, and then unbends it, in such a manner as to fly like the arrow from a bow.

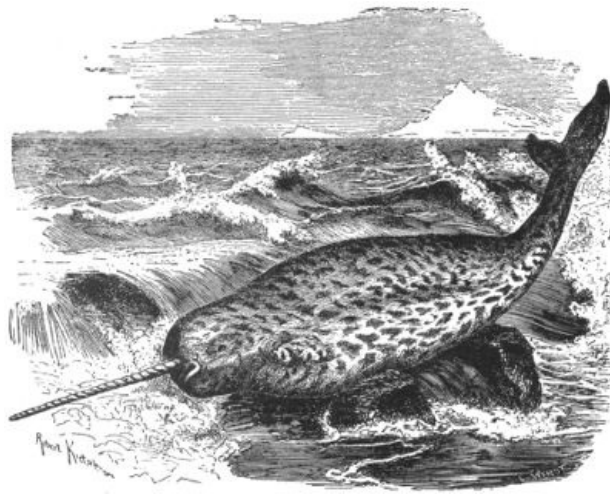
When they saw these animals following their ships, the sailors imagined that they were accompanying them from an instinct of sociability. They have even gone so far as to say that these animals have a sort of affection for seamen, as well as for each other. 158

THE PORPOISES.

The Porpoises differ from the Dolphins in having their snout short and uniformly rounded, without a beak-like projection. Their teeth are compressed, sharp-edged, and rounded, their number from twenty-two to twenty-five in each jaw. Their skin is smooth and shining, black above and white below, and as they never attain a greater length than four or five feet from the tip of the muzzle to the extremity of their flat horizontal tail, they may be regarded as the smallest of the Cetacean Order. These animals abound in every sea, and many people have witnessed their unwieldy gambollings, the character of which is by no means badly expressed by their name (porc-poisson, hog-fishes). They have, in fact, somewhat the appearance of floating pigs, as they wallow in the trough of the sea and roll over each other amid the foaming waves.

Their food consists entirely of Fishes, of which they destroy great quantities. They follow the shoals of Herrings and of Mackerel, and when pursuing their prey, not unfrequently venture into the estuaries of rivers, and make excursions up the rivers themselves.

THE NARWHALS.



NARWHAL.

The Narwhals have no teeth, but are furnished with an enormous tusk, that projects from the upper jaw, and becomes a most formidable weapon.

The Narwhal is an inhabitant of the Arctic seas, where it sometimes attains a length of from twenty to twenty-five feet. Its skin is beautifully marbled with brown and white; its muzzle is round, and its mouth, unlike that of other Cetaceans, is disproportionately small. Its single tooth, or horn-like tusk, projects from the head in a line with the body, sometimes to the length of nine or ten feet. It is spirally twisted, tapering to a point, and as it is composed of the hardest ivory, is capable not only of transfixing the body of a Whale, but when impelled by such momentum as is derived from the speed of its ponderous owner, has been known to penetrate the oaken ribs of a British man-of-war to the depth of nearly a couple of feet, and probably has thus caused the loss of many ships incapable of resisting the shock.

HERBIVOROUS CETACEANS.

Until a very recent period the animals composing this family were quite unknown, or perhaps we ought rather to say they were just sufficiently known to make them the objects of superstition. Seeing that there is in their general appearance, somewhat of a resemblance to the human form, the casual glimpses obtained of them at once satisfied their first discoverers that they were Tritons and Sirens, such as they had read of in mythological writings, and the belief in the existence of Mermaids and Mermen was thus at once confirmed.

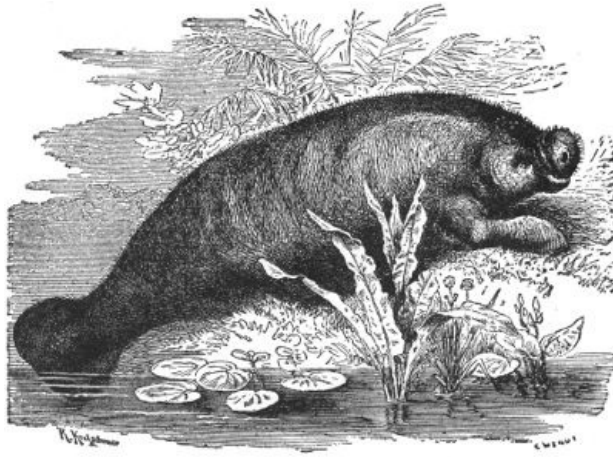
In the works of Gesner, Aldrovandus and Jonston, the earliest authors after the renaissance of Natural History in modern times, the figures of creatures having human bodies joined with the tails of Fishes are inserted with the utmost faith in their existence.

A more accurate acquaintance with these strange creatures has, however, revealed to later voyagers that they are merely a race of animals very closely allied in their organization to Whales, which in form they closely resemble, while their internal structure shows them to be still more nearly related to the gigantic Pachyderm Quadrupeds, such as the Hippopotamus and the Tapir.

The main feature which distinguishes the Herbivorous Cetaceans is their total want of hind limbs, a circumstance in which they resemble the true Whales and Dolphins; but in the structure of their nostrils they conform to the usual arrangement met with in four-footed Mammalia. Instead of whalebone or the sharp conical teeth of the Dolphins, they are furnished with broad, flat grinders, wherewith they chew their vegetable food, which consists principally of the sea-weeds, etc., abundant near the shores which they frequent. In short, as Buffon well expresses it, these creatures terminate the list of terrestrial quadrupeds and commence the history of the population of the sea, or, more correctly, form the connecting link between the Mammiferous inhabitants of the ocean and those of the river and the marsh.

This family comprises the Manatees and the Dugongs.

THE MANATEES.



MANATEE.

These animals are distinguished by the arrangement of their teeth and by certain peculiarities in the structure of their head. The number of their teeth is considerable, their grinders have roots distinct from the crown of the tusk, which forms a grinding surface composed of transverse elevated ridges. The incisor teeth are quite rudimentary. Their only limbs somewhat resemble hands, and their fingers are provided with nails, while the fin at their tail is not forked, but single, and of an oval shape. These creatures seem to be intermediate in their structure between the Pachyderms and the Cetaceans, seeing that their grinding teeth very much resemble those of the Tapirs. Three species are known to Naturalists—one from South America, one from Senegal and one from Florida.

THE SOUTH AMERICAN MANATEE.

Although the western coasts of Africa were frequented by sailors in very ancient times, and known to Europeans long before the discovery of the American continent, the Manatee which is found upon the eastern shores of America was known to Naturalists before the African species. The interest aroused by the discovery of a new world attracted enlightened men, who flocked to its shore, and described its productions; while the African continent, never having received Europeans but as enemies, was in turn treated as an enemy's country, and could only be visited at a considerable risk.

The name of Manatus is evidently derived from the Spanish word mano, a hand, or manato, furnished with hands, seeing that the creature seems to have no arms, little being seen externally but the fingers. Its length is from eighteen to twenty feet, and it is at least six feet across at the broadest part of its body, just behind the hands. Its general appearance is that of a Whale; it has no neck, nor any vestiges of hinder extremities, but it differs materially from the true Cetaceans in many points of its structure. Four of its fingers, for instance, are furnished with nails, and its tail is of an oval shape.

This animal appears to live entirely upon sea-weed, nothing but the remains of various kinds of fucus having been found in its stomach. The form of its teeth corresponds with the supposition that this is its only food, and seeing that it has no incisor teeth, it must necessarily browse this kind of grass by means of its fleshy lips, which are covered with stiff hairs. The habits of the Manatee are gentle; it is even stated to be capable of being to some extent tamed. It associates with its fellows in herds, which are more or less numerous. The mother exhibits the greatest affection for her young ones, which are one or two in number; she carries them in her hands while feeding them, and her milk is said to be as sweet and well-tasted as that of a cow. The Manatee frequents the estuaries of the rivers of South America, and even sometimes ventures to ascend their streams for a short distance. Its flesh and its fat are both considered delicacies. One is said to resemble veal, the other bacon, the latter having the additional recommendation of keeping good for a long period.

THE DUGONGS.

The Dugongs were for some time confounded with the Walruses and Manatees, under the generic name of *Trichecus*, until Lacepede, perceiving their distinctive characters, separated them as a distinct race, to which he applied the name Dugong, thus trying to Latinize their native appellation. Such Latin as that, however, could not be tolerated even by Zoologists, and hence Illiger conferred upon them the more euphonious name of *Halicore* (daughter of the sea). Although the organization of the Dugong in its general features resembles that of the Manatee, there are important differences whereby they are clearly distinguishable. The molar teeth of the Dugong have no roots, but present merely a flat surface bordered with enamel; moreover, they are fewer than in the Manatee, and the Dugong has rudimentary incisors. The structure of the hands is likewise modified. The fingers of the Dugong have no nails, and very much resemble the flippers of ordinary Cetaceans, while the nostrils, instead of opening at the end of the snout, are approximated to the top of the head, another circumstance by which the Dugongs seem to be intermediate between the herbivorous and carnivorous forms of Whale.

The only known species is the *Halicore* Dugong. These animals live in societies, in shallow bays near the mouths of rivers, and in narrow arms of the sea where the depth is only two or three fathoms. In such situations they find abundance of sea-weed, which seems to constitute their only nutriment, and which they tear from the rocks by means of their flexible but powerful and fleshy lips. In the Sunda Isles Dugongs were formerly numerous, but their flesh is esteemed a dainty, and the species is now becoming scarce.

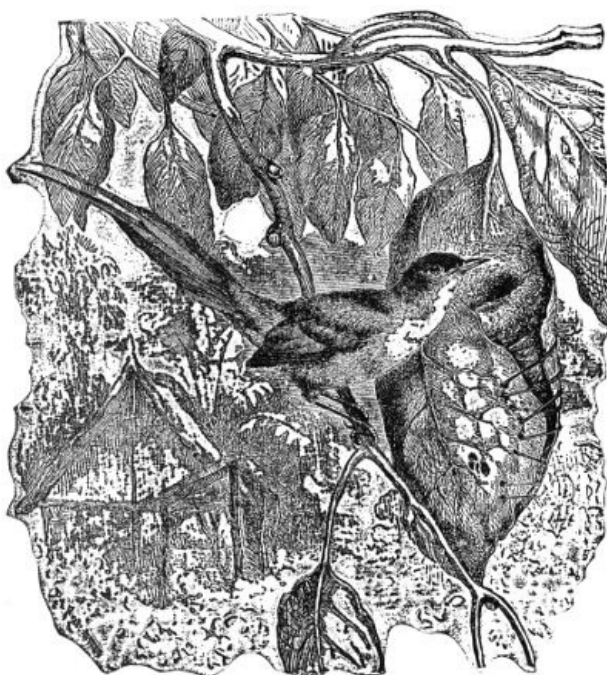
The chase after them is carried on during very calm weather, and generally by night. Their vicinity is detected by the noise they make in breathing as they lie at the top of the water, when by approaching them cautiously in a boat, they are easily harpooned. When once the weapon is fixed, all the efforts of the assailants are directed to getting a rope round the tail of their victim, and this being accomplished it is quite helpless.

The mother and her young, and also the male and his mate, show great attachment for each other; if one is caught, the capture of the other is a certainty, as the survivor, totally regardless of danger, gives itself up to its enemies.



STONE EAGLE GUARDING HIS BOOTY.

IN the study of our beautiful and interesting friends, the Birds, it is useless to enter into any prolonged discussion concerning their structure and their habits in this limited space; we are too eager to arrange them in their proper families, and learn of the interesting traits of individuals.



TAILOR BIRD.

There is one thing worthy of consideration, however, in studying the Birds as a whole, before taking up individuals; and that is their wonderful intelligence in the building of their nests and the care of their young. It is difficult to understand this intelligence as exhibited in Birds. In the Mammals, whose organization approaches nearer to our own, we are enabled partly to comprehend their joys and griefs, but in the case of Birds it is difficult to understand their sensations.

To explain this mystery a word has been invented which proves generally satisfactory. Thus we call the sentiment which leads the Birds to perform so many admirable actions, instinct. The tenderness of the mother for her young for instance—a tenderness so full of delicacy and foresight, is, we say, only the result of instinct. It is agreed, however, that this instinct singularly resembles the intelligence called reason.

Take the intelligence that is shown in the majority of Birds in the nest building. The Tailor bird—an East Indian Bird related to the Warblers—shows rare intelligence in constructing its nest by stitching together the leaves of plants; and as we study the individuals of the different families of Birds we will find numerous instances of this marvellous quality commonly known as instinct.

Birds have been arranged in groups and families in various ways by different Naturalists, but the most satisfactory classification is the division into six great families. First, the Raptores, or Birds of Prey; second, the Natatores, or Swimming Birds; third, the Grallatores, or Wading Birds; fourth, the Scransores, or Climbing Birds; fifth, the Gallinaceae, or Domestic Birds; sixth, the Passerines, or the Sparrow Family.

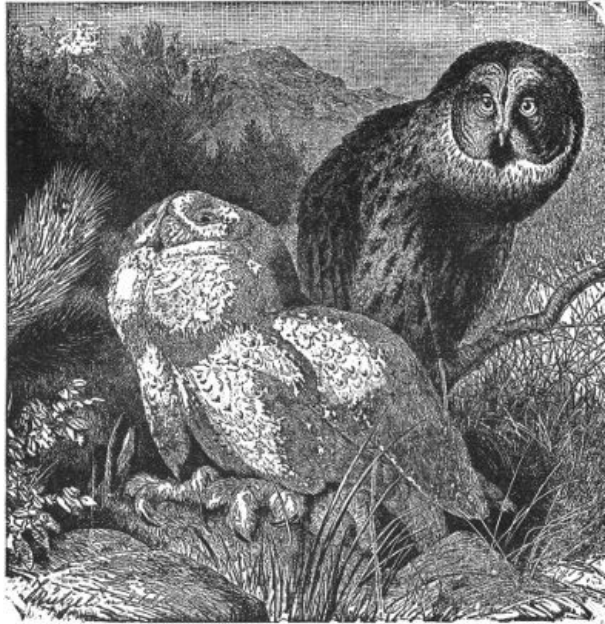
BIRDS OF PREY.

The numerous Birds classified as Raptores, or Birds of Prey, are divided into two great families—the Owls or Nocturnal Birds of Prey, who hunt and kill their prey during the night; and the Diurnal Birds of Prey, including the Falcons, Eagles and the Vultures, who seek their food during the day.

All the different Birds belonging to this order are characterized by a strong, hooked and sharp-edged bill, strong legs covered with feathers, four toes, three in front and one behind, which are usually very flexible, and provided with strong talons. As their name indicates, they live by plunder and blood-shedding. They correspond in the class of Birds with the Carnivora among Mammals. Like them, they live on animals, either dead or living; like them, too, they possess the strength and cunning which are necessary to secure their victims.

The Birds of Prey do not possess any of the graces and power of song which characterize other races of Birds. Their only utterance consists of harsh cries or strange and plaintive sounds, and it is very seldom that their plumage is gay or attractive. Destruction is the sole object of their existence, and they are the terror of the rest of the feathered creation.

They are found over the whole surface of the globe. The larger species inhabit lofty mountains, or seek a hiding place in solitary cliffs.



OWLS.

The Owls represent the nocturnal Birds of Prey. They are distinguished by large staring eyes directed straight in front, and surrounded by a circle of slender and stiff feathers, which by their radiation around the face form a nearly complete disc. They have short strong bills and sharp claws for seizing their prey.

With the exception of the Barn Owl, all these nocturnal Birds of Prey lay eggs of spherical shape. They live in couples, only assembling in flocks at the time of migrating to a warmer climate. They do not build any nests but deposit their eggs in the cavities in old trunks of trees or ruined habitations. None of these Birds come out of their roosting places during the day, unless they are forced to do so.

For brief and simple classification the Owl family is usually divided into two groups—the Horned Owls and the Hornless Owls.

THE HORNED OWLS.

These are distinguished by two tufts or horns of feathers placed on each side of their head. They are sub-divided into many species. The five most important are the Great Owl, Virginian Eared Owl, the Long-eared Owl, Short-eared Owl, and Scops-eared Owl.

The Great Owl is the most remarkable of the whole family on account of its size and strength. Its height is on an average of two feet, and it is known as the king of nocturnal Birds. Its bills and claws are of a black color, very strong and hooked. Its plumage is brown, with black spots and dark brown stripes. Its wings when extended, are not less than five feet across. This bird makes its home among the clefts of rocks on mountain sides, rarely leaving this elevated ground to descend into the plain, even when hunting. Its peculiar cry, re-echoing in the silence of the night, is a source of terror to the rest of the feathered creation. It feeds upon Rabbits, Moles, Rats and Mice, and even devours Toads, Frogs and small reptiles. This Owl is the most courageous of the family, and often fights with the Tawny Eagle. In these fierce fights, both the Owl and the Eagle are sometimes killed, as they bury their claws so deep in one another's flesh that they cannot withdraw them.

The Great Owl is common in Switzerland and Italy and also inhabits Asia.

The Virginian Eared Owl inhabits North America. This bird is nearly the size of the Great Owl of Europe. It is distinguished from the latter by a different arrangement of the feathered projections on its head, which, instead of starting from the ears, take their rise close above the bill. This bird feeds on young poultry, which it boldly carries off from the very midst of poultry yards; to the Turkey it is especially destructive. When other food fails, it feeds on dead fish. If caught when young it is easily tamed, but as it gets mature its blood-thirsty instincts become so powerful that it proves a most expensive pet.

THE LONG-EARED OWL.

The Long-eared Owl is more sociable than most nocturnal Birds of Prey, and is often met with in the north of France and England. It is also found in Asia, Africa and America. It is not large, for it seldom exceeds fifteen inches in length; nevertheless, it is possessed of great courage, and attacks successfully Birds and Mammals of considerable size. Its appetite appears insatiable. The general color varies from pale to dark brown, marked with dark pencilings. Any nest, even that of the Squirrel, suits its fancy, in which it lays four or five white eggs. Although so blood-thirsty, it is easily tamed.

The Short-eared Owl is about a foot in height. The horns of this species are much shorter than those of the Long-eared Owl. Its length is about fifteen inches; its plumage is russet, shaded with grey and brown. It has a black bill and claws, and beautiful yellow eyes. It inhabits hollows in rocks or dead trees, and old ruined houses, and sometimes installs itself in nests left vacant by Magpies, Ravens and Buzzards.

This Owl being very fond of Mice, which form its principal food, all that is necessary to attract it to a snare is to imitate the cry of those Rodents. It also feeds on Moles, and, in cases of emergency, even on Frogs, Toads, Leverets and young Rabbits. Its nest has been found in a Rabbit hole. This Bird displays much courage in the defence of its young when it thinks them in danger, and does not even fear to attack Man. Its cry is a kind of low moaning, which it frequently utters during the night.

The Scops-eared Owl is remarkable for its small size, which does not exceed that of the Thrush; and for its horns, which are perfectly formed of a single feather. These Owls are more sociable than the others, and they are of great service to the farmers in destroying field Mice. Bats and large insects are also favorite food for these Birds, and when these are scarce, they will eat Fish, and may then be seen hovering over ponds and rivers, seizing the Fish when they come to the surface of the water.

HORNLESS OWLS.

The Hornless Owls are much like the others with the exception of their smooth round heads, without any projecting feathers to form curious ears and horns. There are many species in this group, the principal ones being the Snow Owls, the Barn or Screech Owls, the Hawk or Canada Owls, Brown or Tawny Owls, Ural Owls, Burrowing Owls, and Sparrow Owls.

The Barn or Screech Owls are among the best known of the family, as they are found in nearly all parts of the globe. The White Owl, or Snow Owl, sometimes called the Harfang, may also be found in all parts of North America, Europe and Asia. Its plumage is a brilliant white, with some black spots on the head. This color is well suited to the nature of the places in which it lives, for it sometimes inhabits the most desolate solitudes of North America, Newfoundland, Hudson's Bay, Greenland and Iceland; and its color harmonizes so well with its surroundings that it can traverse almost unseen, the immense deserts of snow in search of its prey.

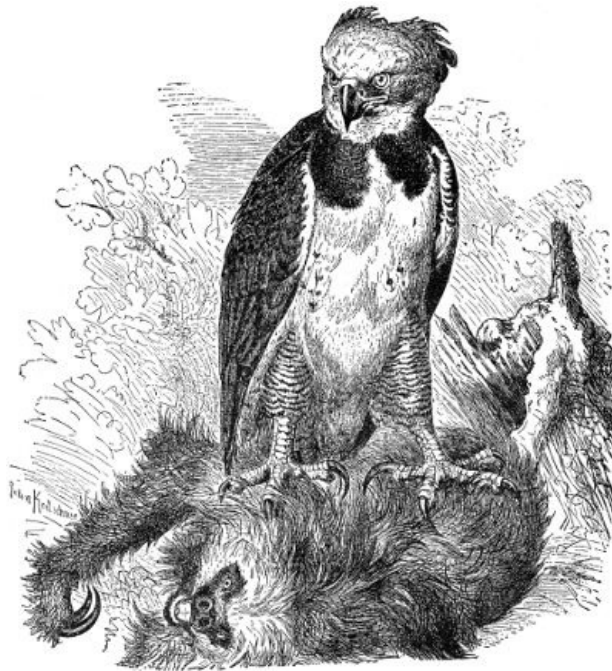
THE FALCON FAMILY.

The Falcon tribe form the most important group of the Diurnal Birds of Prey—or those that hunt during the day. They usually feed on living animals, also there are some species of this family that will feed like the Vultures on putrid flesh. The Diurnal Birds of Prey are divided into three different families—the Falcons, the Vultures and the Serpent Eaters.

The Falcon family is divided into the Falcons proper, the Eagles, Sea Eagles, Harpy Eagles, Buzzards, Hawks, Goshawks and Harriers.

Falcons properly so called (from falx a reaping-hook) are the ideal Birds of Prey. They have a short bill bent from the base with a very strong tooth on each side of the upper part, with which an indentation corresponds in the lower portion. The wings of this Bird are long and pointed, causing its flight to be powerful and rapid. They feed only on living prey, Birds and small Mammals, and they always hunt on the wing.

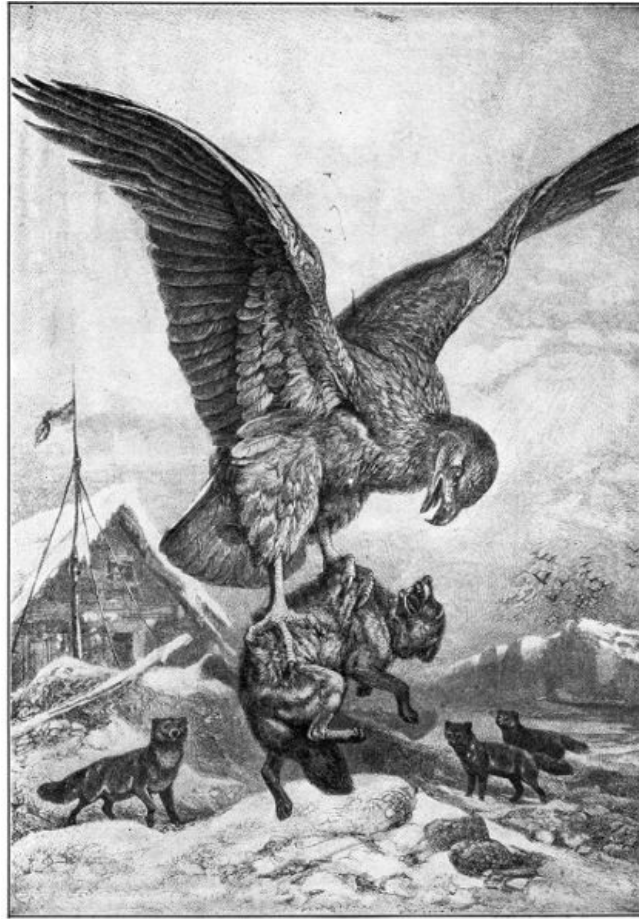
THE EAGLES.



HARPY OR CRESTED EAGLE.

The Eagles are distinguished from the Falcons proper by their strong bills which are scalloped and not toothed. Their wings are long and tails rounded. The Harpy or Crested Eagle is called the model species of this tribe. It is very large and the most formidable, measuring nearly five feet from the extremity of the head to that of the tail. Its bill is more than two inches in length, and its claws and toes are larger and more robust than the fingers of a man. It is said that the Harpy does not fear to attack animals of large size and even Men. Two or three blows from its bill are sufficient to break its victim's skull. The Harpy inhabits the great forests situated on the banks of the rivers of South America. The Indians, who have great admiration for its warlike qualities, show great respect for this Bird; and they use its long wing and tail feathers to adorn themselves on state occasions.

THE STONE EAGLE.



Eagle Picking up an Ice Fox.

Anyone who has visited Switzerland has often seen these powerful Birds swaying majestically over the highest point of the Alps. With widespread wings they glide along with easy motion. The sharp eye searches the earth anxiously and discerns the smallest prey from the greatest height. The Bird descends with slow circling movements and presently drawing his wings with loud, rustling noise, he darts to the earth like an arrow. He buries his outstretched fangs into the body of his prey and crushes it sooner or later, according to its size and power of resistance, without the use of his bill. After killing his prize, the Eagle spreads himself out to his full size and gives vent to a triumphant shriek of conscious victory. The powerful bill then begins the work of annihilation.

He steals smaller and larger animals—Rabbits, Lambs, Kids and Foxes. Nordmann relates that Stone Eagles have even been known to pounce upon heavy Swine. Neither are small Children safe from him. Among Birds, his prey is the Crane, Stork, Duck, Goose, etc., or any large and clumsy Bird. He does not attack swift Birds.

In the spring they hatch their eggs in a lonely, quiet cliff on the mountains, locating the nest in a strong tree. No other interloper is tolerated in the same district. Should any such appear, the male Stone Eagle advances with loud, angry shrieks. The intruder pauses, startled for the moment. He does not feel safe in the strange district and hesitates for a moment as to whether to undertake the combat with the rightful owner of the district. Soon, however, his boldness overweighs his better judgment and the powerful Birds circle about each other seeking to attack a weak spot. They circle nearer and presently with a bold plunge one swoops down upon his opponent. Each clutches the other with powerful fangs, making the blood flow and amid the rushing noise of the flapping wings, furious blows are struck, causing the feathers to fly in every direction. The combatants gradually sink lower and soon touch the earth upon which they roll about. Presently the intruder endeavors to free himself and, bleeding from many wounds, hastens away. The victor pursues him for a short distance and finally returns to his mate, who, having been an interested witness of the combat from the distance, welcomes him with joyful clamor.

The Stone Eagle lays from two to four eggs, about the size of a Peacock's, of a greenish white color with brown spots. During the time their young remain in the nest the parents' search for prey is continuous. In one of the nests, Hunter Regg found part of a Fox, a Prairie Dog and remains of not less than five Rabbits of the Alps.



Falcons Fighting.

The common name of the Sea Eagle—Pygargus—is derived from the Greek word which means “white tail.” These Birds feed on Fish and aquatic Birds. They are found along the shores of Europe, Northern Siberia, Asia Minor and Egypt. A powerful, bold and dangerous Bird of Prey, with a covering of slate colored and golden brown feathers with light and dark streaks and bands. Like the Stone Eagle, he pursues every wild animal he can overpower and besides this, he makes good use of his unfeathered talons to the terror of the watery inhabitants, in catching Fish with ease. The Porcupine’s prickly coat is no protection against him, nor the Fox’s sharp teeth. Neither the precaution of the Wild Goose, nor the readiness of the Diving Bird in disappearing under the waves, nor the guard of the faithful Dog and Shepherd over the Lamb. Neither the Fish’s cool element. All are the prey of the bold robber. He attacks Children, and, under favorable conditions, even grown persons. His principal nourishment is Fish and for this reason his aerie is generally near the seacoast or large inland streams. He does not at all despise carrion and during the winter regularly haunts fishing places and the regions of mankind, such as flaying places, slaughter-houses, etc., wherever there is a possibility of his obtaining booty. In Northern Russia and Siberia, in the winter, when every river and pond is frozen over, the Sea Eagle is obliged to exist entirely on land animals, and overcome by hunger boldly snatches a Fox from the horde (see illustration), soars away with and kills him; heedless of his struggles and attempt to free himself, by attacking with his sharp teeth, the fangs and bill grasping him.

THE BUZZARDS.



BUZZARDS.

The Buzzards have long wings and a large head. They do not chase their prey when it is on the wing, but hide themselves, where they wait until a victim passes within reach. When thus occupied they will sometimes remain for several hours perfectly quiet, looking so sleepy and inactive that their stupidity has become proverbial. This stupid look is partly due to the weakness of their eyes, which are affected by strong light.

They generally build their nests in the loftiest trees, and occasionally in thickets of brushwood among the rocks. When frost comes they visit farm yards and steal poultry, and when pressed by hunger they become very bold.

THE VULTURE FAMILY.



Vulture and Griffin Fighting over Prey.

The Vultures are the most disgusting of the feathered creation. Like the Hyena among animals, they rarely attack living prey, but live almost entirely upon putrid flesh, and after filling themselves with this food they will remain in a state of stupid torpor until it is digested. Yet much as we despise them, we must recognize their friendly mission to mankind, for while the other Birds of Prey are often of use to the farmers, etc., in killing off the field and barn Mice, and destructive insects, the Vultures remove all decaying flesh and putrid matter from the earth that might otherwise breed disease.

The Vultures fly heavily, but mount aloft to great altitudes. They have wonderful powers of vision. Should a carcass be left on the plain they immediately see it, and drop down, turning over and over in their hurry to arrive at the feast.

The Bearded Griffon, Condor, King Vulture, Urubu, Turkey Buzzard, Fulvous Vulture and Pondicherry Vulture, are the principal species of the great Vulture family.

THE BEARDED GRIFFON.

The Bearded Griffon is the celebrated Lammergeyer, described by some Naturalist under the name of the Golden Vulture. The Lammergeyer forms, as the name indicates, an intermediate genus between the Eagles and the Vultures, having head and eyes like the Vultures and feet and strong beak like the Eagles. It owes its name—Bearded Griffon—to a tuft of stiff hair that is under the beak. The loftiest mountains of Europe, Asia and Africa are its home, and its aerie, which is of great size, is built among the most inaccessible rocks.

In our illustration, one of these Bearded Griffons or Golden Vultures has discovered a Common Vulture (sometimes called the Goose Hawk) feasting upon the carcass of a Pamir-sheep (one of the greatest of the Sheep species, inhabiting lofty plateaus above the tree limit).

The Vulture at the feast hears the rushing of mighty wings and the Bearded Griffon, followed by his wife, drops on a neighboring rock.

With spreading wings and wide opened bill, the Bearded Griffon flies on his opponent to make him relinquish his booty; but the Vulture is not easily scared off. He is courageous, passionate and artful. With ruffled plumage, neck drawn in, beak opened to ward off the blow, he awaits the attack. Suddenly he darts out the long neck quick as a wink and seeks to give his enemy a blow with his beak. But the other is on his guard, and the Vulture again takes the waiting attitude. But it will not last long; the Bearded Griffon rushes on him, and with claws meeting these kings of the air fight out a mighty battle. It is scarcely to be doubted that the stronger Bearded Griffon will at last win the victory and divide the spoil with his wife, while the exhausted and bleeding Vulture flies away to seek some other supply to satisfy his hunger. So throughout all nature the bitter fight for existence goes on, and ever the strong must be overcome by the yet stronger.

THE CONDOR.



Condor Capturing Llama.

As in the Alps and Pyrenees the Vulture and his kin reign and build their aerie, so in the mountain heights of the South American Andes, from the equator to the 45 degrees of latitude, the mighty Condor reigns. He is the most powerful of all Birds of Prey, of whose mode of living mankind has only been able during the last few years, to obtain much accurate information. The color of his plumage is black shading toward dark blue. The centre of the wings are white, head and throat are almost bare, and the warty skin on both sides of the neck is red. The red comb on the head and the white silky collar are sufficiently characteristic of the Condor to distinguish him from other Birds of these mountains.

The power of flight and swiftness of this Bird is altogether extraordinary and the keenness of his sight wonderful. He, like the other Vultures, subsists on carrion. In case of a deficiency in this direction, he attacks herds of Lambs, Sheep and Calves and among the various species of Llama infesting his regions he causes great devastation, wherefore inhabitants of these mountain regions have great aversion for him and endeavor in every possible manner to entrap and destroy him. It is astonishing how this Bird, swaying at such tremendous height that the naked eye can scarcely discern him, can detect carrion, which has been thrown aside as a bait for him, or the nearness of wounded animal, and how first one, then others, appear, of whose presence one has previously had no inkling. When the Condor pursues an animal, he continues the chase until either the prey, leaping over a precipice, dashes to pieces, or he pounces upon and crushes it, battering in its skull with his powerful bill. His principal booty as previously mentioned, is the swift-footed though defenceless Llama. In the illustration we see how a powerful Condor has pursued one of the most useful of domestic animals until he has fallen exhausted, and now proceeds to kill and consume him. In the distance hovers a comrade with whom he will be obliged, willingly or otherwise, to share the booty.

The Swimming Birds or Natatores take their name from the Latin *natare*, to swim. The toes are united by the extension of webs between them; and the whole order of Swimming Birds can dive without the body becoming wet, as their feathers are anointed with an oily liquid furnished by certain glands in their skin, which renders them impervious to moisture. This oily substance and the structure of their feathers—which are smooth, three-cornered, and closely interlaced—cause the water to glide off their polished surface; while the down beneath the feathers protects their bodies from the cold of the most severe winters.

The Swimming Birds are very numerous both in species and individuals, and inhabit all countries. According to some Naturalists these Birds which frequent the sea constitute one-fourteenth part of all the Birds on the globe, and the number of species is said to be nearly ten thousand. They feed on vegetables, insects and Fishes, and build their nests on the sand, in nooks and crannies of the rocks, or on the margin of lakes and rivers.

THE BLACK-THROATED DIVER.

The Black-throated Diver is small and slender. It floats deep in the water, and when alarmed, swims at surprising speed, with outstretched neck and rapid beat of the wings, and little more than its head above the surface.

It flies high and in a direct course with great rapidity.

Mr. Selby describes an ineffectual pursuit of a pair on Loch Shin, in Sutherlandshire, which was long persevered in. In this case submersion frequently took place, which continued for nearly two minutes at a time, and they generally reappeared at nearly a quarter of a mile distant from the spot at which they went down. In no instance did he ever see them attempt to escape by taking wing. When swimming, they are in the constant habit of dipping their bill in the water with a graceful motion of the head and neck.

"I may observe," says this acute ornithologist, "that a visible track from the water to the nest was made by the female, whose progress on land is effected by shuffling along upon her belly, propelled from behind by her legs."

The Black-throated Diver has the beak and throat black; summit of the head ashy grey; the breast and the sides of the neck white, with black spots; the back and rump black; the coverts of the wings with white spots, and all the lower parts pure white. The Bird, though rare in England and France, is very common in the north of Europe. It is found on the lakes of Siberia, of Iceland, in Greenland and Hudson's Bay, and sometimes in the Orkney Islands. The women of Lapland make bonnets with its skin dressed without removing the feathers; but in Norway it is considered an act of impiety to destroy it, as the different cries which it utters are said to prognosticate fine weather or rain.

The eggs, of which there are two, sometimes three, in the same nest, are of a very elongated oval form, three inches in length, two inches in the greatest girth and of a brownish olive sprinkled with black or dark-brown spots, and are larger at one end than at the other.

In the spring the Sea-birds assemble in large flocks. In fact certain localities are chosen year after year, and these are occupied by innumerable flocks at certain seasons, all of which seem to live together in perfect harmony.

176

Some of the families of the Swimming Birds are valuable additions to the poultry yards. Ducks and Geese furnish delicate and nourishing food; the Swan is gracefully ornamental on our lakes and ponds. The down of all the aquatic Birds as an article of commerce is of great value in northern countries. Their eggs constitute good food, and in many countries the inhabitants consume them in great quantities.

But their usefulness does not end here. Guano, so eagerly sought for by the farmer, is the excrement of aquatic Fowls which has accumulated for ages, until in the South Pacific Ocean it is said to have formed whole islands; some of them being covered with this valuable agricultural assistant to the depth of ninety or a hundred yards. This does not seem so marvellous when it is considered that twenty-five or thirty thousand Sea-birds sleep on these islands night after night, and that each of them will yield half a pound of guano daily, which owes its unrivalled fertilizing power to the ammoniacal salts, phosphate of lime, and fragments of feathers of which it is composed.

Although the numerous Swimming Birds are alike in having webbed feet and oily plumage that cannot be saturated with water, they have also many points of difference which make it necessary to divide them into various families. For instance, some of the Swimmers are feeble and slow in their flight, and others cannot even rise from the water as their wings are so small. On the other hand, there are species which possess wonderful power of traversing the air, their well-developed wings enabling them to pass through space with marvellous rapidity. The Petrels seem to delight in storms and tempests, mingling their cries with the roar of the waves; and the dread which is experienced by the mariner at the approach of a gale is unknown to the Sea Gull and Albatros, for they appear to delight in the warring elements.

Because of these differences in their characteristics, Naturalists have divided the Swimming Birds in various ways, but the best and the simplest is the division into four great families. First, the Divers, or the Sea Birds with thin, short wings; second, the large family to which the Swan and Ducks and Geese belong; third, the Pelican family; fourth, the Swimming Birds with long wings.

THE FAMILY OF DIVERS.

The most important birds found in this family are the Great Northern Diver, the Arctic Diver, Penguins, Auks, Grebes, and Guillemots.

All these Birds are distinguished by wings so thin and short as to be almost useless for flying. They are all habitual divers and tireless swimmers, using their wings as Fish do their fins. To raise their wings after taking a down stroke requires much greater effort than a Bird of flight makes in raising its wings in the air; for this reason the muscle in the wings of the Diving Birds has an unusually large development to give them greater strength.

The Divers are inhabitants of northern seas. There they build their nests on some solitary island and lay two eggs, oblong in shape and white in color. Fish, particularly the Herring, are their principal food, and they are such active swimmers and divers that it takes a quick eye and hand to shoot them.

THE GREAT NORTHERN DIVER.

This great Bird has been called a wanderer on the ocean. It is not only found along the margins of the sea, fishing in the bays and at the river banks, but is also met with out on the ocean many miles from the shore. Narrow channels and sandy bays are, however, its favorite resorts; there it floats, its body deeply submerged in the water. But though swimming so deep in the water, it can overtake and shoot ahead of all the more buoyant swimmers.

The Bird is sometimes known as the Loon. It is seldom found on the land, being ill fitted for walking or flying, and although it is expert in swimming long distances under water, and when it does come up seldom exposes more than its neck, it flies rather better than many other short-winged divers. It flies heavily, in a circle, round those who have disturbed it in its haunts, its loud and melancholy cry resembling the howling of a wolf, or the distant scream of a man in distress. When the "Loon" calls frequently, it is supposed to portend a storm. In the bad weather which precedes the advent of winter on the northern American lakes, previous to migration, the wild weird note of the Loon is so unnatural that the Indians ascribe to it supernatural powers.



PENGUIN.

The Penguins belong exclusively to cold countries. They live almost entirely in the water, and although they seldom come ashore, except to build their nests and lay their eggs, or when driven by squalls or storms from their favorite element, they do not often swim far from the land. On the shore they are compelled to sit erect, as their feet are placed at the extremity of the body—an arrangement which renders them awkward and heavy when they try to sit or walk. They carry the head very high and the neck stretched out, while their short winglets are held out like two short arms. When they sit perched in flocks on some lofty projecting rock they might be mistaken at a distance for a line of soldiers.

At certain periods of the year the Penguins assemble on the beach as if they had planned to meet for deliberation. These assemblies last for a day or two, and are conducted with an obvious degree of solemnity. When the meeting results in a decision, they proceed to work with great activity.

Upon a ledge of rock, sufficiently level and of the necessary size, they trace a square with one of its sides parallel and overlooking the edge of the water, which is left open for the egress of the colony. Then with their beaks they proceed to collect all the stones in the neighborhood, which they heap up outside the lines marked out, to serve them as a wall to shelter them from the prevailing winds. During the night these openings are guarded by sentinels.

They afterwards divide the enclosure into smaller squares, each large enough to receive a certain number of nests, with a passage between each square. No architect could arrange the plan in a more regular manner.

What is most singular is that the Albatross, a Bird adapted for flight, associates at this period with these half Fish, half Birds, the Penguins; so that the nest of an Albatross may be seen next the nest of a Penguin, and the whole colony, so differently constituted, appear to live on the best terms of intimacy. Each keeps to its own nest, and if by chance there is a complaint, it is that some Penguin has robbed the nest of his neighbor, the Albatross.

Other Sea-birds come to partake of the hospitality of the little republic. With the permission of the masters of the society, they build their nests in the vacancies that occur in the squares.

The Penguin lays but one egg, which she only leaves for a few moments until hatched, the mate taking her place while she seeks her food. The Penguins are so numerous in the Antarctic seas, that 100,000 eggs have been collected by the crew of one vessel.

The King Penguin has been described by most Naturalists as a distinct species. Of this there is little doubt. They abound in the southern seas. Their short stunted wings, which make them quite incapable of flying, are reduced to a flat and very short stump, totally destitute of feathers, being covered with a soft down, having something of the appearance of hair, which might be taken for scales. Like all the Penguins, this Bird is an excellent swimmer and diver, and its coating of down is so dense that it even resist a bullet; it is consequently difficult to shoot.

Their nests are a very simple construction, for they content themselves with a hole in the sand deep enough to contain two eggs, but more often one.

In spite of the limited number of eggs, the quantity of these Birds found in the south of Patagonia is something marvellous. When sailors land in these high latitudes they take or kill as many as they choose. Sir John Narborough says, speaking of those at the Falkland Islands, that "when the sailors walked among the feathered population to provide themselves with eggs, they were regarded with sidelong glances." In many places the shores were covered with these Birds, and 300 have been taken within an hour; for generally they make no effort to escape, but stand quietly by while their companions are being knocked down with sticks.

In another islet, in the Straits of Magellan, Captain Drake's crew killed more than 3,000 in one

day. These facts are not exaggerated. This island, when visited by these navigators, probably had never been pressed previously by a human foot, and the Birds had succeeded each other from generation to generation in incalculable numbers, hitherto free from molestation.

The Penguins have no fear of man. Mr. Darwin pleasantly relates an encounter that he had with one of these Birds on the Falkland Islands. "One day," he says, "having placed myself between a Penguin and the water, I was much amused by the action of the Bird. It was a brave Bird, and, till reaching the sea, it regularly fought and drove me backwards. Nothing less than heavy blows would have stopped him. Every inch gained he kept firmly, standing close before me firm, erect and determined, all the time rolling his head from side to side in a very odd manner."

There are many species of Penguins, the handsomest probably being the Crested Penguin, which is a native of Patagonia, and has a very conspicuous appearance. These Birds are called by sailors, regardless of species, Jackass Penguins, from their habit, when on shore, of throwing their head backwards, and of making a strange loud noise very like the braying of a Donkey.

This family all defend themselves vigorously with their beaks when an attempt is made to lay hands on them; and when pursued, they will pretend to retreat, and return immediately, throwing themselves upon their assailant. "At other times they will look at you askance," says Pernetty, "the head inclined first on one side, then on the other, as if they were mocking you." They hold themselves upright on their feet, the body erect in a perpendicular line with the head. Navigators passing these islands of the southern seas might suppose that they were densely inhabited, for the loud roaring voices of these Birds produce a noise equal to that of a great crowd. The flesh is most unpalatable, but it is frequently the only resource of ship's crews who find themselves short of provisions in these inhospitable regions. However, their eggs have the redeeming quality of being excellent.

THE AUK.

The Auk is a noble Bird, which was once common in our waters, but at this date scarce even in the Arctic seas; it is but little known. In habits and mode of life it strongly resembles the Penguins.

THE GREBES.

The Grebes have the head small, the neck somewhat elongated, the legs attached to the abdomen, the tail rudimentary, the tarsi compressed, the anterior toes united at their base by a membrane. These Birds live on the sea, but they inhabit fresh water by preference, feeding on small Fishes, Worms, Molluscs, Insects, and the products of aquatic vegetation. While they dive and swim admirably, they also fly with vigorous wing; but they rarely resort to this unless alarmed or when migrating.

The nest of the Grebe is usually placed in a tuft of rushes on the edge of the water. It is composed of large grassy plants roughly interlaced, and the interior is lined with soft broken grasses delicately arranged. The eggs vary from three to seven. On shore they cannot walk well, but creep along in an awkward manner. They are covered with fine, warm down, so close and lustrous that muffs are made from their breast.

Grebes are inhabitants of the old and new Continents. Among the European species may be noticed the Crested Grebe, about the size of a Duck, ornamented with a double black crest; the Horned Grebe, provided with two long tufts of feathers, in the form of a horn; and the Eared Grebe, distinguished by its beak, the base of which is depressed, while the point is raised upwards.

The Crested Grebe is the best known in the United States. These have been found in limited numbers around the Great Lakes and as far south as Mexico.

DUCKS, GEESE AND SWANS.

This family of Swimming Birds are perhaps better known all over the world than any other large group of Birds. It is unnecessary to describe the characteristics to make us acquainted with the family, but it may be well to mention some of the principal types.

DUCKS.

The Ducks are of two sorts, either wild or tame. The Wild Ducks comprise two groups—the Sea Ducks, which feed mostly in salt waters, dive much in feeding, and have a very broad bill; and the Pond Ducks, which have a straight and narrow bill; these generally frequent the fresh water, but pass much of their time on land, feeding on aquatic plants, Insects, Worms and sometimes Fish.

The first division comprises the Shieldrake, Muscovy Duck, Gadwall, Shoveller, Pintail, Widgeon, Bimaculated Duck, Garganey and Teal. The second division includes the Red-crested Duck, Pochard, Ferruginous Duck, Scaup, Tufted Duck, Harlequin Duck, Long-tailed Duck, and Golden Eye; while between the two divisions are placed (as possessing some of the characteristics of each) the Eider Duck, King Duck, Velvet Duck and Scoter.

GEESE.

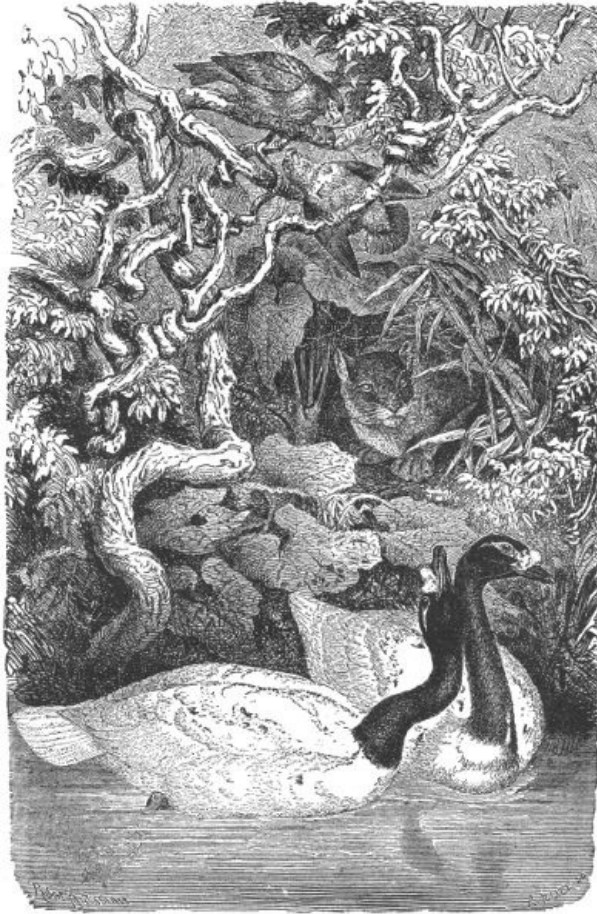
Geese in many respects resemble Ducks and Swans, but they are less aquatic in their habits, often keeping at a distance from large bodies of water and living in moist meadows and marshes, where they find herbage and various kinds of seeds on which to feed. They swim very little and seldom dive. They make their nests on the ground, and lay from six to eight eggs, which are hatched in a little more than a month.

The Wild Goose, though not very elegant in form, has none of the awkwardness of the Domestic Goose, which is generally supposed to be descended from it.

There are very few species of Wild Geese compared with the Ducks. The Grey-lag Goose, the Canada Goose, Bean Goose, White-fronted Bernicle and the Black-faced Bernicle form the most distinct species.

Although they are seldom seen on the water during the day, Wild Geese go every evening to the ponds and rivers in their neighborhoods to pass the night, so that the Wild Goose visits its aquatic haunts when the Wild Ducks are leaving them.

SWANS.



BLACK NECKED SWANS.

Just as the Goose has long been the symbol of awkwardness and stupidity, so the Swan has been an object of admiration in all ages for its noble proportions, the graceful curve of its neck and its small and shapely head. On the water it is the picture of elegant ease. It swims apparently without effort and with great rapidity. Different species are found in America, Europe and Asia, and in Australia a black Swan is very abundant.

In the wild state it lives on lakes, rivers and sea-coasts of both hemispheres, feeding on such seeds, leaves, roots, water-insects, Frogs and Worms as come in its way. In its domestic state, it is the charm and ornament of our lakes and rivers; but, except in a few instances, it is only kept for show, as it is jealous and cruel in disposition and not friendly with domestic fowls.

Both the Mute and the Whistling Swan were celebrated among the ancients; and the Black Swan of Australia is quite distinct from the white and the Grey Swans of other countries; and one curious species is pure white with a black neck, like those of our illustration who are enjoying themselves in the water, all unconscious of the danger lurking on the tree-branch above them, although the chattering Parrots seem to be endeavoring to give them warning.

The Swan, like the Goose, lays from six to eight eggs, of a greenish white color. It takes them about six weeks to hatch. The baby Swans or Cygnets are first covered with a grey down, soft and fine like the yellow down of Goslings. The regular feathers do not appear until the third year.



PELICANS.

All the Birds of the Pelican family are distinguished by having the hind toe united to the others by a single membrane. Some of the group are large and heavy Birds, but they are all gifted with powerful wings, and they are, at the same time, good swimmers. Besides the Pelicans themselves, we find in this family of Birds, the Tropic Bird, the Darter, the Gannets and the Cormorants.

The Pelicans are large, heavy aquatic Birds, with great extent of wing and are excellent swimmers; their haunts are the sea-coast, and the banks of rivers, lakes, and marshes. Whenever a Fish betrays its presence by leaping or flashing its glittering scales in the sun, the Pelican will be seen sailing towards it.

This Bird has an appetite so insatiable and a stomach so capacious that, in one day it devours as much food as would satisfy six men. The Egyptians have nicknamed it the River Camel, because it can imbibe at once more than twenty pints of water. Certainly it only makes two meals a day; but, oh, what meals they are!

Pelicans often travel in large flocks, visiting the mouths of rivers or favorite retreats on the sea-coast. When they have made choice of a suitable fishing place, they arrange themselves in a wide circle, and begin to beat the water with extended wing, so as to drive the Fish before them, gradually diminishing the circle as they approach the shore or some inlet on the coast. In this manner they get all the Fish together into a small space, when the common feast begins.

After gorging themselves, they retire to the shore, where the process of digestion follows. Some rest with the neck over the back; others busily dress and smoothe their plumage, waiting patiently until returning appetite invites them to fresh exertions. When thus resting, occasionally one of these Birds empties his well-lined pouch, and spreads in front of him all the Fish that it contains, in order to feed upon them at leisure.

In spite of its great size, the Pelican flies easily and to considerable distances. It does not dive but will occasionally dash down on Fish from a considerable height, and with such force that it becomes submerged; but its buoyancy instantly brings it again to the surface. It perches on trees, but seems to prefer rocks.

The nest is generally formed of coarse, reedy grass, lined with softer material and placed in the clefts of dry rocks near the water. Occasionally they will lay in an indentation in the ground which they have previously roughly lined with blades of grass.

The Pelican is more common in tropical regions than in temperate climates. They are very numerous in Africa, Siam, Madagascar, the Sunda Isles, the Philippines; and in the Western Hemisphere they abound from the Antilles to the northern temperate part of the North American continent. They haunt the neighborhood of rivers and lakes and the sea-coast.

The best known species are—first, the Crested Pelican; second, the White Pelican; third, the Brown Pelican; fourth, the Spectacled Pelican.

THE CRESTED PELICAN.

The Crested Pelican in common with the White Pelican, inhabits the southeast of Europe and Africa, and is also found in Hungary, Dalmatia, Greece, the Crimea, and the Ionian Islands, as well as in Algeria, and, according to some authors, it is frequently met with in China.

It has white plumage, with the exception that the ends of the feathers of the back and wings are black. The feathers of the head and upper part of the neck are twisted up so as to form a large tuft or crest, hence the name it bears. Its European home is principally the marshes round the Black Sea.

Of their modes of life travelers in those regions give very interesting descriptions.

"Nowadays," says W. H. Simpson, "a solitary individual may be seen fishing here and there throughout this vicinity; the remnant have betaken themselves to the neighboring islands. Here, towards the end of February last, the community constituted a group of seven nests—a sad falling off from the year before, when thirty-four nests were grouped upon a neighboring islet." 186

"As we approached the spot in a boat the Pelicans left their nests, and taking to the water, sailed away like a fleet of stately ships, leaving their nursery in possession of the invader. The boat grounded in two or three feet of mud, and when the party had floundered through this, the seven nests were found to be empty. A fisherman had plundered them that morning, taking from each nest one egg, which we afterwards recovered. The nests were constructed in a great measure of old reed palings (used by the natives for enclosing Fish) mixed with such pieces of the vegetation of the islet as were suitable for the purpose. The seven nests were arranged in the shape of an irregular cross, the navel of the cross, which was the tallest nest, being about thirty inches high, the two next in line being about two feet, and the two forming the arms being a few inches lower, the two extremes at either end being about fourteen inches from the ground. The eggs are chalky, like others of the Pelican family, very rough in texture." 189

THE WHITE PELICAN.

The White Pelican is as large as a Swan. Its bill is about fifteen inches in length. Its plumage is white, with a slightly rosy tint, the crest and a few feathers on the neck yellowish.

It is very common on the lakes and rivers of Hungary and southern Russia, as well as on the banks of the Danube. A wild rocky shore, where it can look down on the sea, is the favorite haunt of this Pelican; but it is not uncommon for it to perch on trees. The nest is formed of coarse reedy grass, with a lining of finer quality; it is generally made on the ground, and is about eighteen inches in diameter, in which it lays four, sometimes five, white eggs, but more frequently two, slightly oblong, and alike at both ends. Fish forms its principal food, which it captures chiefly in shallow inlets, as it is an indifferent diver. Occasionally its flight is lofty, but generally close to the surface of the water.

THE BROWN PELICAN.

The Brown Pelican is an American species, smaller than the preceding. It has the head and the neck variegated with white and ash-color; all the rest of the plumage of a brownish grey, with white marks on the back; the pouch is of an ashy blue, striped with a red hue. It is found on the coasts of Peru, Florida and South Carolina.

Although heavy-looking on the wing, this species is capable of performing flights of immense distance, and to a certain extent may be considered migratory. In winter they are seldom seen beyond the edge of the tropics, but in summer they are frequently found as far north as the thirty-sixth degree of latitude. Extremely wary and difficult of approach, they are seldom shot, although persistently pursued by fishermen, on account of the immense damage they do to the spawn and young Fish.

They are also possessed of the greatest powers of vitality, and resist death when pierced with wounds so serious that they would inevitably kill any other species.

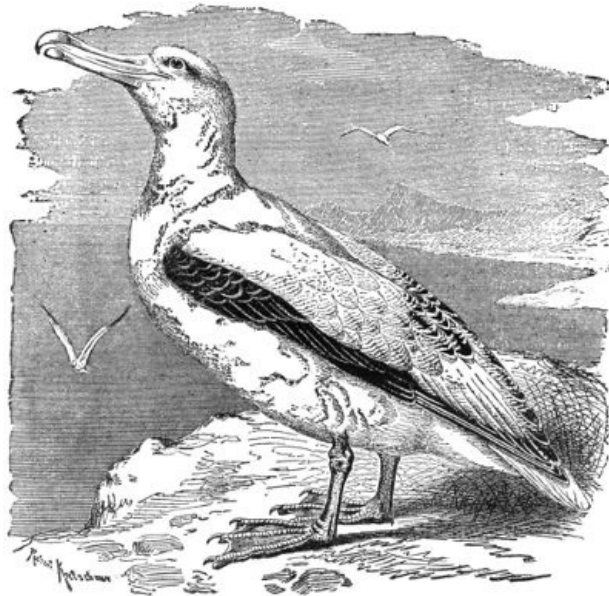
From this circumstance doubtless they receive the name of Die-hards from the residents that dwell on the margin of the Gulf of Mexico. When disabled from taking flight, their courage in defending themselves from an assailant is as remarkable as that of the Bittern; but being possessed of superior size and strength to the latter Bird, the Brown Pelican can successfully resist the strongest Dog.

Like the other species of this genus they live in small communities of twenty or thirty members, and build their nests upon the ground closely adjoining each other, and the utmost good fellowship, almost affection for each other, exists between them. The young Birds remain with their parents till the spring following their birth, the old ones driving them off to seek new homes, when the advance of the season tells them that they must provide a home for a coming family. As in many other races, the plumage of the young is much darker and less handsomely marked than in the adults. From frequent persecution, the Brown Pelican has of late years much diminished in numbers.

THE SPECTACLED PELICAN.

The Spectacled Pelican, which is only found in southern climates, is thus named from the naked skin which surrounds its eyes, giving the Bird the appearance of having on a pair of spectacles. Its plumage is white, and in habits and mode of life it closely resembles the previously described species. One of its principal haunts is along the southern coasts of China, especially in the vicinity of the mouth of the Canton river, and on the bays near it. The Chinese regard them as sacred, and nothing would induce them either to rob them of their eggs or young.

Longevity is reported to be one of their characteristics. A very old mandarin, living on the margin of Meers' Bay, once pointed out a Spectacled Pelican, that he said he could remember since his childhood. This Bird was partially tamed; for although it went long distances to fish, it always returned to his village to pass the night.



ALBATROS.

The fourth large family of Swimming Birds includes the many long-winged species which are thus named not only because of the great length of their wings, but for their long and enduring power of flight. Mariners meet them everywhere, and easily recognize them by their long and pointed wings, forked tails and short legs. They pass their lives at a great distance from land, and do not approach the shore except to lay their eggs and hatch their young. In this family are found the Albatrosses, the Petrels, Gulls, Skuas, Scissors-bills or Skimmers, and the Sea Swallows.

The Albatross is the largest and the most bulky of all the Birds which fly over the surface of the sea. It belongs principally to the southern hemisphere. The sailors know it under the name of Cape Sheep, which they give it on account of its enormous size. Its extended wings measure as much as sixteen feet five inches across. Its plumage is generally white, with the exception of a dark back.

Courage is not measured by size. This rule holds good in these Birds, for notwithstanding their wonderful strength and their large, strong, sharp and hooked bills, they exhibit the most unaccountable cowardice. Even a poor weak Sea-mew will attack an Albatross, the cowardly giant finding no better means of getting rid of his enemy than by plunging into the water. Although they are most gluttonous in taste, they prefer flight to contending for their food. This consists of marine animals, Molluscs, and the spawn of Fish. When they are filled to repletion, and the prey which they have seized is too large to swallow whole, they may be seen with part of it hanging outside their bill, until the first half is digested. Thus embarrassed, the Albatross has only one mode of escape if it happens to be pursued; namely, by disgorging the food with which its stomach is overloaded.

Gifted with an extraordinary power of flight, these Birds venture out to enormous distances from land, more especially in stormy weather. They seem to delight in storms. When overcome with fatigue, they repose on the surface of the sea, placing their head under their wings. When in this position they are very easily captured. In order to do this, the sailors have only to approach silently, and knock them down with a boat-hook or spear them with a harpoon.

Navigators have opportunities of observing these Birds in the Antarctic regions, where there is no night at certain seasons of the year, and they assert that the same flocks may be seen hovering around their vessel during many successive days without exhibiting the least signs of exhaustion or the slightest relaxation in their strength. A peculiarity in their mode of flight is that, whenever they are ascending or descending, they seldom flap their wings, but fly without an effort.

To follow in the wake of some passing ship, probably because the agitation of her track brings to the surface the small fry of marine animals which are their principal food, appears to delight them. They pounce upon anything that falls overboard, even Man. On one occasion a sailor fell into the sea from a French vessel, and could not be immediately rescued because there was no boat in a fit state to be lowered. A flock of Albatrosses, which followed in the ship's wake, pounced upon the unfortunate seaman, and commenced to peck his head. Being unable to buffet both with the sea and the enemies which surrounded him, the poor sailor perished before the very eyes of his comrades.

The Gulls, the Albatrosses and Petrels may be said to be the Vultures of the ocean—its scavengers; for they cleanse it of all the putrefied animal substances which float on its surface.

In the autumn the Albatrosses congregate at their favorite nesting-places. They assemble in immense numbers on the islands in the South Atlantic Ocean. Their nests, which are about three feet in height, are formed of mud.

Their flesh is very hard, and can only be rendered eatable by laying it for a long time in salt, and afterwards boiling it, and flavoring it with some piquant sauce.

The most remarkable species are the Common Albatross, which frequents the seas washing the south of Africa; the Sooty Albatross which also inhabits the seas round the Cape of Good Hope; the Yellow-beaked Albatross which, like the preceding species, inhabits the seas of the South Pole.

THE GRALLATOIRES, OR WADING BIRDS.

Nearly all the Wading Birds have very long legs; in some species these are of such surprising dimensions that the Birds appear to be mounted on stilts. This peculiarity is well adapted to their modes of life. They inhabit river banks, lakes and marshes, in which they find their food; consequently they are fearless of water and ooze. Not all the birds classed with the Waders live near the water, however; the Runners, or such Birds as the Ostrich, Agami, Bustard Emu, etc., are usually classed with the same group because of the similarity of their long, strong legs and short wings.

The bills of the different Birds found in this group assume various forms. They are generally long, but according to the species, they may be thick or slender, tapering or flat, blunt or pointed, strong or weak, and in some kinds, such as the Flamingo, the Spoonbill, the Boatbill, etc., they really defy all description. The neck is always slender and in perfect harmony with the length of the legs.

Almost all the Waders are powerful Birds on the wing, and twice a year most of them emigrate like the Wild Ducks, Geese and Swans. There are exceptions to this rule, however. Some of them, like the Bustard, move through the air with difficulty; while the short winged species are unable to fly at all, their wings being only useful for helping them along in running, and thus assisted, they are remarkably swift.

The nature of their food varies with the form and strength of the bill, and the locality they inhabit. It consists generally of Fish, worms and insects, and sometimes of small animals and reptiles, as well as grasses and seeds.

The Waders are usually divided into six great families. These are classified under long Latin names descriptive of some peculiarity belonging to each, but which can be more easily remembered as: First, the Waders with united toes; second, the long-toed Waders; third, the Waders with long bills; fourth, the Waders with knife-shaped bills; fifth, the Waders with compressed bills; sixth, the short-winged Birds.

THE WADERS WITH UNITED TOES.

As the feet of these Birds are partly webbed, they seem to belong to the swimmers, but the arrangement of their toes is altogether different, and their unusually long legs would also place them in a different family. This is the smallest of the family of Waders. In fact only two varieties are usually found in it—the Avocet and the Stilt Bird.

THE AVOCET.

This Bird has a very curious bill—long, slender, flexible and curved upwards. It uses this strange instrument to rake up the sand and mud in order to catch the worms, small molluscs and Fish-spawn, which constitute its chief food. Its long legs enable it to travel in safety over swamps and lagoons; it also swims with great ease. It may often be seen looking for its food on the margins of lakes and ponds.

The Avocet stands about twenty inches in height, although its body is but little larger than a Pigeon's. It is a pretty bird, of slender make; its plumage is black on the head and back, and white underneath. It is to be met with on both the Continents; the European species is common in Holland and on the French coast. Wild and shy in its nature, it is very difficult of approach, and is clever in avoiding snares and in escaping pursuit, either by flight or swimming. The nest of the Avocet is a very simple structure, generally made by placing a few blades of grass in a hole in the sand, where it lays two or three eggs, of which it is frequently robbed, for they are regarded as great delicacies. The flesh, however, is of little value.

THE STILT BIRDS.

The Stilt Birds obtain their name from the excessive length of their legs, which are also so slender and flexible that they can be bent considerably without breaking. Their feet are not so completely webbed as the species we have just mentioned; the two membranes which unite the toes are unequal in size. The bill is long, slender and sharp, like that of the Avocet, but straight; the wings are long and pointed; the tail small. They are about the size of the Avocet, and sometimes attain the height of twenty-six inches. They possess considerable powers of flight, but walk with difficulty; on the other hand, they are much at home on mud or in marshes and swamps, in which they bore with their long beaks for insects, larvae, and small molluscs, dainties to which they are very partial.

They are dull, shy birds, leading a solitary life, except at nesting time. At that period they assemble in great numbers, build their nests in the marshes, on little hillocks, close to one another, grass being the principal material employed. They lay four greenish colored eggs, with ash colored spots. The male bird watches while the females are sitting; and, at the slightest alarm, he raises a cry which startles the flock. The whole colony may then be seen on the wing, waiting for the danger to pass before settling down.

Stilt Birds are uncommon in Western Europe; they are principally to be met with in the Russian and Hungarian marshes. During the summer they occasionally visit the shores of the Mediterranean, but they are seldom seen on those of the Atlantic.



Reed Hen Caught by Fish.

The Birds forming this family are remarkable for the extreme length of their toes, which are entirely separate, or but slightly webbed; they are thus enabled to walk on the weeds growing on the surface of the water. In most instances the shortness of their wings limits their powers of flight.

This order includes the Gallinules, or Water Hens, Rails, Coots, Pratincoles, and Screamers.

The chief characteristics of the Reed Hen are a short and strong bill, thick at the base and sharp at the end, with a prolongation of it extending up the forehead; four well-spread toes, furnished with sharp claws—the three front toes united by a small and cloven membrane. Their favorite haunts are marshy places and the banks of lakes or rivers, where they feed on Worms, Insects, Molluscs, and the smaller Fish. The Pike is their greatest enemy.

In early spring, Reed Hens return from the southern winter quarters and hunt up their summer pond. Like the Stork and the Swallow, they return from year to year to their chosen and beloved home. Among last year's reeds and gray rushes, the pair bustle around hunting food and a suitable place for the cradle of their children. They are neat and graceful looking Birds, interesting in every movement, likewise in figure and coloring. The feathers are dark brown and slate gray, spotted white on the sides. The forehead is red and the glistening eyes are encircled with yellow, gray and red rings. The bill is yellow at the point and red at the roots. The long toes are edged with flaps for swimming and they glide easily and safely over the water.

They locate their nest on a down-trodden reed bush by the shore, a low decayed trunk of a tree or on the edge of an island of leaves. It is mostly hidden and presents little of beauty, but is suitable for its purpose. From six to twelve eggs are soon laid therein, which are large for the size of the Bird, and are spotted dark brown. The hatching lasts three weeks, then the young ones appear, cute little things who leave the nest the next day and follow the lead of the mother into the water.

A more delightful picture can hardly be imagined, than when the little chicks bustle around the parents, now here, now there, catching large flies, a worm, or a water insect. Swift as an arrow they shoot towards the mother when she has found a morsel for them. Alertly the old ones watch in every direction for possible danger. Now appears above them a dark circling dot. A short call, and swift as lightning the whole family disappears. Where to? One could hardly guess if not here and there a brown head peeps out from under the green leaf or blade in the water, or a yellow bill point appears on the mirrored surface. When the danger is over, all again appear.

These Birds are experts in hide and seek play. They dive and swim like a Fish under water, using their wings to row. It would appear as though no enemy could harm them. Mankind protects them. Dogs and Cats cannot pursue them into the water. Falcon, Hawk or Marshbirds cannot find their hiding places. Yet in the midst of the quiet, poetic, lonely pond, among blooming water-roses and lilies, treason and death lurks for them; and this enemy, knavish and frightful, the Reed Hen cannot escape. It is the Pike. His outward appearance shows what a bold robber he is. The trunk narrow and long, the flattened head with wide open, broad jaws lined with a terrible set of long, pointed,

rake-like teeth. Anything they catch hold of is lost.

With strong strokes the pirate rows through his element. Nothing is safe from him. He feeds on the small Frogs and Snakes, Carp, Trout and White Fish. Like the Shark in the ocean, the blood-thirsty tyrant is master of the surroundings in every fresh water settlement. He snatches young Ducks, and often destroys whole broods. He is the destroyer of Pond Hens if they come within his reach. With brutal grip he drags the young Hen into the depths of the water, nor does he spare the old ones. Under the mirrory surface he chases the harmless family, until he has destroyed every one. The Reed Hen avoids the spot where the Pike is found.

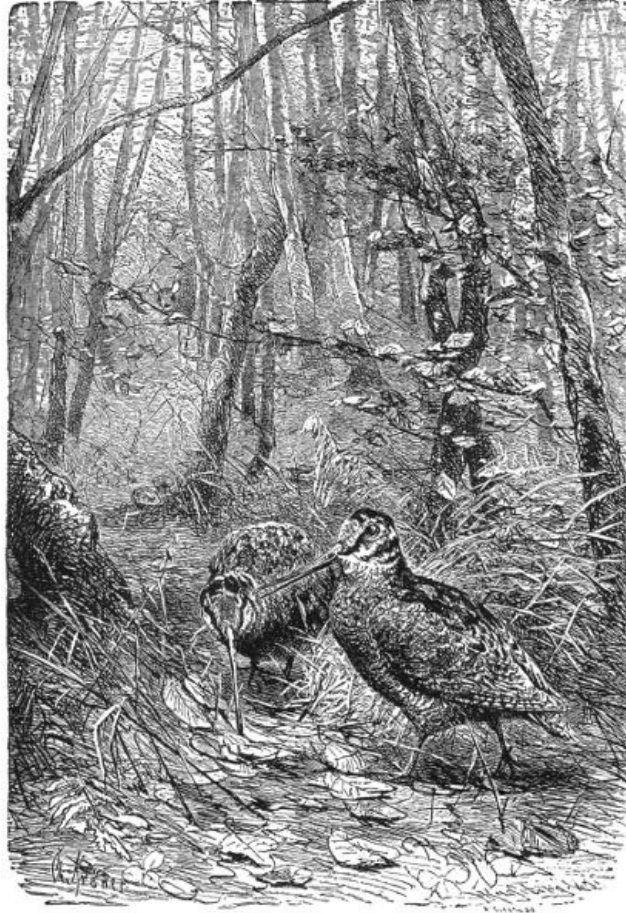
If everything is favorable, young Reed Hen are able to take care of themselves after the first two or three weeks, and the old ones go about their second hatching. When these are hatched the picture is still more interesting, as the older children take care of the younger and help the parents feed them, making a picture of a prosperous, flourishing family. So they continue during the whole summer and by the beginning of autumn the whole pond is filled with the neat little Birds, until suddenly one morning they have all disappeared towards their winter quarters.

They return the next spring, intending to settle where they were born, but now circumstances are changed. Last year's Chicks are able to take care of themselves and want to build in their own home, and naturally search for the old familiar pond, but here arises trouble. Only one pair is allowed in the old home. The parents jealously defend their chosen spot against all intruders; and as loving and kind as they nurse their young in childhood, now that they are grown up they see in them only intruders, whom they must disperse with force. This often causes bitter strife until the district has been cleared.

WADING BIRDS WITH LONG BILLS.

The Birds composing this family are characterized by a long and flexible bill, which is well adapted for boring in the mud and soft ground. They are usually found in the marshes or along the shore, yet some species spend the greater part of their time inland. Among them are found the Woodcocks, Snipes, Sandpipers, Turnstones, Ruffs, Knots, Godwits, Curlews and Ibis.

THE WOODCOCK.



WOODCOCK.

The Common Woodcock has a very long, straight and slender bill, and a flattened head. These Birds live in the woods, and seldom frequent the shore or river banks. They differ from the Snipes in having a fuller body and broader wings. They are shy, timid Birds, and conceal themselves by day in the depths of the most retired woods. The brightness of daylight appears to dazzle them, and they do not seem to see clearly until evening when they leave their retreats to seek their food of worms and grubs in the cultivated fields, damp meadows or near springs.

The Woodcock lays four or five oval eggs rather larger than those of the Pigeon. The young Birds run about as soon as they are hatched, and the parent Birds guard them with great care. If any danger threatens, the old Birds catch up their little ones, holding them under their necks by means of their beaks, and thus carry them to a place of safety.

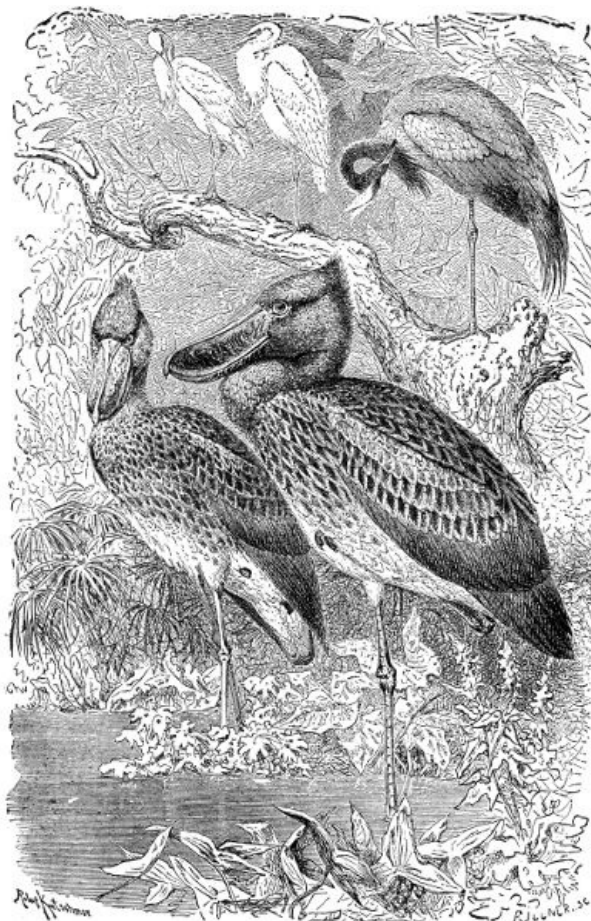
THE SNIPES.

These Birds closely resemble the Woodcocks, but are smaller and also different in their habits. They live in the marshes, feeding on grubs and aquatic plants. They are found in nearly all parts of the globe, and they make their nests among the reeds in muddy, boggy places, difficult of access to both man and beast; in which they lay four or five eggs. The young ones leave the nest as soon as they are hatched, but for a long time the parents feed them, as their long bills are not solid enough to bore for their own food.

WADING BIRDS WITH KNIFE-SHAPED BILLS.

The fourth family of Wading Birds is classified by a Latin name meaning knife-shaped bill, although the different Birds found in this group have bills of many curious forms; they are all long, sharp-edged and very strong. These Birds live along the edges of marshes and the banks of rivers, and their long legs have great strength; so that many of them are able to stand on one leg for hours together. This faculty is said to be due to a curious arrangement in the knee—a sort of knot which stiffens the ligaments of the knee, forming a kind of catch similar to the spring of a knife.

The principal species of this family are the various Storks—including the Argala or Adjutant, the Marabou and Jabiru—the Spoonbill, Boatbill, Heron and the different Cranes—including the Egret and the Bittern.



BROAD-BILLED STORK OF AFRICA.

The Common Stork has a long and straight bill, wide at the base, pointed and sharp-edged; the legs are long and slender; the tail is short. They are found in nearly all parts of the world. Some species migrate with regularity, being admirably constructed for traveling long distances; for, although their bulk seems great, their weight is comparatively small, as most of their bones are hollow. In their migratory journeys, which occur principally by night, they fly in continuous or angular lines.

Storks prefer moist swampy localities, as they feed principally on Reptiles, Batrachians and Fishes; but small Birds and Mammalia, Molluscs, Worms, Insects, even Bees are not refused by them, or carrion, and other impurities. Their manner is slow and grave; they never appear in a hurry. On the wing they resemble crosses, from their manner of carrying the head and neck. They have no voice, and the only noise they make is a cracking, which results from one mandible striking against the other, and which expresses either anger or love; it is sometimes very loud. They lay from two to four eggs. The duration of their life is from fifteen to twenty years.

There are several species of Storks, the most important being the White Stork. It measures about forty inches in height; its plumage is white; the wings are fringed with black. This is the species best known in Europe. Holland and Germany are its favorite residences. It is very common in the warm and temperate parts of Asia. In the month of August it leaves Europe to visit Africa, from whence it returns in the following spring. This migration is not caused by temperature, as the Stork can bear severe cold. No, it is a mere question of sustenance; for, feeding as it does principally upon reptiles which remain in a complete state of torpor during our winters, it is naturally compelled to seek its food elsewhere.

The Stork is of a mild nature, and is easily tamed. As it destroys a host of noxious creatures, it has become a useful helper to Man, who, not ungrateful, gives it protection. In ancient Egypt it was venerated on the same score as the Ibis; in Thessaly there was a law which condemned to death any one killing these Birds. Even at the present day the Germans and Dutch esteem it a fortunate omen when a Stork selects their house for its home, and they even furnish it with inducements to do so by placing on their roofs a box or wheel, which forms a foundation for the Bird to build a nest, which it constructs of reeds, grass and feathers.

The Black Stork is rather smaller than the White Stork; it is a native of eastern Europe. It feeds almost exclusively on Fish, which it catches with much skill. It is very shy; avoids the society of Man; and builds its nest in trees.

The Argala, also called the Adjutant, is characterized by its very strong and large bill, and the bareness of its neck, the lower part of which is provided with a pouch somewhat resembling a large sausage. According to Temminck, there is a notable difference between the Marabou and the Argala, the characteristic mark of the latter frequently hanging down a foot, while it is much shorter in the Marabou.

The Marabou inhabits India; they feed on Reptiles and all kinds of filth, and this fact has been the means of securing for them the goodwill of the people. In the large cities of Hindostan they are as tame as Dogs, and clear the streets of every kind of garbage which litters them. At meal times they never fail drawing themselves up in line in front of the barracks, to eat the refuse thrown to them by the soldiers; their gluttony is so great that they will swallow enormous bones. At Calcutta they are protected by law, which inflicts a fine on any one killing them.

The long white feathers, celebrated for their delicacy and airiness, which are known in commerce by the name of Marabou feathers, come from this Bird and the African Marabou. Consequently, in spite of their ugliness, a good many are reared in a domestic state.

There are several other species which are allied to the Storks, and are only distinguished from them by a slightly different form of the bill.



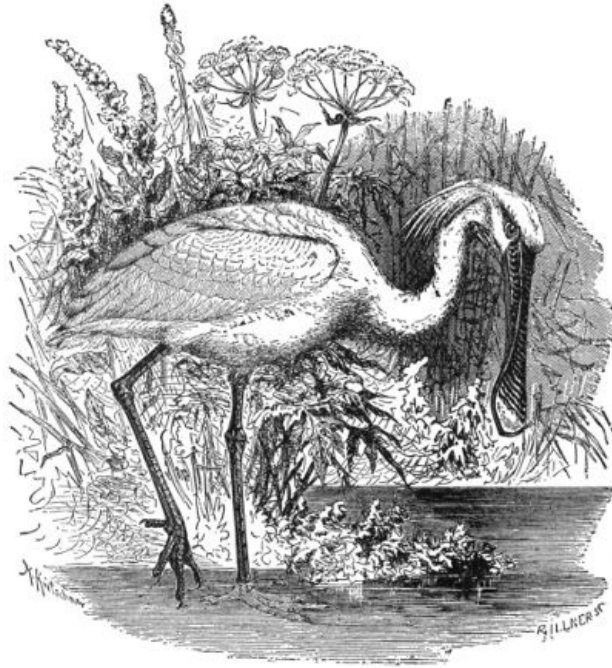
JABIRU.

The best known among these are the Jabiru, which is a native of Australia; the curious Broad-billed Stork of Africa, as illustrated (with the White Storks and the Demoiselle Crane on the tree); the Bec-ouvert, which inhabits India and Africa; the Drome, which is met with on the shores of the Black Sea and Senegal; and the Tantalus, which lives in the warm regions of both the Old and New World.

THE SPOONBILL.

The Spoonbill is remarkable for the singular form of its bill, which is about four times the length of the head, straight and flexible. The upper part, which is about an inch and a quarter broad at the base, gradually narrows to three-quarters of an inch, and again increases to two inches at the point, causing a resemblance to a spoon, from which it takes its name.

It uses this bill for dipping into the mud and water, whence it extracts worms and small Fish, on which it principally feeds. It also eats water insects, which it catches by placing its bill, half open, on the surface of the water, permitting them to float on to the lower part of the bill, when it quickly closes the bill and makes them captive.



SPOONBILL.

The Birds which belong to this family differ greatly in the length of their legs—which seems to be the main characteristic of the Waders. In fact, some of these Birds seem to form a sort of connecting link between the Waders and the Domestic Fowls, in the form of the bill as well as in the length of the leg. Among them are the Golden-breasted Trumpeter, the Cariama, the Oyster-catcher, the Plovers, the Lapwing, the Coursers, the Dotterel, and the Bustard.

THE FRIGATE BIRD AND FLAMINGOES.

Before passing on to the sixth family of Wading or Long-legged Birds, we must notice two curious types that seem to form distinct classes. The Flamingoes, which are certainly Waders and yet with webbed feet like the Swimmers, and the curious Frigate Bird about which so many strange tales are told of its wonderful power of flight.

The Flamingo is one of the most curious of the tribe of Waders. The most fanciful imagination would fail to picture to itself anything more odd than the conformation of this Bird. It has extremely long legs, supporting quite a small body; a neck corresponding in length with the leg, a rather long bill, sharply curved and apparently broken in the middle. Add to this a plumage of rose-color, warming into a bright red on the back and wings, and we have an object of both wonder and admiration.

Ancient writers, struck by the vivid coloring of its wings, called this the Fiery-winged Bird; this term was designated in France by the word *flambert*, or *flamant*; from which came the name *Flamingo*, by which the Bird is popularly known.

Flamingoes inhabit the margins of lakes and ponds, more rarely the seashore. They feed on Worms, Molluscs, and the Spawn of Fishes, which they capture by the following stratagem: Placing their long neck and head in such a position that the upper mandible of their bill is the lowest, they stir the mud about in every direction, thus easily succeed in disturbing the small Fish which have settled in it, and capturing them while blended with the thick sediment. They also use their feet for working the ooze and detaching the fry and spawn, to which they are partial.

They love company, and live in flocks, which are subject to strict discipline. When they are fishing they draw themselves up into long, straight and regular files, protected by sentinels whose office it is to give a signal of alarm on the approach of danger. If any cause for uneasiness should arise, the scout-birds give a piercing cry, not unlike the note of a trumpet, and the whole flock immediately wing their way to a place of safety.

Flamingoes are very shy and timid, and shun all attempts of Man to approach them; the vicinity of animals, however, they disregard. Any one who is acquainted with this fact can take advantage of it, for, by dressing himself up in the skin of a Horse or an Ox, he can effect immense slaughter among these beautiful creatures. Thus disguised, the sportsman may shoot them down at his ease, so long as their enemy is unrecognized; the noise of the gun only stupefies them, so that they refuse to leave, although their companions are dropping down dead around them.

Some authors have asserted that the Flamingo makes use of its long neck as a third leg, walking with its head resting on the ground like a foot. The fact that has doubtless given rise to this supposition is the position of the neck, necessitated by its peculiar method of seeking food. We are told about a Flamingo reared in captivity which, being accidentally deprived of one of its limbs, found out a remedy for its infirmity by walking on one leg and helping itself along by means of its bill, using the latter as a crutch; the master of the Bird, noticing this, fitted it with a wooden leg, which it used with the greatest success. But this story, which applies very well to a domesticated Bird which was maimed, and consequently under peculiar conditions, does not prove that this is a common practice.

The Flamingo makes itself a nest which is as original as its own personal appearance. It consists of a truncated cone, about twenty inches in height, and formed of mud dried in the sun. At the summit of this little hillock it hollows out a shallow cavity, in which two eggs are laid, rather elongated in shape, and of a dead white color. When hatching the eggs, the Flamingo sits astride on this novel imitation of a throne, with her legs hanging down on each side. The young ones run about very soon after they are hatched, but it is some time before they are able to fly—not, indeed, until they are clothed with their full plumage. At two years old they assume the more brilliant colors of the adult Bird.

The Flamingo is found in all the warm and temperate regions of the globe. On certain islands off the American continent they exist in such numbers that navigators have given them the name of the Flamingo Islands. In the Old World they are found spread over a region below the fortieth degree of latitude, principally in Egypt and the Nile tributaries; during the summer they seek a cooler climate. The height of these magnificent Birds reaches to about five feet; when they are flying, in the peculiar formation common to most aquatic Birds, with the neck stretched out and the legs projecting behind, they look, in the clear sky, like gigantic triangles of fire.

The ancients greedily sought after the flesh of the Flamingo, which they regarded as the most choice food. The tongue especially was thought to be an exquisite dainty. At the present day we no longer eat the Bird; to modern palates its flesh is disagreeable in flavor, and it retains a marshy smell which is far from being pleasant. With regard to the tongue, the Egyptians, it is said, are content with extracting an oil from it, which is used to flavor certain food.

THE FRIGATE BIRD.

The Frigate Bird is principally characterized by a strong, robust bill, longer than the head, with mandibles hooked at the point; the front of the neck bare of feathers; wings very long and narrow, first two feathers longest; tail lengthy and forked; feet short; toes united by a membrane deeply notched.

The Frigate Bird has a most expansive spread of wing; its power of flight is, therefore, very great. It inhabits the tropical seas of both the Old and New World; and navigators assure us that they have met with it many miles from any shore. When a hurricane arises they mount up far above the storm, and remain in those empyrean regions until it is again fine weather. In consequence of their almost disproportionate spread of wing, they can sustain themselves in the air for lengthened periods, without taking or requiring rest.

Their sight is so piercing that, at a distance far beyond that which would render them invisible to us, they can perceive their prey, the principal of which is the Flying-fish. From their elevated situation, they dart down upon their favorite food, which has relinquished its native element; and, keeping their neck and feet in a horizontal position, cleave asunder the air and grasp their victim, who little expected to meet with an enemy in the element which it sought for safety. It is no unusual thing for it to rob the Gannet of the Fish which it has just caught; the unfortunate Bird acting as purveyor to this sea-robber.

The Frigate Bird is of such a combative temperament, and has such an unbounded confidence in its strength, that it is not afraid of Man. It has been known to dash at a sailor, and to snatch at the Fish which he held in his hand. M. de Kerhoent, a French navigator, relates that, during a residence at the Island of Ascension, a perfect cloud of Frigate Birds surrounded his crew. They hovered about a few feet above the coppers of the open-air kitchen, in order to carry off the meat, without being intimidated in the least by the presence of his followers. Some of them approached so near, that M. de Kerhoent knocked down one of the impudent intruders with a blow of his stick.

They assemble in large flocks on the islands where they are accustomed to breed. In the month of May they begin to repair their old or construct new nests. They pluck off with their beaks from the bush small dry branches, and with these pieces of stick crossed and re-crossed, a foundation is formed. These nests are situated upon trees which hang over the water, or are placed on rocks overjutting the sea; in them they lay one egg of a pure white color.

THE SHORT-WINGED BIRDS.

The family of Short-winged Birds which is represented by the Ostrich, differs so greatly from all the other long-legged Birds that some Naturalists include them in a separate group, and call them Cursores or Runners. This is an arrangement that has much in its favor, but they seem to be more popularly grouped with the great order of Long-legged or Wading Birds.

All the Birds in this family have wings, but so slightly developed that they are entirely unfit for purposes of flight, and are only useful in increasing the speed of their limbs. Their legs are very long and powerful and capable of immense muscular effort, thus enabling them to run with extraordinary fleetness.

This group includes the Ostrich, Emu, Rhea, Cassowary and the Apteryx.



Ostrich on Her Nest.

The head of the Ostrich is naked and callous, with a short bill, much depressed and rounded at the point; its legs are half naked, muscular, and fleshy; the feet are long and rough, terminating in two toes pointing forward, one of which is shorter than the other and has no claw; the wings are very short, and formed of soft and flexible feathers; the tail taking the form of a plume.

There is but one species of the Ostrich; it is sparsely diffused over the interior of Africa, and is rarely found in Asia except perhaps in Arabia. It is the largest member of the family, generally measuring six feet in height, and occasionally attaining nine feet; its weight varies from twenty to a hundred pounds.

The Ostrich has been known from the most remote antiquity. It is spoken of in the sacred writings, for Moses forbade the Hebrews to eat of its flesh, as being "unclean food." The Romans, however, far from sharing the views of the Jewish legislator, considered it a great culinary luxury. In the days of the Emperors they were consumed in considerable numbers; and we read that the luxurious Heliogabalus carried his magnificence so far as to cause a dish composed of the brains of 600 Ostriches to be served at a feast; this must have cost an almost incalculable sum. In former days it was a favorite dish with the tribes of Northern Africa. At the present date the Arabs content themselves with using its fat as an outward application in certain diseases, especially rheumatic affections; and they derive from it, as they say, very beneficial effects.

The natives of Africa call the Ostrich "the Camel of the desert," just as the Latins denominated it *Struthio camelus*. There is, in fact, some likeness between them. This resemblance consists in the length of the neck and legs, and in the form of the toes. In some of their habits they also resemble each other; the Ostrich lies down in the same way as the Camel, by first bending the knee, then leaning forward on the fleshy part of the sternum, and letting its hinder quarters sink down last of all.

That the Ostrich is extremely voracious is certain. Although the senses of sight and hearing are so highly developed that it is said to distinguish objects six miles off, and the slightest sounds excite its ear, the senses of taste and smell are very imperfect. This is the explanation given for its readiness to swallow unedible substances. In a wild state it takes into its stomach large pebbles, to increase its digestive powers; in captivity it gorges bits of wood and metal, pieces of glass, plaster and chalk, probably with the same object.

Herbage, Insects, Molluscs, small Reptiles, and even small animals, are the principal food of the wild Ostrich; when it is in a state of domesticity even young Chickens are frequently devoured by it. It is capable of enduring hunger and thirst for many days—about the most useful faculty it could possess in the arid and burning deserts which it inhabits—but it is quite a mistake to suppose it never drinks, for it will travel immense distances in search of water when it has suffered a long deprivation, and will then drink with evident pleasure.

The muscular power of the Ostrich is truly surprising. If matured it can carry a man on its back;

and is readily trained to be mounted like a Horse, and to bear a burden. The tyrant Firmius, who reigned in Egypt in the third century, was drawn about by a team of Ostriches; even now the Negroes frequently use it for riding.

When it first feels the weight of its rider, the Ostrich starts at a slow trot; it however soon gets more animated, and stretching out its wings, takes to running with such rapidity that it seems scarcely to touch the ground. To the wild animals which range the desert it offers a successful resistance by kicking, the force of which is so great that a blow in the chest is sufficient to cause death.

Man succeeds in capturing the Ostrich only by stratagem. The Arab on his swiftest courser would fail to get near if he did not by his intelligence supply the deficiency in his physical powers. "The legs of an Ostrich running at full speed," says Dr. Livingstone, "can no more be seen than the spokes in the wheel of a vehicle drawn at a gallop." According to the same author, the Ostrich can run about thirty miles in an hour—a speed and endurance much surpassing that of the swiftest Horse.

The Arabs, well acquainted with these facts, follow them for a day or two at a distance, without pressing too closely, yet sufficiently near to prevent them taking food. When they have thus starved and wearied the Birds, they pursue them at full speed, taking advantage of the fact, which observation has taught them, that the Ostrich never runs in a straight line, but describes a curve of greater or less extent. Availing themselves of this habit, the horsemen follow the chord of this arc, and, repeating the stratagem several times, they gradually get within reach, when, making a final dash, they rush impetuously on the harassed Birds, and beat them down with their clubs, avoiding as much as possible shedding blood, as this depreciates the value of the feathers, which are the chief inducement for their pursuit.

Some tribes attain their object by a rather singular artifice. The hunter covers himself with an Ostrich's skin, passing his arm up the neck of the Bird so as to render the movements more natural. By the aid of this disguise, if skilfully managed, Ostriches can be approached sufficiently near to kill them.

The Arabs hunt the Ostrich with Dogs, which pursue it until it is completely worn out. In the breeding season, having sought and found out where the Ostriches lay their eggs, another artifice is to dig a hole within gunshot of the spot, in which a man, armed with a gun, can hide himself. The concealed enemy easily kills the male and female Birds in turn, as they sit on their nest. Lastly, to lie in wait for them close by water, and shoot them when they come to quench their thirst is often successful.

The Ostrich, which is an eminently sociable Bird, may sometimes be seen in flocks of 200 or 300, mixed up with droves of Zebras, Quaggas, &c. They pair about the end of Autumn.

The nest of the Ostrich is more than three feet in diameter; it is only a hole dug in the ground and surrounded by a rampart composed of sticks, etc., and a trench scratched round it outside to drain off the water. The eggs weigh from two to three pounds, one of them being more than sufficient for the breakfast of two or three people.

The Rhea or South American Ostrich bears the greatest resemblance to the African Ostrich, of which it is the representative in the New World; but it is only about half the size of the African Bird, and has three toes instead of two. The color of its plumage is a uniform grey.

This Bird (called by the Brazilians Nhandu-Guacu) inhabits the Pampas of South America, the coolest valleys in Brazil, Chili, Peru, and Magellan's Land. There they may be seen wandering over the open plains in flocks of about thirty, in company with herds of Oxen, Horses and Sheep. They browse on the grass like Cattle, at the same time searching for various seeds. They run nearly as swiftly as the Ostrich, so are well able, by speed, to escape the pursuit of their enemies. If a river interrupts their course, they do not hesitate to plunge into it, as they are excellent swimmers; indeed, so fond are they of water that they take pleasure in splashing and bathing in it.

The Rhea lays its eggs and hatches them in the same manner as the Ostrich. They are Birds of a gentle nature, and are tamed with the greatest ease, becoming very familiar in the house, visiting the various apartments, wandering about the streets, and even into the country; but they always return to their homes before sunset.

The family to which these Birds belong takes its name from the Latin words, scandere, scansum, meaning to climb; yet, strange as it may seem, there are many birds belonging to this family that cannot climb, and there are other Birds, especially some of those belonging to the Sparrow family, that can climb and are not classified in this group.

The peculiar characteristic of all the birds found among the Scansores is the formation of their feet. The toes are in pairs, two before and two behind, which enables them to cling to the branches, and climb all about the trees. All the different Birds who have their toes arranged in this peculiar manner are included in the family of Scansores; and although some of them do not climb so readily as others, they spend the greater part of their time perched in the trees instead of flying about in the air. Their flight is medium, not being so strong as that of the Birds of Prey nor so light as that of the Sparrow family.

The climbers do not form a very large family; the most familiar are the Parrots, Cockatoos, Cuckoos, Toucans, Jamicars, Woodpeckers, etc. They live chiefly in warm countries, and feed upon fruits and insects, and the majority are noted for their brilliant colors.



AMAZONIAN PARROT.

The Parrots have large, strong, round beaks, with the upper part hooked and sharp at the tip, and the under part rather deeply hollowed. The tongue is thick, fleshy and movable, and the feet are perfected to such a degree that they really become hands, able to seize, hold and retain small objects. Their toes are supplied with strong and hooked claws, which make these birds pre-eminently climbers. The Parrots walk with difficulty, and with such trouble that they rarely descend to the ground in their native homes, and only under pressing circumstances. Besides, they find all the necessaries of their existence on trees. They are not more favored with regard to their flight; and we can understand that it should be so; for, living in thick woods, they only require to make trifling changes of place, such as from one tree to another. However, some species, especially the smaller, are capable of a prolonged and effective use of their wings. According to Levaillant, some even migrate, and travel hundreds of miles every year; but this is unusual. In general, Parrots remain in the localities where they are reared.

Sociable in their dispositions, they assemble in more or less numerous bands, and make the forests re-echo with their loud cries. To some species it is such an imperative necessity to be near each other and live in common, that they have received from Naturalists the name of "inseparables." They deposit their eggs in the hollows of trees and in the crevices of rocks. The young birds are quite naked when hatched; it is not till the end of three months that they are completely covered with feathers. The parent birds wait upon them with the greatest care, and become threatening when approached too closely by intruders.

Parrots prefer the fruits of the palm, banana, and guava trees. They may be seen perched upon one foot, using the other to bear the food to their beaks, and retain it there till eaten. After they have extracted the kernel they free it from its envelope, and swallow it in particles. They often visit plantations, and cause great devastation. In a domestic state they eat seeds, grain, bread, and even raw or cooked meat, and it is with pleasure that they receive bones to pick; they are also very partial to sugar. It is well known that bitter almonds and parsley act upon them as violent poisons. They drink and bathe frequently; in summer they show the greatest desire for plunging and splashing in water.

They climb in a peculiar manner, which has none of the abruptness displayed by other Birds of the same order. This they accomplish with slow and irregular movements, helped by their beak and feet. Like almost all birds of tropical regions, these Birds are adorned with most beautiful colors, green and red being the most prominent, with occasional markings of yellow and even blue; and some kinds of Parrots have very handsomely developed tails.

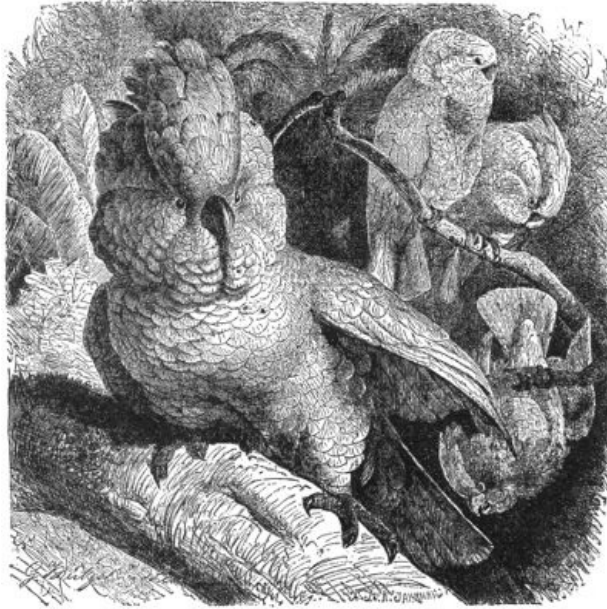
The Parrots are the favorites of the human family because of their remarkable talent of imitation. They retain and repeat words which they have heard by chance, or sentences which they have been taught, and also imitate the cries of different animals, and the sounds of musical instruments, etc. The species most remarkable for their talking and imitating are the Grey Parrot or Jaco, a native of Africa, and the Green Parrot from the West Indies and tropical America.

The Macaws—the largest of the Parrots—are recognized by their bare cheeks and long tapering tails. They inhabit South America and are arrayed in the most brilliant colors. The principal species are the Ara or Blue and Yellow Macaw.

The Parrakeets are much smaller than the Macaws, and like them, have long tapering tails, but their cheeks are feathered. What are known as the "Love-birds" are the rarest and smallest of this group. They make their home in America and Southern Africa.

What are known as the "Parrots proper" are distinguished from other groups of the same family by their short, square tails. They have feathered cheeks like the Parrakeets, and are between these and the Macaws in size. They are appreciated on account of their memory and their habit of repeating what they hear without any special teaching. These Parrots are divided into several groups, and species according to their size and color. Among them we find the Grey Parrot or Jaco, a native of the West coast of Africa, the Festive Green Parrot, and the Amazonian Parrot, which is remarkable for its power of imitating, and the richness of its green plumage.

THE COCKATOOS.



COCKATOOS.

These Birds are very handsome members of the Parrot family, especially the ones that are crowned with very full tufts of feathers about the head. Some have the head entirely surmounted by a white, yellow or pink tuft, which they can raise or lower at will. Their tails are short, and their cheeks feathered. They are the largest among the race of Parrots of the old continent. They inhabit the Indies; and, although they are pretty, graceful, and very docile and caressing when tamed, they do not talk so well as some of the other Parrots.

There is one remarkable species of the Cockatoos, sometimes called the Trumpet Cockatoo, because of the formation of the tongue. This is cylindrical and terminated by a little gland slightly hollowed at the end. In eating, this Bird takes the kernels of the fruits which form its food, crushes them by the help of its jaws, then seizes the food by means of the hollow which terminates the tongue, projects the trumpet in front, and makes it pass to the palate which causes it to fall into the throat. As this peculiarity of the trumpet-like tongue has never been noticed in any other Bird, it has made this species quite as noted as the Great White Cockatoo, and Leadbeater's Cockatoo, which have long been known as the handsomest species of this family.

THE CUCKOOS.

The Cuckoos are about the size of a Turtle Dove. They have beaks about as long as the head, slightly curved and compressed, and rather long and rounded tails, and long pointed wings. There are several kinds of Birds belonging to this group, some of which differ from the Cuckoos proper, in having short wings and long tapering tails. Among these are found the Trogons, Honey-guides, Anis or Annos, Barbets and the Touracos or Plantain-eaters. These different species belong to all the countries of the old continent.

Only one species is found in Europe—the Grey, or European Cuckoo. These are migratory Birds; they pass the warm season in Europe, and the winter in Africa, or in the warm parts of Asia.

Cuckoos are celebrated for the peculiar manner in which they raise their young. They do not build a nest, nor cover their eggs, neither do they take care of their young. They place their eggs in the nests of other Birds, such as the Lark, the Robin, the Hedge Sparrow, the Thrush, Blackbird, etc. They leave the care of hatching their eggs, and even the care of the young Birds to these strangers. Cuckoos lay eight to ten eggs in the space of a few weeks. When an egg has been laid the Bird picks it up in her beak, and carries it to the first unoccupied nest that she can find, and there deposits it when the owner of the nest is away. The next egg is placed in a neighboring nest, but never in the same as the first. The mother shows great intelligence in this, for by placing two eggs in the same nest of a smaller Bird, the greater size of her little ones would crowd the space intended by the builder, for smaller Birds of her own. And two Robins or Hedge-sparrows would be kept very busy feeding such great hungry Birds as would hatch from the Cuckoo's eggs.

Another way in which the Mother Cuckoo shows her intelligence is her plan of breaking an egg in the nest in which hers is to be placed. If she finds one or more eggs in the nest, after she has placed hers in position she will take one of the others out, break it with her beak and scatter the shell, so that when the other Bird returns to her nest she will find the same number of eggs that she left. The Cuckoo has often been considered a very mean Bird, and a hard-hearted mother, because of this practice of imposing on other Birds, yet Naturalists excuse them by explaining that as the Cuckoo lays her eggs at considerable intervals she would find that she could not cover them and raise a family at the same time, for while some were hatching and the young Birds requiring constant attention, the other eggs would require her sitting upon them and keeping them warm for hatching later; so perhaps after all, the poor, misjudged Bird is simply following instinct without any thought of meanness.

HONEY-GUIDES OR INDICATORS.

The Honey-guides or Indicators which stand nearest to the Cuckoos in this group, take their name from their unusual habit of guiding the natives of the countries in which they are found to hives of wild honey bees. They feed on insects and are especially fond of the pupae of bees. So while the natives (who have been attracted by the cries of the Bird to the hive of the bees) are taking out the honey, the Bird remains in a tree nearby watching the process, and when the honey is all removed they approach to reap the fruits of its trouble.

ANIS AND BARBETS.

The Anis and the Barbets also belong to the group of Cuckoos. The Anis have bulky, short beaks surmounted by a sharp crest. They live in the hot regions of South America and feed upon Reptiles and Insects. The two principal species of this genus are the Razor-bill of Jamaica, and the Savannah Blackbird of America.

The Barbets owe their name to a number of straight hairs which they have upon their beak. They are massive in form, and their flight is heavy. They inhabit the warm countries of both continents, and feed upon fruits, berries and Insects. The best known of this genus is the Collared Barbet, with a distinct collar of white feathers about the throat. The Barbets have a curious habit of raising all their plumage till they look like a ball of feathers; from this peculiarity they have gained the name of Puff-birds.

TROGONS AND TURACOS.

The Trogons, like the Barbets, have the bases of their beaks covered with hair. Their soft and silky plumage glitters with the most brilliant hues, and their tails are extremely long and in some instances very beautifully formed. They are sometimes called Couroucous because of their peculiar cry or call to each other. The most remarkable species is the Resplendent Trogon, which is found both in Mexico and Brazil. The plumage of this Bird is a magnificent emerald green, frosted with gold; its breast is red, and its head is surmounted by a beautiful tuft of the green color.

The Turacos or Plantain-eaters are African Birds which closely resemble the Curassows. They live in forests and perch upon the highest branches of trees; their flight is heavy and awkward.

THE TOUCANS.



TOUCAN.

An immense beak is the first thing to attract attention to any member of the Toucan family. This group is divided into the Common Toucans and the Aracarís. The Aracari are not so large as the other Toucans, and they have a more solid beak and a longer tail. The Curl-crested Aracaris is noted for its beautiful variegated plumage.

217

Some of the Common Toucans also have handsome markings about the throat; but the enormous beak is their principal characteristic, and it is much the same in all the different members of the family.

It is much longer than the head, is curved at its extremity and dented at its edges. It is not so heavy to bear, and incommodes the movements of the Birds less than might be supposed, for it is formed of a spongy tissue, the numerous cells of which are filled with air. Thus it is very weak, and does not serve to break or even to bruise fruits, notwithstanding the idea one forms at first sight of its strength, for it is not even capable of breaking off the bark of trees, as certain authors have claimed. This wonderful bill encloses a still more strange tongue; very straight and as long as the beak, which is covered on each side with closely packed barbs, similar to a feather, the use of which remains to us a complete mystery. This curious instrument so struck the Naturalists of Brazil, where many Toucans are found, that it furnished them with a name. In Brazilian toucan means "feather."

Toucans feed on fruits and insects; they live in bands of from six to ten in damp places where the palm tree flourishes, for its fruit is their favorite food. In eating they seize the fruit with the extremity of the beak, make it bounce up in the air, receive it then into the throat, and swallow it in one piece. If it is too large, and impossible to divide, they reject it. They are rarely seen on the ground, and although their flight is heavy and difficult, they perch on the branches of the highest trees, where they remain in ceaseless motion. Their call is a sort of whistle, frequently uttered.

They build their nests in holes hollowed out by Woodpeckers or other Birds. They all have very brilliant plumage, and inhabit Paraguay, Brazil and Guiana.

THE WOODPECKERS.

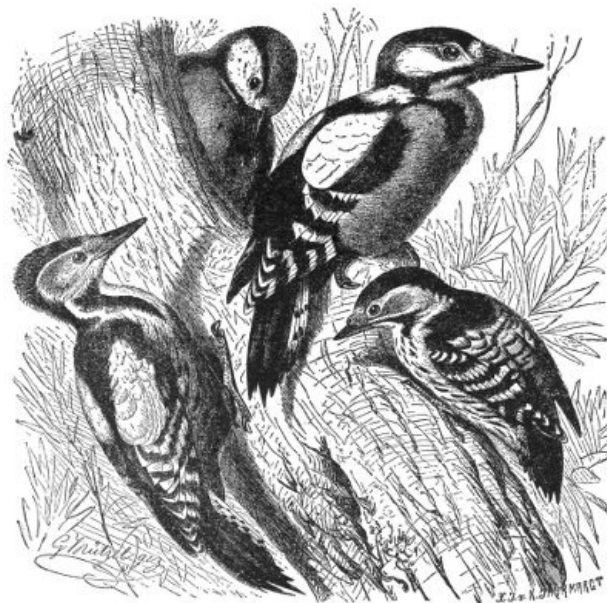


Ivory-Billed Woodpecker.

The Birds which comprise this group have long conical pointed beaks, and a very extensible tongue. They form two genera—the Woodpeckers and the Wry-necks.

Woodpeckers excel in the art of climbing, but they do not perform it in the same manner as the Parrots. They climb by extending their toes supplied with bent claws, upon the trunk of a tree and maintain themselves hanging there. Then they move themselves a little further by a sudden and jerked skip, and so on. They are helped in these movements by the disposition of the tail, formed of straight resistant feathers, slightly worn away at the ends, which pressed against a tree serve as a support to the Bird. By means of these peculiarities in their feet and tail feathers, the Woodpeckers traverse the trees in every direction—upwards, downwards or horizontally.

Woodpeckers are of a timid, restless disposition; they live alone in the midst or on the borders of large forests.



SPOTTED AND DOWNY WOODPECKERS.

Insects and their larvae form their nourishment, which they seek in the trunks and clefts of trees. Their tongue is wonderfully suited for this purpose. It is very long, and, by a peculiar mechanism, can be projected out far enough to reach objects three or four inches away. The beak is terminated by a horny point bristling with small hooks. In many species it is overlaid with a sticky substance secreted by two glands, the effect of which is to catch the insects which it touches. Whenever the Bird darts this tongue into the crevices, it draws it out more or less laden with insects. If it perceives an insect that it cannot reach by means of this organ, it uses its strong beak; striking the tree with redoubled blows, it cuts the bark, breaks an opening, and seizes the coveted prey.

It often also taps with its beak to sound a tree, and assure itself that there is no recess in the interior which would serve as a refuge for its prey. If the trunk is hollow, it examines all parts to find an entrance to the cavity. When it has discovered it, it introduces its tongue; and if the canal is not large enough to permit it to explore the hiding place with success, it increases the size of the aperture. It is not only to seek for food that Woodpeckers make holes in trees, but also to form secure hiding places for their nests. Some species, it is true, select the openings which they find, but others hollow out their nesting places according to their tastes. When such is the case, they select soft-wood trees, such as willow, aspen, etc. The cavity which they bore to where the nest is placed is generally so oblique and so deep that perfect darkness surrounds them. This is doubtless a measure of security against small Mammals, especially the rodents, the natural enemies of their family. The mother deposits her eggs upon a bed of moss or the dust of worm-eaten wood. The young Birds grow slowly, and receive for a long time the care of their parents.

Woodpeckers are generally considered noxious Birds, because they are supposed to injure the trees of forests and orchards, and for this reason a relentless war is made against them. They should, on the contrary, be protected; for they destroy innumerable insects, the real enemies of timber, and never touch a sound limb, for in it their food is not to be found. There are a great number of species of Woodpeckers known, which are spread over the two continents. The principal are the Ivory-billed Woodpecker, a native of America; the great Spotted Woodpecker and the Downy Woodpecker.

Wry-necks owe their name to the curious property they possess of being able to twist their necks in such a manner as to turn the head in all directions. They repeat this movement every instant, especially when surprised or angry. At the same time their eyes become fixed, the feathers of the head stand up, and the tail expands. Like Woodpeckers, they can hang upon trees, and sustain themselves in a vertical position for a long time; but they are incapable of climbing. The weakness of their beaks does not permit of their boring trees; therefore they seek their nourishment upon the ground, principally among the ant-hills. They build in natural holes in trees, or in those hollowed by Woodpeckers. Their plumage is attractive and their size is about that of the Lark. They inhabit all the old continent.

THE JACAMARS.

Jacamars inhabit equatorial America. They are characterized by long and pointed beaks, and short wings. They have three or four toes, according to the species. Their habits are little known; but it is certain that they live isolated or in pairs, that they are stupid, move but little, and rarely depart from the neighborhood where they have chosen their dwelling. All species do not frequent similar localities—as some like thick woods, others prefer open plains; all, however, are insect eaters. In their manners, as well as in their physical characteristics, Jacamars appear to resemble Kingfishers, of which we shall speak hereafter. The Paradise Jacamar is a good representative of the family.

The family of Birds to which our domestic fowls belong is a very large one. It is known as the family of Gallinaceous Birds. The word is derived from the Latin *gallina*, a hen, and *gallus*, a cock. The many different Birds and Fowls found under this family are usually divided into six groups, and these may be readily classified without their long Latin names to designate them.

In the first we find the different kinds of Grouse, the Cock of the Plains, the Heathcock, the Hazel Hen and others of the same nature, that resemble our Hens and Roosters, and care for their chickens in the same manner. Under the second group we find the Quail, the Colin, the Partridge, etc., that are well known in this country and in Europe. The Birds under the third group belong to South America, and are representatives of the Partridge on that continent. The birds belonging to the fourth group are the Chionides of Australia and New Zealand. In size they are between our Partridge and Pigeon. They live near the sea-beach, and feed on the sea-weed and dead Fishes that are thrown up by the waves.

In the fifth group are found a queer family of birds with straight slender bills and feet that are furnished with long, sharp claws. These birds are also found in Australia and they have a peculiar habit of laying each of their eggs in a separate hole, then covering each with a large mound, scraped together by the Birds; and the eggs are then left to be hatched by the sun. The Bush-turkeys of Australia and New Guinea also belong to this group.

The sixth group comprises our Pheasants, Peacocks, Guinea Fowls, Curassows and Turkeys. The handsomest Birds belonging to the family of domestic Fowls—the Peacocks, Golden Pheasants, etc., are found in this group.

THE PARTRIDGES.



COMMON GRAY PARTRIDGE.

The Partridges make their home on the ground and never perch in trees except when they are forced to do so. Like the Quail they run with remarkable swiftness; their flight is rapid, but low, and does not extend to long distances. These Birds are very sociable, and live in flocks or coveys composed of the parents and the young of the last brood. They are not migratory, and they seem to attach themselves to certain localities and do not leave unless compelled to.

At the time of laying, the mother-bird makes a hole in the earth, which she lines with grass and leaves, and in it deposits her eggs, to the number of twelve or fifteen, and sometimes twenty or more. While she is sitting upon the eggs her mate watches over her and guards her from danger.

When the young are hatched, the father-bird devotes himself to the care of his children. He accompanies them in their wanderings; he teaches them to catch grubs, find ants' eggs, and shows himself as skilful as the mother in guarding them from attacks of their enemies. At the appearance of danger the father utters a cry of alarm, which warns the young ones to hide. Drooping his wings in order to induce the intruder to follow him, he pretends to be unable to fly. At the same time the mother-bird proceeds in another direction and, alighting some distance off, she runs back to her family, and leads them to a place of safety. This is one of the intelligent methods by which the young brood is protected.

A few weeks after they are hatched the young Partridges are able to fly, and to provide for their own wants; they do not leave their parents, but continue to live with them until the following spring, when they begin to build nests and plan for their own children.

Partridges are of a shy and timid nature, which shows itself in many ways. But this is not surprising when it is remembered how numerous are their foes, for Foxes and Birds of prey make continual havoc among them; the latter especially are particularly dreaded. At the mere sight of one of the Falcon tribe, a Partridge is so overcome with fear as to be almost incapable of concealing itself, and it is not until the dreaded enemy is gone that it regains self-possession.

When a Bird of prey unsuccessfully dashes at a Partridge in cover, no power is able to make it take wing, and any one can then lay hands on it without difficulty. A Partridge has even been known to prefer dying in its hiding-place from suffocation to exposing itself to the mercies of its pursuer.

The knowledge of these facts has suggested a very simple and effectual method of making Partridges which are wild remain on the ground without flying, till the sportsman is within gunshot. This is done by frightening them with an artificial Bird of Prey, attached to the tail of a kite, which is flown over them.

Partridges make very delicate food of fine flavor, and they are not only shot in their wild state for this purpose, but in some countries are tamed and raised in great numbers, like the domestic fowls, especially the Grey Partridge. We are told of a whole covey of Partridges of this variety in England which were so tame that they could be driven like a flock of Geese.

The California Partridge is one of the handsomest of the whole family of Partridges. It is a native of the western shores of North America. It is adorned with a crest, giving it a much finer appearance than that of the plain little brown fellows of the Eastern part of this country.



Heathcocks Fighting.

There is a great variety of Grouse and Prairie Chickens belonging to this family of Birds. The Pinnated Grouse is a native of the prairies of North America. Its feathers are light brown, occasionally spotted with white. Its call is deep and sonorous, and can be heard for miles in still weather. The Pinnated Grouse is frequently called the Prairie Chicken. They lay from twelve to fourteen eggs and are the most devoted parents.

The Black Grouse is about the size of a Pheasant, and is distinguished by the tail, which is divided into two parts composed of four feathers on each side curling outwards.

The Ruffled Grouse is an American Bird, but differs from the others in size and habits. The hill-sides, densely covered with evergreens or birch are its favorite resorts, and on the wing, it is remarkable for its swiftness.

The Hazel Grouse is suspicious and timid, and hides among the thick foliage of the green trees at the least appearance of danger. This bird flies awkwardly, but runs very swiftly. It is about the size of a Partridge, and its plumage is of a reddish brown color, mixed with white.

The Heathcock is very similar to the Grouse. The heath plains with their juniper bushes and birches are his favorite abode. His food consists of all kinds of seeds and berries, especially the bilberry, juniper berry, wheat, oats and buckwheat, besides Insects, Snails and Worms, and he is particularly fond of Ants. The Heathcocks are great fighters. They fight in the fashion of the domestic Cocks, but with much greater fury and bitterness. With heads down, fan-shaped tails erected, and wings hanging, the two opponents circle around each other. Suddenly they rush together, spring at each other, and mutually endeavor to inflict wounds with beak and claws, so that the feathers fly far and wide. Wearied, they pause only to take up the battle again with equal bitterness after a short rest, until finally one of the combatants is put to flight. Then the victor flies to a neighboring tree and announces his victory in clear, joyous tones to all the Hens that can be found in the neighborhood. But very often this song of triumph is also his death song. Already the hunter has long observed him from his place of concealment, and awaited a favorable opportunity. Now he sends at him the deadly lead, and in the midst of his triumph song the Cock falls dead to the ground.

The Hens build a simple nest out of dry twigs, grass and feathers in some hollow in the high grass, in the midst of the heath or under bushes. The setting consists of from six to twelve yellow eggs with brown spots of the same size as those of the domestic Hen's eggs. After three weeks the young are hatched out and are taken by the careful mother under her wings, and anxiously guarded and followed. The flesh of the Heathcock is more tender and finely flavored than that of the Wood-grouse.



CROWNED PIGEON.

The family of Birds to which the Pigeons and the Doves belong is usually classed by itself, as forming a link between two other families, and as these are important divisions, it will be well to keep in mind the meaning of their Latin names. The Pigeons and Doves belong to the family of Columbidae, which is derived from the Latin word *columba*, meaning a dove; and this forms the division between the domestic or Gallinaceous family, that we have just studied, and the family of Passerines, or Sparrows; the name of this family being derived from the Latin word *passer*, meaning a sparrow.

It would be useless to attempt to describe all the different kinds of Pigeons in this space, but we can mention the leading groups, with their distinguishing features.

The Crowned Pigeon is one of the handsomest. This is usually found in New Guinea. The plumage of this Bird is a beautiful greyish blue, with markings of dark blue and white, and its head is crowned with a plume of long tapering feathers.

The Fan-tailed Pigeon is remarkable for its tail, which is very large and raised like that of a Peacock when spread out to its handsomest extent.

The Nun Pigeon is recognized by a kind of hood formed of raised feathers, which covers the back of the head and neck, and to which it owes its name.

The Wheeling Pigeon describes circles, like Birds of Prey, when it is flying. This Bird has an unpleasant disposition, and a bad habit of annoying other Pigeons. It should be excluded from Pigeon-houses.

The Tumbler Pigeon owes its name to its curious manner of flying. It has a habit, after it has risen to a certain height, of throwing five or six summersaults.

The Pouter Pigeon owes its name to the faculty which it possesses of inflating its crop to an immense size by the introduction of air. This peculiarity often destroys them; indeed, when feeding their young, they find so much difficulty in causing the seeds which they have swallowed to reascend into their beaks, that they contract a malady which is frequently fatal.

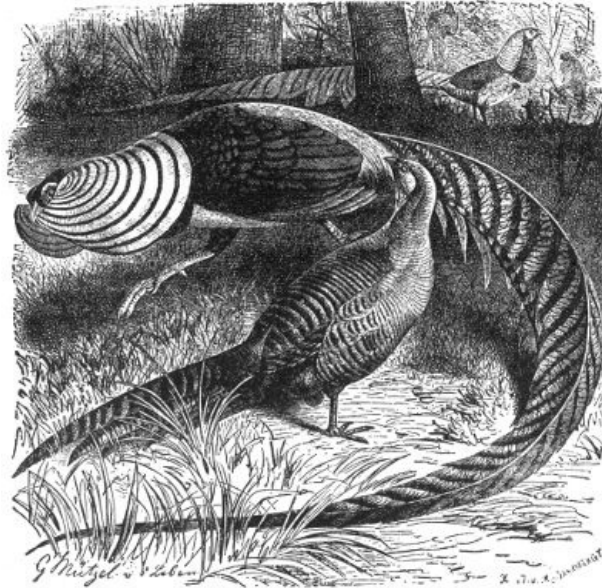
The Roman Pigeons, thus named because they are very common in Italy, are easily recognized from the circle of red which surrounds their eyes.

The Swift Pigeon is of small size, its flight is light and rapid.

The Carrier Pigeons belong to this race. They are celebrated for their attachment to their birthplace, or to the spot that contains their young, and for the intelligence which enables them to regain their native countries from whatever distance. Transport them miles from their homes, even in a well-closed basket, then give them their liberty, and they will return, without the slightest hesitation, to the place from which they were taken. This valuable faculty has long been utilized, especially in the East.

The Romans made use of Pigeons as messengers. Pliny says that this means was employed by Brutus and Hirtius to concert together during the siege of a town by Mark Antony. At the siege of Leyden, in 1574, the Prince of Orange employed Carrier Pigeons to carry on a correspondence with the besieged town, which he succeeded in freeing. The Prince, to mark his acknowledgment of the services rendered by these wise Birds, wished them to be fed with strawberries, and their bodies to be embalmed after death.

We learn from Pierre Belon, the Naturalist, that in his time navigators from Egypt and Cyprus took Pigeons upon their galleys, and liberated them when they had arrived at the port of destination, in order to announce to their families their safe journey. In our century they have been made use of for similar purposes.



GOLDEN PHEASANTS

Under the name of Phasianidae, the Pheasants form a distinct family, which is divided into several groups of Birds and Domestic Fowls which have similar characteristics. Not only our well known Pheasants, but the Peacocks, Guinea Fowls, Turkeys, Curassows, Bankiva Fowl, Tragopans, and the Argus are all grouped in this family, because they all have short bills, wings so short that they cannot fly readily, brilliant plumage, and tails largely developed, forming the greatest beauty of the Bird in many instances.

The Pheasant, especially, is remarkable for the length of its tail; the middle feathers of which in one species, known as Reeve's Pheasant, sometimes attain a length of seven or eight feet.

The Silver Pheasant and the Golden Pheasant are two beautiful species. The former is clothed in a black and white costume that gives it a fine silvery appearance. The latter is brilliantly clothed in purple and gold, and bears a golden yellow crest on its head, with a handsome circular collar effect; and the tail of the Golden Pheasant is very long and showy.

There are many other species of Pheasants, distinguished by some peculiarity of the plumage, but there is no special difference in their habits.

In the wild state the Pheasants prefer wooded slopes or marshy plains, and their food is composed of grains, berries, Worms, Insects, Snails, etc. They are shy and timid in their nature, taking flight at the least indication of danger. They make their nest on the ground in the midst of a thicket, or in a tuft of grass, and the hen Pheasant lays from twelve to twenty eggs, which require twenty-four days to hatch.

In some parts of the country these Birds are raised in enclosures called pheasantries. During the first two months of existence, the young Pheasants require the greatest care, as the tender little fellows are subject to numerous maladies.

THE PASSERINES, OR THE SPARROW FAMILY.

It seems strange that one of the very largest families of Birds should take as its type our common little Sparrow, yet the Passerine family takes its name from the Latin word *passer*, meaning a Sparrow. These are also known as Perching Birds. Taking it altogether this is an odd family of Birds, so many are included in it, in which it is difficult to detect the bonds which connect them.

For example, where is the link which unites the Crow to the Swallow, or the Hornbill to the Humming-bird? Nevertheless all these winged creatures, so different externally, belong to the Passerines. Some Naturalists have claimed that this family presents only negative characteristics, bringing together in an odd group all the birds that are not included among the Rapacious, the Swimming, Wading, Gallinaceous or Domestic, and Climbing Birds. The principal points in common among these birds is that the outer toe is united to the middle one, more or less. Their food consists mainly of seeds, insects and fruit. They fly gracefully and easily, and their walk consists of a succession of little leaps. They build their nests and take their rest under the thick foliage of trees, or under the eaves of buildings.

In this extensive family we find most of the songsters of the woodlands. Some of them have even the gift of imitating the human voice and the cries of wild animals. Many are remarkable for their brilliant plumage, others are appreciated as delicacies for the table. Some of them are easily tamed, but none of them have been brought to a domestic state.

Some Naturalists divide the Passerines into five great groups, the first based upon the structure of the feet, the other four on the formation of the bill. Others object to this classification because it is not always possible to assign a place to certain groups because of peculiarities of their beak alone. This distribution is generally followed, however, as it is easy to remember.

THE PERCHING BIRDS WITH UNITED TOES.

As the different members of the great Passerine or Sparrow family are nearly all Perching Birds, it is easier to give them this classification in dividing them into groups, and thus avoid the many Latin names that it is not necessary to remember. In the first group we find the Perching Birds with united toes—the outer toe being nearly as long as the middle one and fast to it. This group includes the Hornbills, the Fly-catchers, the King-fishers, the Bee-eaters, and the Motmots.

THE HORNBILLS.

The Hornbills are remarkable for their enormous development of beak, which is long, very wide, compressed, and more or less curved and notched, and in some species surmounted by a large helmet-like protuberance. This immense beak is nevertheless very light, being spongy, as in the Toucans. The Hornbills have in some respects the bearing of the Crow; this led Bontius to class them among the Crows, under the name of Indian Crow. They walk with difficulty, and their flight is clumsy, their favorite position being on a perch at the summit of lofty trees. Great flocks of these haunt the forests of the warmer regions of the Old World, especially Africa, India, and the Oceanic Archipelago. They build their nests in the hollows of trees. They are omnivorous. The fruits, seeds, and insects of those regions are their principal food; yet they will not refuse flesh.

In India they are domesticated, their services in destroying rats and mice being valuable. The plumage of the Hornbill is black or grey, of various shades; but there is a species described by Dr. Latham and Dr. Shaw under the name of the Crimson Hornbill, which Mr. Swainson thinks may prove to be a link between Toucans and Hornbills, and thus combine the beauty of plumage of the former with the peculiarity of form of the latter. Their flesh is delicate, especially when fed on aromatic seeds. Many species are described, varying in size, among which the Rhinoceros Hornbill is the most worthy of notice. This bird is so named from the singular protuberance with which its bill is surmounted; this is a smooth horny helmet, curving upwards from the bill, somewhat resembling the horn of the rhinoceros. It is a native of India and the islands of the Indian Ocean.

THE FLY-CATCHERS.

The Fly-catchers are a family of insect-eating Birds, many of which are British, distinguished by long, broad, and very flat bills, contracting suddenly at the tip; the tail is short, slender and rounded; the legs long and weak. It has a bright green plumage above, whitish beneath; and a scarlet throat. It is a native of South America and the Antilles; and a traveler, under the name of Green Humming-bird, describes it as "one of the most beautiful birds he ever saw." It is a familiar little Bird, and will often let a Man come within a few feet to admire it before becoming alarmed.

It lives almost entirely on the ground, feeding on Insects, which it catches in the evening. It builds its nest in the crevices on river banks, or in the soft rocks, in which it hollows out a dwelling by means of its bill and feet.

THE KING-FISHERS.



KING FISHERS.

The King-fishers, the Martin-fishers of some authors, form a highly interesting group. They are very singular Birds. Their bill is strong, straight and angular, being of immense length compared with their size. Living on the banks of rivers, they feed almost exclusively on Fish, watching patiently from a fixed station, generally a naked twig overhanging the water, or a stone projecting above the surface, for its prey. In this position it will sometimes remain for hours, absolutely immovable.

When a Fish comes within reach, with great rapidity the King-fisher darts upon it, seizing it in its powerful mandibles, and after destroying it by compression, or by knocking it against a stone or the trunk of a tree, swallows it head foremost.

When Fish are scarce they feed upon aquatic Insects, which they seize on the wing. They build their nests in the steep banks of rivers, either in the natural crevices, or in holes hollowed out by Water-rats; and these dwelling places are generally littered by the fragments of their food. Father and mother sit alternately, and when the young are hatched they feed them with the produce of their fishing. The Bird has a shrill and piercing note, which it utters on the wing.

THE BEE-EATERS.

The Bee-eaters have the beak long, thin, slightly curved and pointed; the wings are long and pointed; the tail is well-developed, tapering or forked. They are slender, graceful Birds. Their cries, while they skim through the air on rapid wing, are constant. The name of Bee-eaters they receive from their principal food, which consists of large bees and wasps. They seize their prey either on the wing, like the Swallows, or secrete themselves at the entrance to a hive, and catch the inmates that enter or depart, whose stings they are skilful in avoiding. Living together in numerous flocks, they rapidly clear a district of wasps and bees.

They build their nests in the banks of rivers or rivulets, in holes which they excavate to the depth of six or seven feet.

THE MOTMOTS.

The Motmots are Birds still very imperfectly known. They are remarkably massive in form, heavy and slow on the wing. In the Motmots the beak is long, robust and crenated at the edge. They are very wild, and lead an isolated life in the thick forests of South America, where they build in holes in trees. They are about the size of a Magpie and many of that Bird's bad qualities are attributed to the Brazilian Motmot.

PERCHING BIRDS WITH LONG BEAKS.

This group is characterized by a long, slender beak, straight or curved, but always without indentation, and comprises the Humming-birds, Creepers, Nuthatches and Hoopoes.

THE HUMMING-BIRDS.



SWORD BILL HUMMING BIRD.

The Humming-birds are the most lovely of the winged race. Nature seems to have endowed them with her rarest gifts. In creating them she surpassed herself, and exhausted all the charms at her disposal; for she gave them grace, elegance, rapidity of motion, magnificence of plumage, and indomitable courage. What can be more delightful than the sight of these little feathered beauties, flashing with the united fires of the ruby, the topaz, the sapphire, and the emerald, flying from flower to flower amid the richest tropical vegetation? Such are the lightness and rapidity of some of the smaller species, that the eye can scarcely follow the quick beat of their wings. When they hover they appear perfectly motionless, and one might fancy them suspended by an invisible thread.

230

Specially adapted for life in the air, they are unceasingly in motion, searching for their food in the calyx of flowers, from which they drink the nectar with so much gentleness that the plant is scarcely stirred. But the juice and honey of flowers, as some authors affirm, are not their only food—such unsubstantial diet would be insufficient to sustain the great activity displayed almost every moment of their existence.

231

The tongue of the Humming-bird is a microscopic instrument of marvellous arrangement. It is composed of two half-tubes placed one against the other, capable of opening and shutting, like a pair of pliers. Moreover, it is constantly moistened by a glutinous saliva, by which it is enabled to seize and hold Insects.



CRESTED HUMMING BIRD.

Proud of their gay colors, the Humming-birds take the greatest care to protect their plumage. They frequently dress themselves by passing their feathers through their bills.

The nest of the Humming-bird is a masterpiece. It is about the size of half an apricot. These

consist of lichens, and are most artistically interwoven, the crevices being closed up with the Bird's saliva; the interior is padded with the silky fibres furnished by various plants. This pretty cradle is suspended to a leaf, sometimes to a small branch of rushes, or even to the straw roof of a hut. The Bird lays twice a year a pair of pure white eggs, about the size of a pea.

These little creatures are universally admired for their elegance and beauty, and the names given them are generally descriptive of their excessive minuteness. The creoles of the Antilles call them Murmurers; the Spaniards Picaflores; the Brazilians, Shupaflores, or Flower-suckers; finally, the Indians call these darlings Sunbeams.

Among the most formidable enemies of the Humming-bird may be reckoned the Monster Spider, which spins its web round their nests, and devours eggs or young; even the old Birds are sometimes its victims.

Humming-birds are scattered over the greater part of South and North America, even as far north as Canada; but in Brazil and Guiana they are most abundant. At least 500 species are known. Among the more remarkable species we may note the Topaz-throated Trochilus, a native of Brazil; the Sickle-winged Humming-bird; the Double-crested Humming-bird; Gould's Humming-bird; Cora Humming-bird; the Giant Humming-bird, which attains the size of a Swallow; the Dwarf Humming-bird, whose size does not exceed that of a bee; the Bar-tailed Humming-bird or Sapho Comet, a native of Eastern Peru; the Racket-tailed Humming-bird, so named from the shape of its tail, which spreads out at the extremity in the form of a racket; the Crested Humming-bird, with a double crest on the head of the male Bird; and the Sword-bill Humming-bird, with a bill as long as the whole body of the Bird.

THE CROWS.



CROWS AND RAVENS.

The Crows are divided into four groups or sub-genera—namely, the Crows properly so called, Pies, Jays and Nutcrackers.

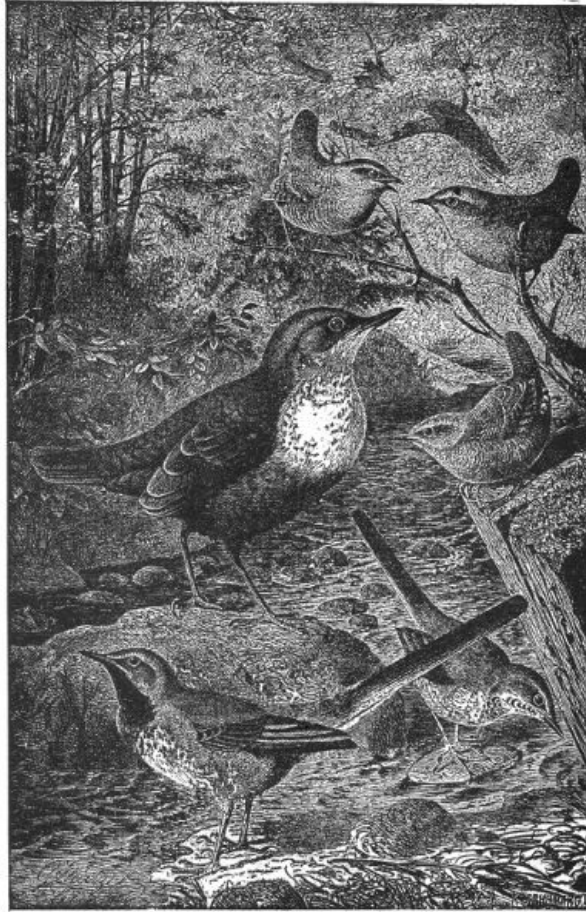
The genus *Corvus*, or Crow family, as limited by modern Naturalists, comprehends the Raven, the Carrion Crow, the Royston or Hooded Crow, the Rook, the Jackdaw, Great-billed Crow, Philippine Crow and Fish Crow.

All these species have in many respects the same characteristics, and the same habits. With the exception of the Raven and Magpie, which live in pairs, the others reside together in companies, whether they are in quest of their daily food or roosting for the night. They are all possessed of intelligence, cunning, mischievous habits, the gift of imitation, though in different degrees, and the same provident habit of amassing provisions in secret places. This last peculiarity in the tamed Birds degenerates into a perfect mania, which leads them to carry off and hide everything that attracts or pleases their eye, especially gems and bright articles of metal. The whole group are easily tamed.

The Crows, especially the Raven and the Carrion Crow, are omnivorous. Living or dead flesh, Insects, eggs, fruit, seeds—nothing comes amiss to their palate.

The Ravens possess a vigorous and sustained flight; they have a keen sense of smell and excellent vision. By exercising these latter qualities they quickly learn where food is to be obtained, and as they wing towards it they constantly utter their cry, as if inviting their companions to join them; this croak, as it is called, is harsh and dissonant. Their plumage being of a sombre black, and their voice so unmusical, have doubtless been the reasons why they have long been considered Birds of ill omen. When taken young, they are tamed with great facility, for they will neither rejoin their own race nor desert the neighborhood where they have been kindly treated. True, they may go into the fields to seek for food, but when the increasing shadows predict the approach of night, their familiar resting place in the house of their protector will be sought. They become much attached to those who take notice of them, and will recognize them even in a crowd.

THE DIPPERS.



DIPPERS OR WATER WRENS.

The Dippers or Water Wrens have straight and slender bills; large and stout toes, furnished with strong hooked claws, and short wings and tails. The decidedly aquatic habits of these Birds form a curious exception to the rest of the Sparrow family. They live constantly on the edge of the water, or in the water itself, hunting for the Insects which constitute their food.

Although their toes are not webbed, they may often be noticed diving and moving about under water, by extending their wings and using them as fins. They are frequently seen flying along streams, and catching the winged Insects skimming over the surface of the water. They build their nests along the banks of mountain streams, and thrive in great numbers in such rocky countries as the Alps, Pyrenees, and other mountain chains in the south, west and north of Europe.



FLYING-FISH.

THE numerous Fishes that inhabit the waters all over the globe are divided into two great groups—the Cartilaginous Fishes, with their framework made up of bones in the form of cartilage or gristle, and the Osseous, or bony Fishes. These large groups are sub-divided in a most puzzling manner by many Naturalists. The long Latin and Greek names used to classify these groups and smaller families are so much more difficult to remember than are the divisions of the great group of Mammals, that we will entirely discard all these derivations and explanations, using only the common English names for grouping them according to their peculiarities of form, the arrangement of the gills, the number and form of their fins, etc., etc.

The first great group of Cartilaginous Fishes is divided into three sections, which make in reality four families, as the second section comprises two. In the first of these we find the queer family of Lampreys, in which the mouth forms a sucker. In the second, are the family of Raias, and the Shark family, characterized by their mouth being furnished with jaws. The third includes the Sturgeons, which are distinguished by having the gills free.

The Bony Fishes are divided into four great sections. The first is represented by the family of Globe Fish and Coffers, which have the jaw attached to the cranium. The second includes the queer family of Pipe-fish and Sea-horses, which have the gills divided into round tufts arranged in pairs. The third division includes the family of soft-finned Fishes, in which the rays of the fins are soft. In the fourth section are the various families of spiny-finned Fishes. And in some one of these groups with their distinct characteristics, may be classified all the numerous Fishes that are known to modern Naturalists.

CARTILAGINOUS FISHES.

It is not usual to class these two families together, but they look so much alike until studied closely, all the different varieties having the appearance of serpents, with fins and curious forms of tails and heads, that it seems best to study them together and find the points of difference. The Lamprey is of a lighter color than the Eel, and is not so graceful, but of a rather clumsy form. But it differs most in its mouth, which is round, and placed below the end of the nose. It resembles the mouth of a Leech more than that of an Eel.

The Lamprey has a hole on top of its head through which it spouts water, somewhat like a Whale, and the fins are formed by a lengthening out of the skin instead of having a set of bones or spines for that purpose. The mouth of the Lamprey is not only formed like that of the Leech, but it has the same property of sticking close to and sucking any body that is applied to it. It has a wonderful power of holding on to stones by sucking with its mouth, so that it is almost impossible to draw it away. We are told of one that weighed only three pounds, and yet it stuck so firmly to a stone weighing twelve pounds, that it remained suspended by its mouth, and it was almost impossible to make it loosen its hold.

This wonderful strength of suction is supposed to arise from the power of the Lamprey to exhaust the air within its body by the hole over the nose, while the mouth is closely fixed to the object, and allows no air to enter.

This adhesive or sticking quality in the Lamprey is somewhat increased by the slimy substance which is smeared all over its body. This substance serves to keep it warm in the cold water, and it also keeps its skin soft and pliant.

Every year, usually about the beginning of the spring, the Lampreys leave the sea, where they usually make their home, and make holes or nests in the gravelly bottoms of rivers. Here the eggs are laid, and the mother Lamprey watches near until the eggs hatch. Then she is often seen with her whole family playing about her until they have become well grown, when she takes the whole family back in triumph to the ocean.

There are several different species belonging to the Lamprey family. The kind known as the Lesser Lamprey inhabits Europe, Japan and the lakes of South America. It measures from twelve to fifteen inches long. Then there is a still smaller member of the family called the Lampern, which lives in European rivers, and is about six or seven inches long. It hides itself under stones or in the mud, but does not have the same power of suction as some of the larger ones.

The Sea Lamprey belongs to the Mediterranean. When full grown it is about three feet long, and its light yellow body is marbled with brown. The Lampreys feed on worms, molluscs and small Fishes. The larger ones often seize Fishes of great size, and suck them like a Leech.

All the different kinds of Lampreys are considered very fine and delicate food, and horrible stories are told of how kings and emperors used to raise the best kinds of Lampreys in ponds and feed them by throwing into the ponds live slaves who had displeased them; as they considered the Lamprey had a finer flavor when fed on human flesh. But only one man, a senator of Rome, was really known to do such a dreadful thing, and we are told that when Augustus, the emperor, heard it he ordered all these ponds to be filled up; but not until after many poor slaves had met this awful death, simply because they did not happen to please their wicked master.

THE EELS.

The Eels belong to the family of bony Fishes, although the Lampreys which they resemble in general appearance, belong to the family of Fishes whose framework is made up of cartilage, or gristle. The Eels form a very large family if we would include the different kinds of bony Fishes that have the same snake-like form of the common Eel. We find these smaller families classed under the name of Apoda; this word means without feet when applied to animals, but when used to describe Fishes, means without the ventral fins which serve in the place of feet.

As the different kinds of Eels found under this family of Apoda are described by their Greek or Latin names, it will be well for us to understand the meaning of each of the four divisions. We would hardly recognize the plain Sand Eel, when we find him classed with "Osseous Fishes" under the name of "Ammodytes," yet this is where the Naturalists place him, because this word in Latin means a sand-burrower, a kind of serpent, and is also derived from two Greek words meaning sand, and diver. The Electrical Eel is classed under fresh water Fishes under the name of Gymnotus, which comes from two Greek words meaning naked and back, showing that the back of the Electrical Eel is without fins. The Sea Eel is classed under the name of Muraenas, while Anguilla, which means snaky, serpent-like, is used to describe the plain Eels with smooth bodies and very few of the characteristics which distinguish the other Eels.

We will simply give all these different kinds of Eels their plain common name, but when we read of wonderful fresh water Fishes called Gymnotus Electricus, who have strange electrical powers, we will know the word is used to describe the Electrical Eel.

ELECTRICAL EELS.

Very strange stories are told of these Eels, and its power to give an Electric shock to any person or animal who touches it. Alexander von Humboldt is said to have given the first precise account of this very curious Eel. This celebrated Naturalist tells of a voyage up the Orinoco for the purpose of studying the Electrical Eel, great numbers of which are found in the neighborhood of this river. Some Indians conducted the party to the Cano de Bera, a muddy pond surrounded by rich vegetation, Indian figs and beautiful flowers.

The party of Naturalists were surprised when they learned that it would be necessary to use about thirty half-wild Horses to help them fish for the Electrical Eel, and that the severe shocks of electricity given by the Eels must be expended upon the Horses before it would be safe to touch the Eels.

While our hosts were explaining to us this strange mode of fishing, the troop horses and mules had arrived, and the Indians had made a sort of battue, pressing the horses on all sides, and forcing them into the marsh. The Indians, armed with long canes and harpoons, placed themselves round the basin, some of them mounting the trees, whose branches hung over the water, and by their cries, and still more by their canes, prevented the horses from landing again.

The Eels, stunned by the noise, defended themselves by repeated discharges of their batteries. For a long time it seemed as if they would be victorious over the Horses. Some of the Mules especially, being almost stifled by the frequency and force of the shock, disappeared under the water, and some of the Horses, in spite of the watchfulness of the Indians, regained the bank, where, overcome by the shocks they had undergone, they stretched themselves at their whole length.

The picture presented was now indescribable. Groups of Indians surrounded the basin; the Horses with bristling mane, terror and grief in their eyes, trying to escape from the storm which had surprised them; the Eels, yellow and livid, looking like great aquatic Serpents swimming on the surface of the water, and chasing their enemies, were objects at once appalling and picturesque. In less than five minutes two Horses were drowned.

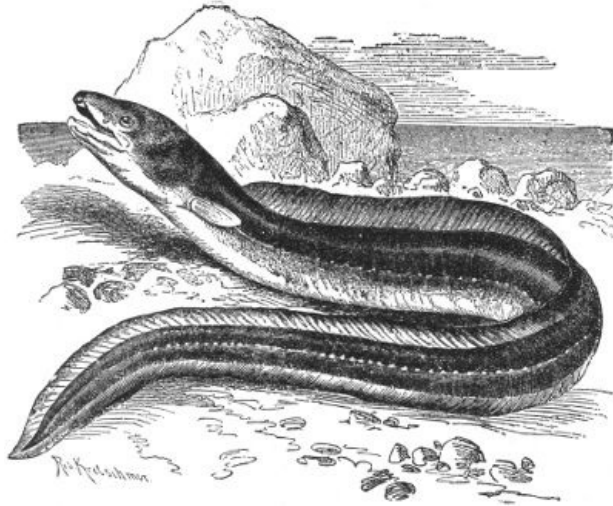
When the struggle had lasted a quarter of an hour, the Mules and Horses appeared less frightened, the manes became more natural, the eyes expressed less terror, the Eels shunned, in place of attacking them; at the same time approaching the bank, when they were easily taken by throwing little harpoons at them attached to long cords; the harpoon, sometimes hooking two at a time, being landed by means of the long cord. They were drawn ashore without being able to communicate any shock.

Having landed the Eels, they were transported to little pools dug in the soil, and filled with fresh water; but such is the terror they inspire, that none of the people of the country would release them from the harpoon—a task which the travelers had to perform themselves, and receive the first shock, which was not slight—the most energetic surpassing in force that communicated by a Leyden jar, completely charged.

The Electrical Eel surpasses in size and strength all the other Electric Fishes. Humboldt saw them five feet three inches long. They vary in color according to age, and the nature of the muddy water in which they live. Beneath, the head is of a fine yellow color mixed with red; the mouth is large, and furnished with small teeth arranged in many rows.

The Electrical Eel gives the most frightful shocks without the least muscular movement in the fins, in the head, or any other part of the body. The shock, indeed, depends upon the will of the animal, and in this respect differs from a Leyden jar, which is discharged by communicating with two opposite poles. It happens sometimes that an Electrical Eel, seriously wounded, only gives a very weak shock, but if, thinking it exhausted, it is touched fearlessly, its discharge is terrible.

SEA EELS.



SEA EEL.

The Sea Eels are slender, serpent-like Fishes, that are very strong and active, and they swim with the same waving movements in the water, as the serpents use in creeping on dry land. These Eels feed on small Fishes, Crabs, etc., and are such hungry fellows that when other food fails they begin to nibble at each other's tails.

It is difficult to catch a Sea Eel; they are usually caught with rod and line, or with line and ground bait, but they are quick in making their escape. When they have swallowed a hook they will often cut the line with their teeth, or they turn upon it, and try, by winding it round some object, to strain or break it. When caught in a net they quickly choose some mesh through which their body can glide.

Like the Lampreys, these Sea Eels make excellent food, and are often raised in ponds and carefully fed to give their flesh a delicate flavor.

SAND EELS.

The Sand Eel is an easily frightened little fellow who buries himself in the sand. He is quite handsome, being silvery-blue—brighter on the lower parts than on the upper, with the radiating fins first white and then blue in color.

This Eel is seldom seen swimming about. It hollows out a burrow for itself in the sand to the depth of fifteen or twenty inches, where it hunts out worms on which it feeds, while it shelters itself from the jaws of the hungry Fishes which eagerly hunt for its delicate flesh.

COMMON EELS.

The plain, snake-like Eel classed under the name of *Anguilla* is found in European rivers, and in various parts of North America. Although it is sometimes eaten it is not considered especially good for food; it does not often measure much over two feet in length, and is covered with a soft, slimy skin, and sometimes with tiny scales almost too small to be seen.

CONGER EELS.

The Conger Eel of the United States which belongs to this family is often five feet or more in length, while the Conger Eel of Europe is very large, as thick as a man's leg, and sometimes ten feet long.

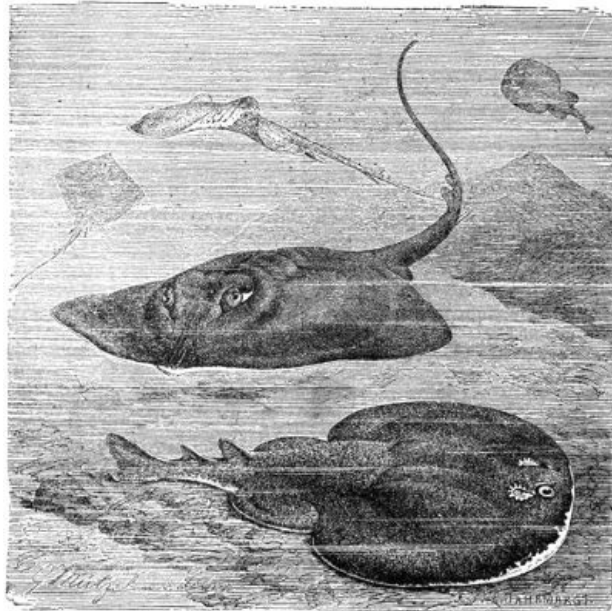
THE FAMILY OF RAIAS, OR FLAT-FISH.

All the curious Fish of this family—which forms the second group of the Cartilaginous Fishes—are broad, and swim flat on the water, and they are distinguished by the spines or prickles which the different species have on various parts of their body, or on the tail.

It is by these spines that the different members of this family are distinguished from each other. The Skate has the middle of the back rough, and a single row of spines on the tail. The Sharp-nosed Ray has ten spines that are situated towards the middle of the back. The Rough Ray has its spines spread over the whole back. The Fire-flare has but one spine but that is a terrible one. This dangerous weapon is placed on the tail, about four inches from the body, and is about five inches long. It is of flinty hardness; the sides are thin, sharp-pointed, and closely and sharply bearded the whole way.

The White Ray, the Lump-fish and the Torpedo or Cramp-fish are the most important of this family, and these curious specimens are worthy of special description.

THE WHITE RAY.

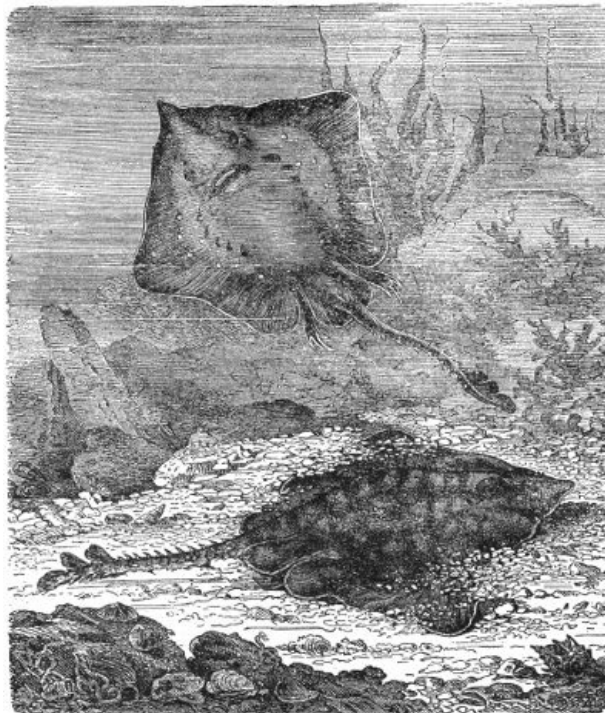


WHITE RAY.

The mouth of this Fish is placed in the lower part of the head, and far from the extremity of the nose; it is furnished with many rows of hooked and pointed teeth. The eyes, which are on the upper part of the head are half projecting and are protected by an elastic skin which covers the head. Immediately behind the eyes are two blow-holes which are connected with the interior of the mouth. The Fish is able to open and close these holes at pleasure, by means of a membrane which acts as a sort of valve. Through these holes it ejects the surplus water that is not required for respiration. In its general color this Fish is ashy grey on its upper surface; and white, with rows of black spots below.

Its tail is long, flexible and slender and is used as a rudder, and as a weapon. When lying in wait for its prey at the bottom of the sea, and it has no desire to change its position, a rapid and sudden stroke of this formidable weapon, armed with hooked bones on its upper surface, arrests its victim by wounding or killing it, without disturbing the mud or sea-weed by which the Fish is covered. This species often grows to be quite large, and their flesh is firm and nourishing, but the larger specimens seldom approach inhabited shores.

THE LUMP-FISH.



LUMP FISH.

This is one of the largest of the Ray family. It sometimes reaches a length of twelve feet, and being excellent eating, is much sought after by fishermen. It is commonly seen with the Skate-fish in European markets, as it inhabits all the European seas.

A ray of great curving spines extends all along the back of the Lump-fish, to the end of the tail. Two similar spines are above and two below the point of the nose. Two others are placed before, and three behind the eyes. In fact, the whole surface of this curious Lump-fish fairly bristles with large and small spines, and because of this it is sometimes called the Buckler-fish; for these spines are not merely for ornament, but for defence. The color of the upper surface of this Fish is brown with light spots. The tail, which often exceeds the body in length, has three small fins at the end.

Ray-fish of all kinds are inhabitants of the deep sea, but they change according to the seasons. While stormy weather prevails they hide themselves in the depth of the ocean, where they lie in ambush, creeping along the bottom. But they do not always live at the bottom; they rise occasionally to the surface, far from shore, eagerly chasing other inhabitants of the deep, lashing the water with their tails and fins, springing out of the water, and making it foam with their sport.

When pursuing their prey they use their great fins which resemble wings, and with these and their tail, they beat the waters in order to fall unexpectedly upon their prey, as the Eagle swoops upon its victim.

THE TORPEDO, OR CRAMP FISH.

The Torpedo has no spines which can wound, but it has a much more powerful weapon of defence. Like the Electrical Eel, this Fish has the power of producing violent electrical shocks.

The electrical effects produced on the fisherman who seizes one of these Fish, were noted from early times; but Redi, the Italian Naturalist of the seventeenth century, was the first who studied them scientifically. Having caught and landed one of them with every precaution, "I had scarcely touched and pressed it with my hand," says this Naturalist, "than I experienced a tingling sensation, which extended to my arms and shoulders, and which was followed by a disagreeable trembling, with a painful and acute sensation in the elbow joint, which made me withdraw my arm immediately."

Other Naturalists have described similar sensations, and careful study has been made of this Fish to discover the cause of this shock, and the hidden power possessed by the Fish of storing up this animal electricity. It still remains a mystery, however, in spite of extensive experimenting.

The body of the Torpedo or Cramp-fish is almost circular, and it is thicker than others of the Ray family. The skin is soft and smooth, and of a yellowish color marked with darker spots. The eyes are very small, and behind them are two star-like spout-holes; the mouth is small, and the long tail tapers to a point, finished with a sort of caudal fin. These curious Fishes are found in the English Channel and along the shores of the Mediterranean.



Diver Battling with a Shark.

The Sharks, like the Raias, have their mouth furnished with jaws, and for this reason they are classified in the same group of Cartilaginous Fishes, as distinct from the Lampreys and the Sturgeons. This family includes not only the Sharks, but the Dog-fishes, Hammerheads and the Saw-fish. All the species have a lengthened body, merging into a thick tail and a rough skin.

The Shark becomes the terror of the sea almost as soon as it is born. At first it eats the Cuttle-fish, Molluscs, etc., then the Flounders and Cod-fish. But the prey which has the greatest charm for him is Man. He will even attack a diver in the strong diver's costume, and in the waters where these "Hyenas of the Seas," (as the Sharks are sometimes called) are to be found, the divers find it necessary to make special preparations for fighting them.

When the diver is eagerly engaged with his work, he sees suddenly a great shadow fall on the bottom of the sea and he immediately recognizes with horror the spindle-shaped body of the Man-eating Shark. The head is flat; the fore-part of the snout is projected forward; the wide mouth, pushed far back, is supplied with sharp triangular teeth.

The bold robber has seen the diver and comes at him. If he loses his coolness, he will be the spoil of the greedy Shark. He draws his dagger, which he carries with him for such an event. Dexterously he avoids the animal and stabs him deep with the dagger. A great stream of blood stains the water. In his death struggles the mighty animal threshes the water with his great fins and seeks safety in flight. Then another Shark approaches, and again must the diver fight a life and death battle. He is successful in making this enemy also incapable of fighting; then completely exhausted, he gives the signal to be drawn up. But the diver is not always fortunate enough to overcome the horrible animals. He is sometimes terribly torn by the daring Man-eaters.

The back and sides of the Shark are of an ashy brown; beneath it is faded white. The head is flat, and terminates in a nose slightly rounded. Its terrible mouth is in the form of a semi-circle, and of enormous size; the contour of the upper jaw of a Shark of ten yards length being about two yards wide, and its throat being in proportion to this monstrous opening.

When the throat of the Fish is open we see beyond the lips (which are straight and of the consistency of leather) certain plates of teeth, which are triangular and white as ivory. If the Shark is an adult it has in the upper as in the lower jaw six rows of these murderous arms, an arsenal ready to tear and rend its victim. These teeth take different motions according to the will of the animal; and obedient to the muscles round their base, by means of which it can erect or retract its various rows of teeth, it can even erect a portion of any row, while the others remain at rest in their bed. Thus this far-seeing tyrant of the ocean knows how to measure the number and power of the arms necessary to destroy its prey. For the destruction of the weak and defenceless, one row of teeth suffices; for the more formidable adversary it has a whole arsenal at command.

The eyes of the Shark are small, and nearly round; its scent is very subtle; its fins are strong and rough. The tail is possessed of immense power, and is capable of breaking the limb of a robust Man

by a single stroke.

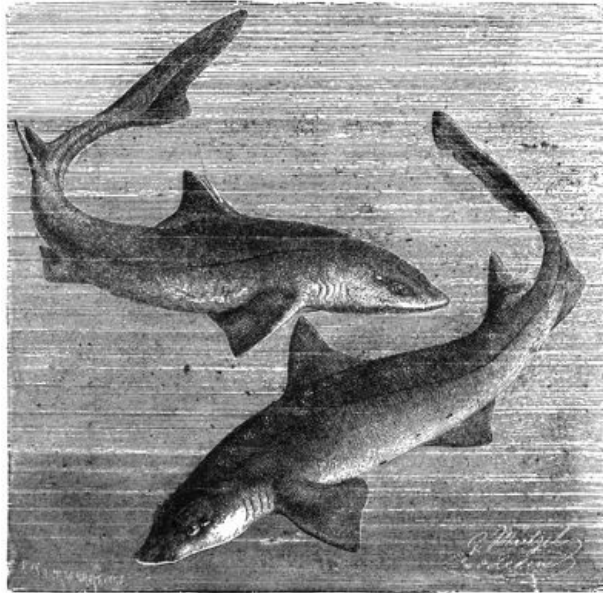
He seeks eagerly for human flesh, and haunts the neighborhood where it hopes to find the precious morsel. He follows the ship in which his instinct tells him it is to be found, and makes extraordinary efforts to reach it. He has been known to leap into a boat in order to seize the frightened fishermen; he throws himself upon the ship, cleaving the waves at full speed to snap up some unhappy sailor who has shown himself beyond the bulwarks.

He follows the course of the slaver, watching for the horrors of the middle passage, ready to engulf the Negroes' corpses as they are thrown into the sea. Commerson relates a significant fact bearing on the subject. The corpse of a Negro had been suspended from a yard-arm twenty feet above the level of the sea. A Shark was seen to make many efforts to reach the body, and it finally succeeded in securing it, member by member, undisturbed by the cries of the horror-stricken crew. In order that an animal so large and heavy should be able to throw itself to this height, the muscles of the tail and posterior parts of the body must have an astonishing power.

The mouth of the Shark being placed in the lower part of the head, it becomes necessary to turn itself round in the water before it can seize the object which is placed above him. He meets with men bold enough to profit by this conformation, and chase this formidable and ferocious creature. On the African coast the Negroes attack the Shark in his own element, swimming towards him, and seizing the moment when he turns himself to rip him up with a sharp knife. This act of courage and audacity cannot, however, be said to be Shark-fishing.

The fishing operation is conducted as follows: Choosing a dark night, a hook is prepared by burying it in a piece of lard and attaching it to a long and solid wire chain. The Shark looks askance at this prey, feels it, then leaves it; he is tempted by withdrawing the bait, when he follows and swallows it gluttonously. He now tries to sink into the water, but, checked by the chain, he struggles and fights. By-and-by he gets exhausted, and the chain is drawn up in such a manner as to raise the head out of the water. Another cord is now thrown out with a running knot or loop, in which the body of the Shark is caught near the tail. Thus bound, the captured Shark is soon lifted on deck, where he is put to death with great precaution as there is still great danger from his bites and the fierce blows of his tail.

THE DOG-FISH.



DOG-FISH.

The Dog-fish, which sometimes attains the length of between three and four feet, is exceedingly voracious. It feeds upon other fish, of which it destroys great quantities; it does not hesitate to attack the fishermen, and especially bathers in the sea. It places itself in ambush, like the Raias, in order to attack its prey.

The flesh of the Dog-fish is hard, smells of musk, and is rarely eaten; but the skin becomes an article of commerce, and is known as shagrin, being, like the skin of the Shark, used for making spectacle-cases and for other ornamental purposes, for which its green color and high polish recommend it.

There is a smaller species than the preceding, which haunts rocky shores, where it lies in wait for its prey. Its spots are larger and more scattered, and its ventral fins are nearly square. It feeds on Molluscs, Crustaceans, and small Fishes.

THE HAMMERHEAD.

The Hammerhead is chiefly distinguished by the singular form of its head, which is flattened horizontally, and the sides prolonged, giving it the appearance of the head of a hammer. The eyes of this Fish are placed at the extremity of these hammer points of the head; they are grey, projecting, and the iris is gold-colored. When the animal is irritated, the colors of the iris become like flame, to the horror of the fishermen who behold them.

Beneath the head and near to the junction of the trunk is the mouth, which is semi-circular, and furnished on each jaw with three or four rows of large teeth pointed and barbed on two sides.

The most common species in our seas is long and slender in the body, which is grey, and the head is black. It usually attains the length of eleven or twelve feet, weighing occasionally nearly five hundred pounds. Its boldness and voracity, and craving for blood, are more remarkable than its size. If the Hammerhead has not the strength of the Shark, it surpasses it in fury; few Fishes are better known to sailors in consequence of its striking form. Its voracity often brings it round ships and near the coast. Its visits impress themselves on the memory of the sailor, and he loves to relate his hair-breadth escape from the meeting.

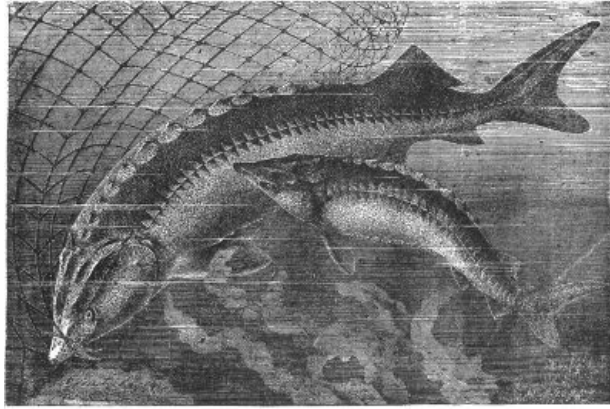
THE SAW-FISH.

The Saw-fish is distinguished from all other known Fishes by the formidable arm which it carries in its head. This weapon is a prolongation of the nose, which, in place of being rounded off or reduced to a point, forms a long, straight, strong, sword-like termination, flat on both sides, and on the two edges furnished with numerous strong teeth, giving the appearance of a double saw, or one with teeth on both edges.

Thus armed, the Saw-fish—the length of which is from twelve to fifteen feet—fearlessly attacks the fiercest inhabitants of the ocean. With this threatening weapon, sometimes two yards in length, it dares to try its strength with the Whale, and in a combat between the two, the Saw-fish is usually victorious.

The Saw-fish is sometimes called the Sword-fish because of the sword-shape of its long saw, but it should be remembered that these Fishes are entirely distinct, for the Saw-fish belongs to the class of Cartilaginous Fishes, while the real Sword-fish, whose sharp sword is strong and smooth—without the saw-like teeth—is found among the Osseous or bony Fishes in the Mackerel family.

THE STURGEON FAMILY.



STURGEON.

The principal Fish belonging to this family are the different kinds of Sturgeon and the strange Chimaera, concerning which so many weird tales have been told.

Four species of Sturgeon are commonly known. The Caviare Sturgeon, the Huso or Isinglass Fish, the Great Sturgeon and the Common Sturgeon. The Caviare Sturgeon is the best known in this country, as well as in European waters, and it is the most eagerly sought after by fishermen because it is from the roe of this Fish that the noted delicacy called caviare is made, which until recent years was confined principally to Russia, but which is now well known and consumed on both continents.

254

What is known as the Isinglass Fish, besides supplying us with roe similar to that of the Caviare Sturgeon, also furnishes a valuable commodity known as isinglass.

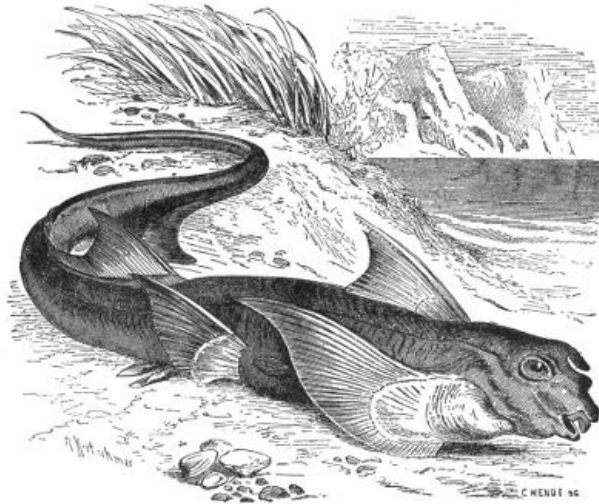
The Common Sturgeon abounds in the North Sea and the Mediterranean. It is usually about two yards to seven feet long, but has been known to attain the length of ten or twelve feet.

It is remarkable for the number and form of the osseous plates or scales, which cover the body like so many bucklers. It has no less than twelve to fifteen of these rough bony plates, relieved by projections, which are pointed in the young, and soften down with age. On each side is a row of thirty to thirty-five of these triangular plates, separated from each other by considerable intervals. The head is broad at the base, gradually contracting towards the point, and terminating in a conical nose. The mouth is large and considerably behind the extremity of the nose, and its jaws, in place of teeth, are furnished with cartilages. Between the mouth and the nose are four slender and very elastic barbs, or wattles, like so many little worms. It is claimed that these wattles attract small Fishes to the jaws of the animal, while it conceals itself among the roots of aquatic plants.

In the sea the Sturgeon feeds on Herrings, Mackerel, Cod-fish and other Fishes of moderate size. In the rivers it attacks the Salmon which ascend them about the same time. Mingling with them, however, it seems a giant. Its flesh is delicate, and in countries where they are caught in quantities it is dried and preserved.

The Great Sturgeon, which sometimes exceeds a thousand pounds, is only found in the rivers which flow into the Caspian and Black seas. The Volga, the Don, and the Danube produce the largest species.

THE CHIMERA.



CHIMERA

This curious member of the Sturgeon family resembles the Sturgeon only in the formation of the gills. Otherwise it seems distinct not only from the rest of the family with free gills, but from all other Fishes. Many strange tales have been told of it in the past; and the Arctic Chimera is the monster of mythological antiquity, which used to be represented with the body of a Goat, the head of a Lion, the tail of a Dragon, and a gaping throat that vomited flames. At a later period it was described simply as a monstrous Fish with a Lion's head. But now that it has become better known, we are inclined to ridicule these old-time tales that surrounded this Fish with a fascinating mystery.

But even now the strange form of the Chimera, the manner in which it moves, the different parts of its hideous mouth and nose, its mode of showing its teeth, its ape-like contortions and grimaces, its long tail which acts with such rapidity—reminding one of a Reptile—all work on the imagination with a horrible fascination, and we can understand how it influenced the superstitious fishermen of the past who noticed its queer antics in the sea, and were too cautious to give it close study.

This strange Fish is usually from five to six feet in length, of a silver color, spotted with brown. The largest variety, known as the Arctic, or the Monster Chimera, inhabits the North Sea, and another species, which closely resembles it, but is somewhat smaller, known as the Antarctic Chimera, is found in the southern hemisphere.

THE OSSEOUS OR BONY FISHES.

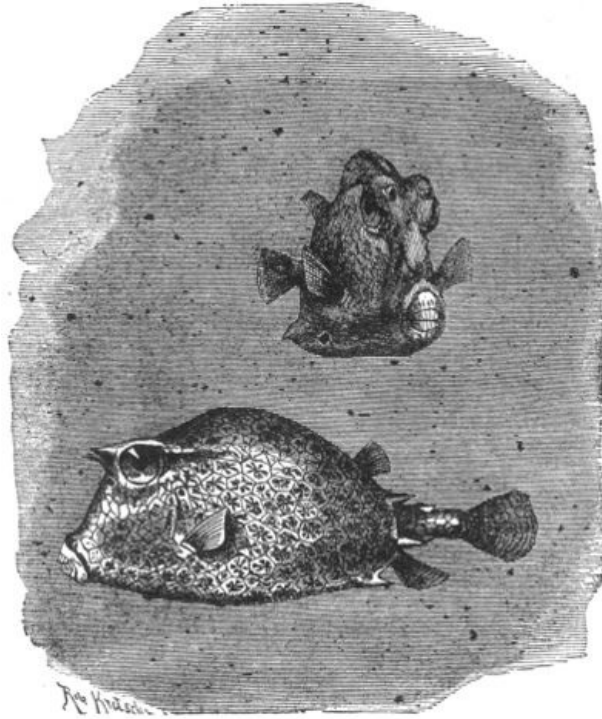
Some Naturalists claim that these are the only inhabitants of the water that should be called Fishes—that the Cetacea or the Whale family are simply huge beasts that have taken up their abode in the ocean, and that the cartilagenous Fishes form an amphibious band by themselves.

Others have classed the whole of these three great groups under the name of Fishes. But modern Scientists have settled upon the classification which has been carried out in this little Natural History—the Cetacea are placed among the Mammals and kept entirely distinct from the Fishes (none of which feed and care for their young in the same manner as the Mammals); and the great tribe of Fishes are now divided into two groups of cartilaginous and osseous Fishes, with their numerous sub-divisions into families and species.

We have studied the curious families of the cartilaginous Fishes and now we find more familiar varieties of our well-known Fishes among the families of bony Fishes, although even in this division some very rare and wonderful specimens are found.

The history of any one family of the bony Fishes very closely resembles all the rest—they breathe air and water through the gills. They live by devouring such Fish and the animal life of the great waters as their mouth is capable of admitting. They propagate not by bringing forth their young alive, like the Mammals and a few of the cartilaginous Fishes, nor by distinct eggs, like the remainder of the latter class, but by spawn, as their roe is called, which is made up of hundreds, and in some instances hundreds of thousands of tiny eggs.

The bones of these Fishes also makes them distinct from all others. They have the appearance of being solid, but when examined more closely they are found to be hollow and filled with a substance less oily than marrow. These bones are very numerous and pointed and to them the muscles are fixed which move the different parts of the body.



COFFRE OR OSTRACION.

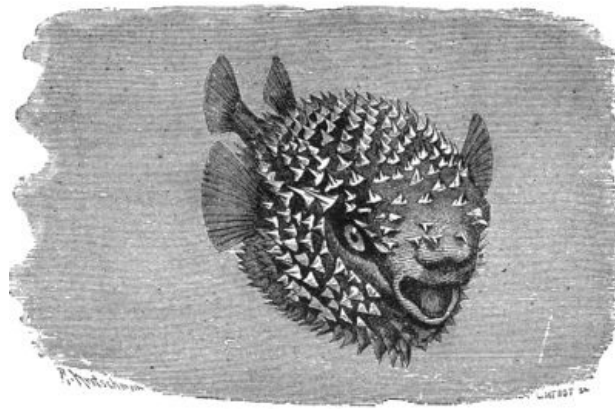
This forms the first group of bony Fishes, which are distinguished by having the jaw attached to the cranium. In the Globe Fish the jaws have no apparent teeth, but they are furnished with a kind of beak in ivory, which represents them. In the group to which the Coffre Fish belong the nose terminates in a little mouth armed with true teeth. The first group includes the Globe-fish and the Diodons; in the second group we find the Coffers or Ostracions and the File-fish or Balistes.

The skin of the Globe-fish bristles with small slightly projecting spines, which repel their enemies, and even wound the hand that would grasp them. They enjoy, besides, a strange power; they can inflate the lower part of their body, and give it an extension so great that it becomes like an inflated ball, in which the real shape of the Fish is lost. This result is obtained by the introduction of an immense quantity of air into the stomach when it wishes to ascend to the surface. The species of Globe-fish are numerous. Some of them are common in the Nile, where they are frequently left ashore during the annual inundations.

There is a smooth Globe-fish known as the Moon-fish. Its compressed, spineless body, being very round, has been compared to a disk, and more poetically to the moon, to the great circular surface of which the dazzling silvery white disk bears some resemblance. But it is especially during the night that it justifies the name given to it. Then it shines brightly from its own phosphorescent light, at a little distance beneath the surface.

On very dark nights, this Globe-fish is sometimes seen swimming in the soft light which emanates from its body, the rays rendered undulating by the rippling of the water which it traverses, so as to resemble the trembling light of the moon half-veiled in misty vapors. When many of these Fishes rove about together, mingling their silvery trains, the scene suggests the idea of dancing stars. The Moon-fish is common in the Mediterranean, and sometimes reaches the markets of Europe. It is about thirty inches in length.

THE DIODONS.



DIODON.

The curious Diodons differ from the Globe-fish in the form of their bony jaws, each forming only one piece. They differ also in their spines, which are much larger than those of the Globe-fish. These Fishes may be said to be the Hedgehogs and Porcupines of the sea. Like the Globe-fish, they can erect their spines and inflate their bodies.

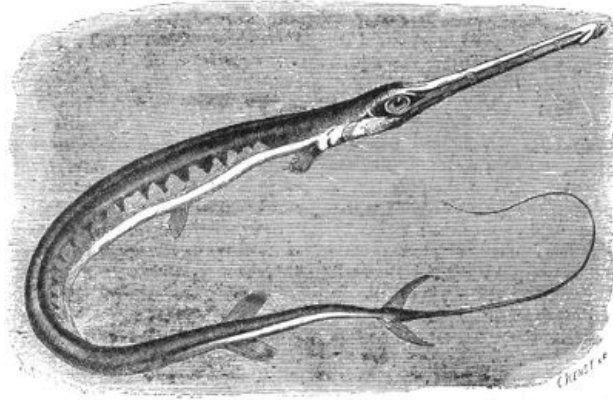
THE COFFERS.

The Coffers or Ostracions, are without scales, but are covered with regular bony compartments which are so jointed to one another that the body seems to be enclosed in a kind of box or long coffer, which only reveals the fins and a portion of the tail. The body is usually of a triangular shape, although some species are quadrangular; but no matter what the form, this queer bony box gives the Fish an odd appearance, making it distinct from all others.

These singular Fishes are found in the Indian Ocean and in the American seas. They are of moderate size, and of little value as food for mankind.

THE FILE-FISH.

These have a compressed body, and the jaws are furnished with eight teeth arranged in a single row on each jaw. The mouth is small and the body is enveloped in very hard scales. The File-fish or Balistes are inhabitants of tropical seas, with one exception. They are brilliantly colored, and as they herd together in great numbers they form curious combinations of rare coloring in the equatorial seas.



PIPE FISH.

The second division of the bony Fishes is quite small, including only the Pipe-fish and the Sea-horses. These are distinguished by having the gills divided into small round tufts and arranged in pairs—a structure that is peculiar and different from that of any other Fishes. These gills are enclosed under a large cover, which leaves only a small hole for the escape of water which has served the purposes of respiration.

The Pipe-fishes belonging to this family possess a very strange organic peculiarity. Their bodies are long, slender, and slightly tapering, covered with plates set lengthwise; and the skin in swelling forms a pouch near the tail into which the eggs glide to be hatched, and which is afterwards a shelter for the young.

The Trumpet Pipe-fish has a small head and a long cylinder-shaped nose, slightly raised at the end, and terminating in a very small mouth without teeth. It is generally found in the Atlantic and the Mediterranean.

There is still another Pipe-fish—the *Fistularia*—not often classed with this family, but found among the spiny-finned Fishes, with an extremely long nose in front of the head; this forms a long tube, in fact, at the end of which is the mouth. This species is common at the Antilles. It reaches a length of about three feet. It feeds upon crustaceans and small Fishes, which it drags from the interstices of the rocks and stones by means of its long pipe.

THE SEA-HORSE.

The queer little Sea-horses which are often found dried among a collection of sea-shells and ocean relics, are only a few inches in length. Their head bears some resemblance to that of a Horse, while the tail resembles the rings of a Caterpillar, and the body is covered with triangular scales. They keep in a vertical position when they swim, and the tail seems on the alert, to seize whatever it meets in the water, clasping the stems of rushes, etc. Once fixed by the tail, the queer little animal seems to watch all the surrounding objects, and darts quickly on any prey presenting itself. They live on Worms and Fish eggs and substances found at the bottom of the sea.

THE FAMILY OF SOFT-FINNED FISHES.

The principal character of the Fishes of this large family (which forms the third group of bony Fishes) is that the rays of the fins are soft, with very few exceptions. They inhabit both the sea and fresh water, and this group is found to include Fishes of the most importance as human food, such as the Herring, the Cod, Salmon, Carp, Pike, and many others.

This family is usually divided into three groups: The Eels—which have already been described with the Lampreys—the various flat Fishes, like the Flounders, Turbot, Plaice, Sole, Halibut, etc., and third, the Fishes already mentioned as the favorites for food, with curious specimens of Flying-fish, etc.

SOME STRANGE SPECIMENS.

In the second division of this family we find several curious specimens before coming to the better known flat Fish which are used for food. The first of these is the Sea-snail, which has a long mucuous body without scales and front fins forming suckers, whereby it can attach itself to the rocks. A curious Lump-fish is also classified here which is very different from the Lump-fish of the Ray family. It has little to distinguish it, except that this also has a strong sucker formed by the disc of the ventral fins. And a third queer specimen is the Echineis—an inhabitant of the Mediterranean, which has a flat disk covering its head, which is formed of a number of movable plates of cartilage. Aided by this queer organ it attaches itself firmly to rocks, and even to ships and larger Fishes which it meets with in its wanderings. Its adhesion to these objects is so strong that the strength of a man often fails to separate them. It sometimes attaches itself to a Shark by means of this strange disk, and makes long voyages on this monstrous locomotive Fish, without fatigue or danger; for its enemies are kept a distance by fear of the fierce monster which carries it.

THE FLAT-FISHES OF THE SOFT-FINNED FAMILY.

These have peculiar flat bodies, greatly compressed, but in a direction different from the flat Fishes of the Ray family. In the case of the Raia, the body is flattened horizontally, but in the Fishes belonging to this family the bodies are compressed laterally—like that of the well-known Flounder. The head of the Fishes of this group are not symmetrical; the two eyes are placed on the same side, and the two sides of the mouth are unequal. These strange flat Fishes are always turned upon their side, and the side turned towards the bottom of the sea is that which has no eye. It is to this habit of swimming on their side that they owe their popular name of side-swimmers.

They advance through the water very slowly compared with the motion of other Fishes. They can ascend or descend in the water very quickly, but cannot turn to the right or left with the same ease as other Fishes. This property of rapidly rising or sinking in the water is more useful to them, as they spend the greater part of their time at the greatest depths, where they draw themselves along the sands at the bottom of the sea, and often hide themselves from their enemies.

THE SOLES.

These flat Fish have an oblong body, the side opposite to the edges being furnished with shaggy, soft hairs; the nose is round and nearly always in advance of the mouth, which is twisted to the felt side, and furnished with teeth only on one side, while the eyes are on the right side. The Common Sole is from eighteen to twenty inches in length. It is brown on the right, and whitish on the opposite side. Its flesh has a very delicate flavor, and it is said to acquire a finer taste by being kept for several days.

THE TURBOT.

The Turbot resembles a lozenge in general form. Its under jaw is more advanced than the upper one, and is furnished with many rows of small teeth. One side is marbled brown and yellow, and the other is white with brownish spots and points; the long rows of soft fins are yellow with brown spots. The true Turbot has always been the special delight of the epicure, and fabulous sums are said to have been paid at different times, in order to secure a fine specimen.

THE FLOUNDERS AND PLAICE.

The Flounders and Plaice inhabit the northern seas of Europe. They are also found along our coasts; the Flounders are fresh water Fishes of small size, abundant in the Thames and many other rivers; and they are desirable for food, although not so delicately flavored as the Turbot. The Common Plaice attains the length of ten or twelve inches. It is brown, spotted with red or orange. On the eye-side of the head are some bony tubercles, but the rest of the body is smooth.

THE HALIBUT AND THE DAB.

The Dab is distinguished from the other flat Fish by having very hard scales on its body, and the Halibut has the distinction of being the largest of this class of flat Fish. It is occasionally caught in the seas of Northern Europe and Greenland, measuring seven feet, and weighing from three to four hundred pounds. The body of the Halibut is more elongated than that of the Plaice or Flounder, and its jaws are armed with strong and pointed teeth.

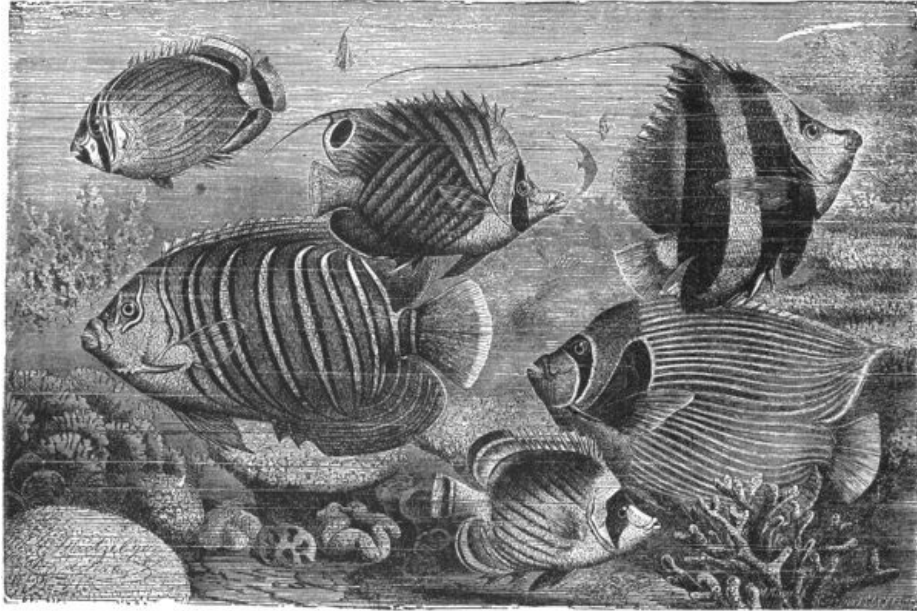
The natives of Greenland fish for the Halibut with an implement which they call gangnaed. It is composed of a hempen cord five or six hundred yards in length, to which are attached about thirty smaller cords, each furnished with a barbed hook at the end. The larger cord is attached to floating planks, which act as trimmers, indicating the place of this destructive contrivance. At the end of twenty-four hours these lines are drawn from the water, and it is not unusual to find five or six large Halibut caught on the hooks.

Another mode of catching this and other flat Fish is to spear them on their sandy beds. No rule is laid down for this method of fishing; in some places it is carried on successfully by means of a common pitchfork. In other places a fine spear is used for the purpose—very long and with sharp prongs.

THE THIRD GROUP OF SOFT-FINNED FISHES.

This includes the well-known Fishes—of which the Cod-fish is the type—so commonly found on our tables. They are characterized by their pointed fins, and grouped according to the position of these fins. The body is long and slightly compressed; the head well proportioned. Their fins are soft and their scales are small and soft. The majority of these Fishes are too well known to require further description. According to the position of their fins we find forming one of the smaller groups—the Cod, the Whiting and the Haddock. In another small group is the Salmon and the Trout. A third group includes the Pike, and several curious relatives—the Stomias, Flying-fish and the Chetodon. And a fourth includes the Herring, Ancovy, Pilchard, Sprat and Shad.

THE CHEATODONS.



CHAETODON.

These Fish form a very curious species. They are brilliantly colored and marked with odd stripes. Their head is large, with small eyes placed near the top; the nose and the mouth of some species are very curiously formed; and the tail—which is not divided—also shows strange forms in some varieties.

One of the best known is the Bow-banded Chaetodon. The ground color of this Fish is brown, which shades to black towards the back, and looks as though covered with velvet and inlaid with ivory, and the light stripes in the form of a bow, on both sides of the body give it still more showy appearance. This species inhabits the coasts of Brazil, and other parts of South America, and grows from three to six inches in length. Other varieties are somewhat larger, but they are all comparatively small Fish.

In the winter or rainy seasons they lie deep in holes near the shore. During the summer, when the sun in that climate blazes the whole day, they keep at a depth of twenty to thirty yards, which protects them from its intense heat.

Strange tales have been told from time to time of the marvellous powers of flight possessed by certain Fishes; and while some of these have been greatly exaggerated, it is nevertheless true that some Fish do possess that power to a surprising degree, yet only on certain limited lines, unlike the upward flight of Birds. (See [colored plate](#)).

The front fins of the Flying-fish are transformed into wings by which they are enabled to rise for a few seconds. These wings, however, are neither long nor powerful, for they act the part of a parachute, rather than wings.

These curious fins of the Flying-fish are nearly as long as the whole body; the head is flattened above and on the sides, and the lower part of the body is covered with a long series of scales; and the mouth is filled with small pointed teeth.

The Flying-fishes in their own element are harassed by attacks of other inhabitants of the ocean, and when under the excitement of fear they take to the air, they are equally exposed to the attack of aquatic Birds, especially the various species of Gulls. In their leap from the water, their fins sustain them like parachutes, with which they beat the air. Mr. Bennett's description is clear on this point. "I have never," he says, "been able to see any percussion of the pectoral fins during flight; and the greatest length of time I have seen this Fish on the fly has been thirty seconds by the watch, and the longest flight, mentioned by Captain Basil Hall, has been two hundred yards, but he thinks that subsequent observation has extended the space. The usual height of their flight, as seen above the surface of the water, is from two to three feet, but I have known them come on board at the height of fourteen feet and upwards. And they have been well ascertained to come into the chains of a line-of-battle ship, which is considered to be upwards of twenty feet. But it must not be supposed that they have the power of raising themselves into the air after having left their native element; for on watching them I have often seen them fall much below the elevation at which they first rose from the water; nor have I ever in any instance seen them rise from the height to which they first sprang, for I conceive the elevation they take depends on the power of the first spring."

264

The brilliant coloring of the Flying-fish would seem designed to point it out to its enemies, against whom it is totally defenceless. A dazzling silvery splendor pervades its surface. The summit of its head, its back, and its sides, are of azure blue; this blue becomes spotted upon the fins and the tail. This Fish is the common prey of the more voracious Fishes, such as the Shark, and also of the Sea-birds; its enemies abound in the air and water. If it succeeds in escaping the Charybdis of the water, the chances are in favor of its coming to grief in the Scylla of the atmosphere; if it escapes the jaws of the Shark, it will probably fall to the share of the Sea-gull.

The Dolphin is also a formidable enemy to the much-persecuted Flying-fish. Captain Basil Hall gives a very animated description of their mode of attack. He was in a prize, a low Spanish schooner, rising not above two feet and a half out of the water. "Two or three Dolphins had ranged past the ship in all their beauty. The ship in her progress through the water had put up a shoal of these Flying-fish which took their flight to windward. A large Dolphin which had been keeping company with us abreast of the weather gangway at the depth of two or three fathoms, and as usual glistening most beautifully in the sun, no sooner detected our poor friends take wing than he turned his head towards them, darted to the surface, and leaped from the water with a velocity little short, as it seemed to us, of a cannon ball. But though the impetus with which he shot himself into the air gave him an initial velocity greatly exceeding that of the Flying-fish, the start which his fated prey had got enabled them to keep ahead of him for a considerable time. The length of the Dolphin's first spring could not be less than ten yards, and after he fell we could see him gliding like lightning through the water for a moment, when he again rose, and shot upwards with considerably greater velocity than at first, and of course to a still greater distance.

"In this manner the merciless pursuer seemed to strike along the sea with fearful rapidity, while his brilliant coat sparkled and flashed in the sun quite splendidly. As he fell headlong in the water at the end of each leap, a series of circles were sent far over the surface, for the breeze, just enough to keep the royals and topgallant studding-sails extended, was hardly felt as yet below.

"The group of wretched Flying-fishes, thus hotly pursued, at length dropped into the sea; but we were rejoiced to observe that they merely touched the top of the swell, and instantly set off again in a fresh and even more vigorous flight. It was particularly interesting to observe that the direction they took now was quite different from the one in which they had set out, showing that they had detected their fierce enemy, who was following them with giant steps along the waves and was gaining rapidly upon them. His pace, indeed, was two or three times as swift as theirs, poor little things! and the greedy Dolphin was fully as quick-sighted; for whenever they varied their flight in the smallest degree, he lost not the tenth part of a second in shaping his course so as to cut off the chase; while they, in a manner really not unlike that of the Hare, doubled more than once upon the pursuer. But it was soon plainly to be seen that the strength and confidence of the Flying-fish were fast ebbing; their flights became shorter and shorter, and their course more fluttering and uncertain, while the leaps of the Dolphin seemed to grow more vigorous at each bound.

265

"Eventually this skilful sea-sportsman seemed to arrange his springs so as to fall just under the very spot on which the exhausted Flying-fish were about to drop. This catastrophe took place at too great a distance for us to see from the deck what happened; but on our mounting high on the rigging, we may be said to have been in at the death; for then we could discover that the unfortunate little creatures one after another, either popped right into the Dolphin's jaws as they lighted on the water, or were snapped up instantly after."



Herring Attacked by Whale.

As this Fish is so commonly known in all parts of the world, it would not seem necessary to give it special mention or description, except for the fact of its congregating in such wonderful "schools" at various seasons, and the fact that it forms the principal food of the Whale family. Because of the great quantities in which it is captured in certain parts of the Old World, it has been called the most important of all Fishes for mankind, and the old Hollanders used to say that the Herring fishery was the greater and the Whale fishery the least.

The Herring banks or schools are separated into two groups—the high sea and the coast schools. In each, the Fish are found in unbelievable masses; they extend over a vast space, and in some instances it is claimed that in these great schools the Fish swam so thick that an oar pushed into the midst, did not fall, but remained standing.

It has been stated that about thirty years ago, when one of these great schools were passing, the fishermen of Lowestoft, a coast city of about fifteen thousand inhabitants, in the English county of Suffolk, caught in two days around twenty-two millions of Herring, only a small part of which could be preserved. Neither people, nor casks, nor salt enough were at hand, and the greater part of these Herring were used for fertilizer.

The markings of the Herring are very peculiar in some instances, and have lead to curious superstitions. The back of the Fish is green during life, but after death it becomes an indigo blue color. Other parts vary in their color and markings, sometimes representing written characters, which ignorant fishermen have considered to be words of mystery.

In November, 1587, two Herrings were taken on the coast of Norway on the bodies of which were markings representing Gothic printed characters. These Herrings had the signal honor of being presented to the King of Norway, Frederick II. This superstitious prince turned pale at sight of this supposed prodigy. On the back of these innocent inhabitants of the deep he saw certain cabalistic characters, which he thought announced his death and that of his queen. Learned men were consulted. Their science, as reported, enabled them to read distinctly words expressing the sentiment, "Very soon you will cease to fish Herrings, as well as other people." Other savants were assembled who gave another explanation; but in 1588 the king died, and the people were firmly convinced that the two Herrings were celestial messengers charged to announce to the Norwegian people the approaching end of the monarch.

This Fish abounds throughout the entire Northern Ocean in immense shoals, which are found in the bays of Greenland, Lapland, and round the whole coast of the British islands. Great shoals of them also occupy the gulfs of Sweden, of Norway and of Denmark.

It was the favorite theory, not very long ago, that Herrings emigrated to and from the arctic regions. It was asserted, by the supporters of this theory, that in the inaccessible seas of high northern latitudes Herring existed in overwhelming numbers, in an open sea within the arctic circle affording a safe and bounteous feeding-ground. At the proper season vast bodies gathered themselves together into one great army, which, in numbers exceeding the powers of imagination, departed for more southern regions.

This great Herr, or army, was sub-divided, by some instinct, as they reached the different shores, led, according to the ideas of fishermen, by Herring of more than ordinary size and sagacity, one division taking the west side of Britain, while another took the east side, the result being an adequate and well divided supply of Herrings, which penetrated every bay and arm of the sea.

Closer observation, however, shows that this theory has no existence in fact. Lacepede denies that those periodical journeyings take place. Valenciennes also rejects them. It is true that the Herrings have disappeared in certain neighborhoods in which they were formerly very plentiful; but it is also certain that, in many of the fishing stations, Fish are taken all the year round. Moreover, the discovery that the Herring of America is a distinct species from that of Europe, and that they do

not even spawn in the same waters, is fatal to the theory. In short, there is a total absence of proof of their migrations to high northern latitudes, and recent discoveries all tend to show that the Herring is native to the shores on which it is taken.

What seems most surprising is the fact that these harmless little Fishes, which live largely on small crustaceans and small Fishes just hatched, should continue to thrive in such marvellous numbers, when its enemies are the most formidable inhabitants of the ocean. All the different members of the Whale family destroy them by the thousands, and our illustration on Page [247](#), where the Sword-Whales are feasting on one of the great shoals of Herring, gives a limited idea of the great quantities devoured by these great Fish. Then we must take into consideration that man, on the other hand, carries on a war which threatens to be one of extermination. In fact, the Herring fishery has been to certain nations, the great cause of their prosperity. It was the foundation of Dutch independence. But in spite of this continual war against them, the Herrings continue to thrive and increase, and they are well worthy of the place they have long held as one of the greatest friends and helpers of mankind that has been found in the animal kingdom of the great deep.

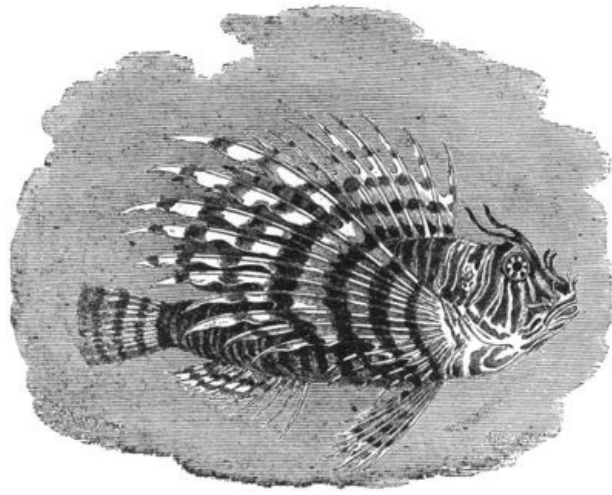


RED GURNARD.

This fourth large family of bony Fishes includes the Perch family, which is altogether a fresh water Fish; and many curious species which are found in the sea—like the Weevers, Mulletts, Gurnards, Labrus, Frog-fish and Sword-fish. The well known Mackerel family is also included among the Fishes with spiny fins, with the Tunny and the curious Archer-fish.

The Weevers are a good type of these spiny-finned Fishes. They bury themselves in the sand, and are dangerous to the fishermen because of the serious wounds which they inflict with their spines.

THE GURNARDS.



FLYING GURNARD.

These fascinating Sea-scorpions are remarkable for the hideous appearance of their heads, quite as much as for the beautiful markings of their body. The head is mailed and cuirassed in a wonderful manner; it is very large in proportion to the body, broad in front and compressed at the sides, and completely covered with large spines and fringed barbs; the longest of these are over the eyes, and the broadest near the corners of the mouth; the jaws are furnished with a great number of small sharp teeth; the tongue is loose, thin and pointed at the end; the lips are also movable, and the upper lip is composed of two bones which form a furrow in the middle where they join; the nostrils are single and lie midway between the mouth and the eyes. The whole effect of these Fishes, so different from other species, gives them a disagreeable and even hideous appearance, and has procured for them various names, such as Sea-frog, Sea-devil, Sea-scorpion, and others equally significant. And whether we consider the curious and remarkable appearance of the Red Gurnard as he moves along the sandy bottom, seeming to walk on the strange projections that look like huge toes growing out from the front fins—or the still more startling effect of the Flying Gurnard—it is not surprising that superstitious fishermen have told remarkable tales of these strange Fish in the past.

Twelve species of the Trigula or Gurnards are known. The commonest species are the Grey Gurnard—a silvery grey Fish, clouded with brown, and speckled with black. This is found in British seas. The Red Gurnard is commonly found in the Mediterranean. This is a fine, bright red-rose color, paler beneath and more vivid about the fins. The Perlon or Sapharine Gurnard is a large species, handsomely marked with green and blue hues.

The Flying Gurnard is much like the other Flying-fishes in the formation of the front fins into wings, and in the manner of their flight, but their appearance is very different because of their queer armored head and the large eyes, as well as the brilliant markings peculiar to the Gurnard family.

THE SWORD-FISH.



SWORD FISH SPEARING HIS PREY.

The Sword-fish, so called from the upper jaw being elongated into a formidable spear or sword, was known to the ancients, and has borne this name which recalls its important characteristic, from very early times. And while the Saw-fish, which belongs to the group of Cartilaginous Fishes, and a species of Sword-whale, have also been known as Sword-fishes, this species—scientifically known as *Xiphias gladius*—is the real, and the original Sword-fish.

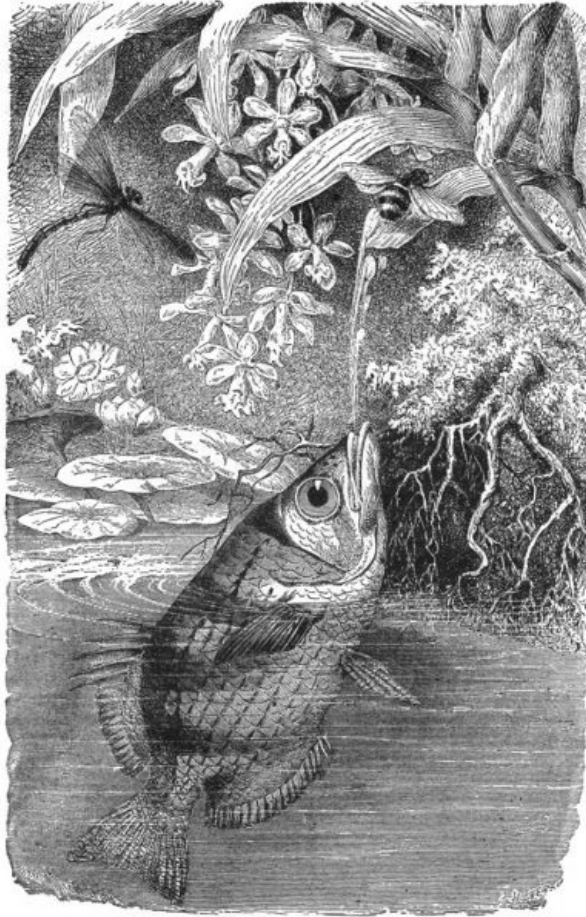
This Fish attains a great size, being found in the Mediterranean and Atlantic from five to six feet in length. Its body is covered with minute scales, the sword forming three-tenths of its length. On the back it bears a single long dorsal fin; the tail is keeled, the lower jaw is sharp, the mouth toothless, the upper part of the Fish bluish-black, merging into silver beneath.

It seems to have a natural desire to exercise towards and against all the arm with which nature has furnished it; it darts with the utmost fury upon the most formidable moving bodies; it attacks the Whale; and there are numerous and well authenticated instances of ships being perforated by the jaw of this powerful creature, while the toothed spear of the Saw-fish has been found fast in the body of a Whale which it has pierced.

In 1725, some carpenters having occasion to examine the bottom of a ship, which had just returned from the Tropical seas, found the lance of a Sword-fish buried deep in the timbers of the ship. They declared that, to drive a pointed bolt of iron of the same size and form to the same depth, would require eight or nine blows of a hammer weighing thirty pounds. From the position of the weapon it was evident that the Fish had followed the ship while under full sail; it had penetrated through the metal sheathing, and three inches and a half beyond, into the solid frame.

The Sword-fish has obstinate combats with the Saw-fish, and even the Shark, and it is supposed that when he attacks the bottom of a vessel he takes that sombre mass for the body of an enemy.

THE ARCHER FISH.



ARCHER FISH.

The idea of a Shooting-fish seems quite as odd as that of a Flying-fish, yet the Archer-fish often uses this method of bringing down its prey. For this reason he is sometimes known as the *Toxotes*—the word meaning a Bowman or archer. Although the Archer-fish belongs to this fourth family of bony Fishes—those with spiny fins—it is not only unlike any other species of this family, but unlike any other Fish known; in that it is the only one that goes out gunning for its prey. It possesses the power of spurting water from its mouth with such force as to bring down Insects from aquatic plants within its reach. As it lives almost entirely upon these insects, it may take rather tedious gunning at times to secure enough to satisfy its hunger, and it is decidedly interesting to watch this small archer on one of his hunting expeditions.

In these four groups of cartilaginous Fish, and the four distinct sections of bony Fishes, with their numerous sub-divisions, may be classified all the different Fishes that have become known, through all the careful research of modern Naturalists. Not that they could all be described in this limited space; nor, in fact, even given separate mention. Very few have a clear idea of how many different kinds of Fishes there really are. In the long ago, when Naturalists first made a study of the inhabitants of the water, and began to write the results of their researches, it seemed surprising to them to discover nearly a hundred distinct species. In their different families, Pliny, the Naturalist, described ninety-four species of Fish. Later Linnaeus characterized four hundred and seventy-eight. And, marvellous as it may seem, the Naturalists of the present day know upwards of thirteen thousand, a tenth of which are fresh water Fishes. While all these numerous species may possess some distinct peculiarity, they are sure to possess other characteristics that will classify them with some of these families. And after becoming familiar with the characteristics of this limited number of groups and families we may feel acquainted, to a certain extent, with this whole great throng of nearly thirteen thousand Fishes.

We often hear the fact regretted, that so many of the larger Fish live almost entirely by devouring smaller species. And taking into consideration the immense quantities consumed by mankind each year, not only as they are caught fresh from the water, but the hundreds and thousands of barrels and cans of dried and pickled Fish that are shipped all over the world from the great Salmon and Cod and Herring fisheries, it is sometimes thought that, in time, the different species of Fish must surely be exhausted.

But when we think of this marvellous number of species, and then remember the quantities of a single kind sometimes found in a single shoal (like that of the Herrings, quoted, in which twenty-two millions were caught in two days), there appears to be little danger of the Fishes becoming scarce; for it seems almost past belief that there can be so many finned inhabitants of the vast waters that comprise nearly three-fourths of the surface of the globe.

Transcriber's Note:

Some punctuation has been corrected without note, however inconsistent spelling and hyphenation were retained.

Some page numbers in the table of contents have been corrected and/or rearranged to match the actual page order. Many headings in the table of contents do not correspond directly to the headings in the text. These were left as printed. Such headings were linked to the heading in the text which was closest contextually.

Missing page numbers in internal references were added.

The order of illustrations was changed in order to place the illustrations near to the text describing them. Links (in the list of illustrations and within the text) are therefore made to go to the illustration referenced rather than to the page number. The line 'Caracal Defending His Booty from' in the list of illustrations was moved to correspond to the correct illustration.

On p. [73-74](#), some out of order text was rearranged.

Further corrections are listed below:

[Table of Contents](#) Vanderoo -> Wanderoo
[Table of Contents](#) Mongousts -> Mangousts
[List of Illustrations](#) Mongousts -> Mangousts
[p. 15](#) quator -> quatuor
[p. 23](#) unpronouncable -> unpronounceable
[p. 29](#) Molluses -> Molluscs
[p. 33](#) Plantigrae -> Plantigrade
[p. 43](#) caross -> caress
[p. 47](#) form ancient times -> from ancient times
[p. 49](#) but his thigh -> bit his thigh
[p. 52](#) throug -> through
[p. 60](#) gowl -> growl
[p. 61](#) physicial -> physical
[p. 64](#) Turnsplits -> Turnspits
[p. 65](#) beeen -> been
[p. 74](#) acquatic -> aquatic
[p. 74](#) soons -> soon
[p. 79](#) vegetbles -> vegetables
[p. 81](#) prinicipal -> principal
[p. 86](#) Fliny and other Naturalists -> Pliny and other Naturalists
[p. 93](#) considerale -> considerable
[p. 98](#) omniverous -> omnivorous
[p. 101](#) possessors -> possessors
[p. 113](#) herbivorour -> herbivorous
[p. 127](#) ruminanting -> ruminating
[p. 136](#) browinsh -> brownish
[p. 139](#) both sex -> both sexes
[p. 141](#) sumer -> summer
[p. 152](#) little us -> little use
[p. 152](#) Moluscs -> Molluscs
[p. 153](#) Narwhale -> Narwhal
[p. 156](#) Notwithstanding -> Notwithstanding
[p. 1566](#) without and -> without a
[p. 161](#) sime -> some
[p. 174](#) Pyranees -> Pyrenees
[p. 174](#) exhausted -> exhausted
[p. 176](#) heir usefulness -> their usefulness
[p. 192](#) surrounded -> surrounded
[p. 197](#) Woodcooks -> Woodcocks
[p. 202](#) slighly -> slightly
[p. 207](#) the also resemble -> they also resemble
[p. 208](#) valeys -> valleys
[p. 208](#) in deed -> indeed
[p. 209](#) hey -> they
[p. 215](#) Plantian -> Plantain
[p. 217](#) resistent -> resistant
[p. 219](#) atractive -> attractive
[p. 219](#) neighborhood -> neighborhood
[p. 222](#) Prarie Chickens -> Prairie Chickens
[p. 224](#) seige -> siege (two instances)
[p. 227](#) midde -> middle
[p. 229](#) These consists -> These consist
[p. 243](#) ImmIediately -> Immediately
[p. 246](#) the the elbow -> the elbow
[p. 264](#) spindel-shaped -> spindle-shaped
[p. 265](#) a round -> around
[p. 266](#) nothern -> northern
[p. 266](#) Herring fishers -> Herring fishery
[p. 272](#) famlies -> families
[p. 272](#) imense -> immense

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OUR ANIMAL FRIENDS IN THEIR NATIVE HOMES ***

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