the black-tailed deer have suffered great restriction in area of habitat, and have greatly decreased in numbers. The mountain sheep and mountain goat, delighting in the rocky fastnesses of alpine summits, well-nigh inaccessible to man, still bid defiance to human foes, although the former has been driven from much of its former range. At the present rate of destruction, only a remnant will soon remain of any of the ruminant tribe, even in the comparatively unsettled west, though formerly they overspread the greater part of the continent.

The larger carnivorous mammals—as the bears, the wolf, the coyote, the lynxes, and the panther, formerly so abundant throughout the parts of the country they respectively inhabited as to be at its first settlement obnoxious, and a serious detriment to the farmer and stock-raiser—are now practically exterminated east of the Rocky Mountains, and thence westward are rare in comparison to their former abundance. This is especially true of the wolves, the coyotes, and the panthers; the bears and the lynxes still maintain a foothold in the partially wilderness areas of the east.

The fur-bearing animals—as, notably, the beaver (formerly a nearly universal occupant of the continent), the otter, the sable, and the mink—have greatly decreased in numbers, all but the latter having been long nearly extirpated throughout all the more settled portions of the east. The sable, a northern species, never ranged over a very large part of the United States, but the others were spread southward to the Gulf. The squirrels, at times a scourge to the frontier farmer through their abundance, linger still in small numbers; while the smaller vermin of the fields have doubtless suffered but slight decrease in numbers.

The birds are variously affected, in accordance with their food and haunts. The larger forest-haunting species—as the birds of prey, the woodpeckers, and some of the grouse—have followed the forests in their downfall; the turkey, the prairie-hen, and the aquatic game birds—as the ducks, geese, and a great variety of shore birds—have in places been extirpated, and, in general, are few in comparison to their numbers a century ago. The song-birds have doubtless held their own, and in not a few instances have certainly increased; the agricultural development of the country being, on the whole, favorable to their welfare, although they suffer at the hands of nest-robbing boys, and children of larger growth anxious to kill something, however slender the pretext. The graceful terns, or 'sea-swallows,' and the herons, especially the beautifully-plumed egrets, have fallen a prey to fashion and the 'hat trade' to such an extent, that where, fifty years ago, the terns fairly swarmed along our Atlantic coast, they are now mainly conspicuous by their absence.

Batrachian and reptilian life has also greatly diminished; the former through the draining of ponds and marshes in the reclamation of waste lands, the latter through the almost universal inborn hatred of snakes.

The depletion of our inland streams and lakes and the larger rivers, of fish, is simply notorious, extending even to the marine species that enter the rivers merely to spawn. Nor has marine life fared better, as witness the decline of the lobster fisheries, the actual and very early extirpation of the oyster along our northern coasts, and the exhaustion of once famous clam-flats.

Much of this destruction of animal life was simply inevitable, since wild large game cannot exist in a densely-populated district. But extirpation has been in many cases needlessly hastened, as witness the preservation of deer by legislative enactments, in regions where they would otherwise have long since ceased to exist. The course of the pioneer has ever been marked by slaughter of animal life, too often recklessly, even for the mere sport of killing, and not merely from necessity or with utilitarian intent. Hundreds of thousands, probably millions, of bisons have been killed merely for their hides, and at seasons when they were nearly worthless, and their carcasses left to rot where they fell, and many thousands more merely for the sport of slaughter; while the different species of the deer tribe have suffered similarly, in less degree, consequent only upon their smaller numbers and greater difficulty of capture.

ADMIRAL BARON FERDINAND VON WRANGELL.

FERDINAND VON WRANGELL was born near Werro in Liefland, December 29, 1794. His early years were passed on his ancestral estate, where his education in manly sports and the schooling of his time was carried on by a family tutor. At the age of ten he lost his parents, who died within a few months of one another. He entered not long afterward the school of naval cadets at St. Petersburg, with his cousin Wilhelm, and was graduated in 1815 with the highest honors. He was appointed to the post of Reval, where he was associated with his cousin and von Anjou, an intimate friend, later his companion in Siberian travel. Hearing that a Russian vessel was to sail for a voyage around the world in command of Captain Golofnin in 1815, he secured an appointment and formed one of the party on the naval sloop Kamchatka, which included the young and

afterward celebrated Lütké. The vessel sailed for Russian-America in 1817, and completed her voyage in two years, when he was promoted to a lieutenancy, after which, through the influence of Golofnin, he was appointed leader of the expedition for the exploration of the east Siberian coast and the lands believed to lie to the north from it. For this journey, which has become classical, he prepared himself by special study at Dorpat and St. Petersburg. He went out in 1820 and returned to St. Petersburg in 1824. In 1825 he took the brig Krotky on a voyage to Sitka and return, after which he was appointed to the command of a frigate, and in 1829 to be governor of the Russian colonies in America. He married the Baroness Elisabeth Rossillon, and the young pair started for his new post by the overland route across the whole breadth of Siberia. The journey, severe at the present day, was an extraordinary one for that time, and took a year and a half, during which time a daughter was born to them. Arrived at his post, Wrangell distinguished himself by the reforms he introduced into the colonial administration, and the wealth of scientific material which he gathered for students of geography and ethnology. They returned via Mexico and the United States in 1836. He was made a director of the Russian-American company, and advanced in the government to the post of director of naval construction and conservator of the imperial forests. In 1852 he lost his faithful wife. During the Crimean war he was made director of the hydrographic department, and in 1862 retired from active service. His life thereafter was passed in the bosom of his family, either in his old home or in Italy, where he remained several years. He was made associate of the Institute of France as successor to De Candolle, and his latter days were passed in the study of art, science, and the promotion of the Lutheran communion, of which he was a devoted member. On the 25th of May, 1870, he died, his friend Lütké surviving him eleven years. His services to science do not need to be recounted, his character was pure and elevated, and his executive ability remarkable. The sketch of his useful and honorable life[1] from which the above facts have been gathered, has been prepared as an introduction to a new edition of his 'Journey to the polar sea,' by his daughter, Lisa von Engelhardt. This publication, indispensable to all students of arctic matters, contains an excellent portrait and a new map of the region explored. It is well printed in Roman type, but contains no index. We note as a singularity that, notwithstanding Baron Wrangell expressly authorized his associates, Baer and Helmersen, to print his name with the final consonant doubled, in this publication it is found without the final *l*.

[1] *Ferdinand von Wrangel und seine reise längs der nordküste von Sibirien und auf dem eismeere.* Von L. v. ENGELHARDT. Leipzig, *Duncker & Humblot*, 1885.

A SEARCH FOR THE GIGANTIC BIRD OF MADAGASCAR.

GRANDIDIER has communicated to the Academy of sciences an interesting account of his search for remains of the gigantic bird of Madagascar, the Æpyornis, supposed to be the original from which the fabled roc of the 'Arabian nights' was derived. The hope that the bird itself might still survive, according to Grandidier, is without foundation. A vast area of the interior south of Lat. 20° S., heretofore hardly visited, now proves to be an arid plateau with sparse desert vegetation, suitable perhaps for ostrich-like birds, but where they could hardly exist without being observed even by the scanty population of these wastes. These natives have neither knowledge nor traditions of any such creature, according to our author. Remains, chiefly of the eggs, have hitherto been found only between Cape St. Marie and Machikora on the southern coast, at Mananzari, Port Leven and St. Marie Island. The coast is bordered by immense sand dunes, only a few yards from the sea, which are constantly advancing in a southwesterly direction. The complete eggs have been found only where rain, flooding the ravines, has suddenly washed away large quantities of sand. It is probable that the bird covered its eggs in the warm sand like an ostrich, and that those found whole are such as failed to hatch. They are naturally rare, but fragments of the egg-shell are not uncommon and occur chiefly where the sand is sifted by the wind. On the dry plateau none were found. With the pieces of egg-shell, were found several species of Bulimus, Helix and Cyclostoma, one of which, Bulimus favanneus Fér., still retains part of its color marks, and is found living in some parts of Madagascar at the present day. The dunes appear to be formed largely of shell sand mixed with grains of quartz, and occasional concretionary balls of lime. The traveller was not fortunate enough to find any bones. He thinks the Æpyornis, like the moa of New Zealand, though now entirely extinct, eixsted during the present era, but was probably exterminated very soon after the advent of man in the region it inhabited.

— Mr. Latchford of Ottawa recently discovered at Quebec, Helix cantiana Montague, hitherto unrecorded from America. It is doubtless an importation, but was abundant under the south wall of the citadel, showing that, like many other immigrants, it has found a congenial home.