

(quoted by Girard), the envelope contains a soluble ferment resembling diastase, which, during the raising process, at the same time converts starch into sugar and diminishes the elasticity of the gluten, thereby tending to make the bread heavy, while it also imparts a brown color to the bread. Bread made with baking-powder would naturally escape these effects to a large extent.

It is certain that wholesome, palatable bread can be made from whole wheat flour, and, for dietetic reasons, many may prefer it. From an economic point of view, however, it can hardly claim any great advantages, so long as nearly every one can command a mixed diet, and the bran can be profitably utilized as cattle food.

THE ENGLISH SPARROW.

THE question of the policy to be pursued toward this bird is fast becoming one of importance; and in many parts of the country stringent measures of extermination are urged by the indignant citizens. A committee of the American ornithologists' union recommended as the result of their inquiries,—

1°. That sheltering or otherwise fostering the sparrow by the public be discouraged, and that its introduction artificially into new localities, and its sale for such purposes, be forbidden by law.

2°. That all existing laws protecting the sparrow be repealed, and that bounties be offered for its destruction.

The states at present protecting this species are Maine, New Hampshire, Vermont, Rhode Island, New York, New Jersey, and Ohio. There are also protective laws in the District of Columbia and Canada. The Massachusetts law has been repealed and specially exempts the English sparrow from protection. The protective law has also been repealed in Michigan.

The earliest known date of importation of the bird is 1858, when Mr. Thomas A. Deblois liberated a few in Portland, Me. These disappeared shortly afterward, and were not successfully replaced until 1875. In 1858 sparrows were liberated at Peacedale, R.I., by Mr. Joseph P. Hazard. They were first introduced into Central park, New York city, in the year 1860. In 1864 twelve birds were turned loose in Madison square, New York city. In 1868 the species was first introduced into Boston common; in 1869, in the parks of Philadelphia; and a little later it became resident at Indianapolis, Ind. In a period of about ten years the sparrows spread through New England and the middle states, and many of the western states, without artificial assistance. In the southern and the western states, beyond the Mississippi River, the

bird has not been observed. In Canada it has become generally distributed over the southern sections of Quebec and Ontario, and in 1884 several flocks invaded New Brunswick.

The bird is evidently spreading itself with extreme rapidity, which should be expected from a bird that hatches from three to four broods of four each in a single season.

In regard to the food of the sparrow, little seems to be settled except that it prefers vegetable food to animal, but will eat insects if driven to it. It is capable of doing great injury to grain, and is a great pest to fruit-raisers. I have seen flocks of them in cherry-trees doing far more mischief than the robin, and I have seen them in early spring nip off the young buds of peach-trees without any apparent reason, other than a desire not to be idle. Seeing that they did not appear to eat the buds, I killed two to see their reason for this destruction. I found nothing in their stomachs except crumbs that had been fed them that morning.

The bird has little to recommend it, is noisy, dirty, and disagreeable both to man and to other birds; and there is every reason why we should do in this country as it has been found necessary to do in others,—enact laws looking to their extermination.

RALPH S. TARR.

THE EFFECT OF THE SETTLEMENT OF NORTH AMERICA UPON ITS WILD ANIMALS.¹

THE common deer was abundant from Florida to Canada, throughout the eastern half of the United States, when Europeans first settled in this part of North America. It is now restricted to the sparsely-settled forested portions of this area, and is rapidly decreasing in numbers. The 'elk,' or wapite, ranged throughout temperate North America as far east as the Blue Ridge. For many years it has been wholly extirpated east of the Great Plains and in the Rocky Mountains, and in the far west generally is rapidly approaching extinction. The moose and the caribou have been driven northward in New England and southern Canada to still unsettled forest regions; while the bison, formerly ranging in considerable herds eastward to the Alleghanies, and occupying the Great Plains in countless numbers, is now practically extirpated; a few small bands, remotely scattered, and numbering a few dozen individuals each, constituting the insignificant remnant of the millions that, less than twenty years ago, covered the Plains, from Texas to the Saskatchewan. The pronghorn and

¹ Condensed from an article by Ernest Ingersoll, in Bull. Amer. geogr. soc., 1885, No. 1.

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