

wear patent respirators, in the shape of bunches of tarry oakum, tied across their mouths and nostrils; but the guano mocks at such weak defences, and a brisk continued fusillade of sneezes celebrates the opening of the pipe, and accompanies, in repeated volleys, and unwiling tears, the unremitting shower of pungent dust. In the meantime, a gang of Indians are at work in the hold, trimming and levelling the guano as it pours from above. How they contrive to exist at all in such an atmosphere is a matter of astonishment; but even they are unable to remain below longer than twenty minutes at any one time. They are then relieved by another party, and return on deck perfectly naked, streaming with perspiration, and with their brown skins thickly coated with guano. The two parties thus alternately relieving each other, a ship of seven or eight hundred tons is loaded in two or three days—the Indians working during the night, and filling up the enclosure, ready for shipment the following day. A smaller enclosure and pipe supply the boats of the vessel anchored off the island.

The guano is dug out with pick and shovel down to the level of the rock, and on the North island, the cutting thus formed, is in some places from 60 to 80 feet in depth—in others it is only a few inches; but these shallow spots are comparatively rare, and usually border on some deep valley, firmly packed with the prevailing substance. From the pressure of the superincumbent mass, the lower strata have become almost as hard and compact as the rock itself, and the color deepens from a light brown, or sometimes white, at the surface, to nearly black at the bottom of the cutting.

The guano of the Chinca Islands is said to surpass all other deposits in its strength and fertilizing qualities, and this is chiefly attributed to the fact that rain never falls on the islands.—Owing to this extreme aridity of the climate, the saline particles of the manure are never held in solution, and are therefore less liable to be lost by evaporation, than where the surface of the mass is frequently washed by heavy rains.—Large lumps of very strong and pure ammonia are, in fact, frequently turned up by the diggers. The thick fogs that at certain seasons are of nightly occurrence on the coast, convert the outer layer into a greasy paste, which is immediately baked by the sun into a hard crust, that prevents even the fogs from penetrating into the interior. This crust is completely undermined by the birds that still frequent the island in vast numbers, though they are said to bear no comparison to the myriads that formerly held sole and undisturbed possession of them. These are *nisos*, *gamets*, *penguins*, *pelicans*, *divers*, *sheer-beaks*, and many other sorts of sea-fowl, but the most common is the *guano bird*, a very handsome creature, beautifully variegated, and decorated with two pendant ear-drops. Naturalists, delighting in hard words, call him, I believe, *sulista variegata*. These web-footed colonists form regular towns beneath the crust of the guano, and various settlements, communicating with each other by galleries, running in all directions,

so that it is deemed almost impossible to set foot upon the untouched surface of the island, without sinking to the knee in some feathered lady's nursery, and either smashing her eggs, or mutilating her half-fledged progeny. The egg-shells, and the remains of fish brought to feed the young birds, or to be devoured at leisure by the old ones, must form a considerable item in the deposits.

Thickly tenanted as are the islands, and the air above, the waters beneath are no less full of life. Shoals of small fish are continually passing through the channels. Whales are frequently seen, rolling their huge bodies in the offing; and the numerous caves that perforate the islands on every side, are inhabited by colonies of seals and sea-lions, that wage an unceasing predatory war upon the sparkling shoals that pass, unconscious of all danger, off their gloomy surf-bound territories.

The islands themselves, are perfectly barren. Not a blade of grass, nor even a particle of moss, exists upon them. They present only one brown arid expanse, incapable of furnishing food for the tiniest nibbler that ever gnawed a grain of corn; and yet they possess sufficient fertilizing power to transform a barren desert into a fruitful garden; and they annually furnish food in other lands, for thousands of hungry mortals, who never even heard of their existence! They are a so completely destitute of water—the Indians who live upon them, being supplied with this necessary of life by the shipping, in turns. Every article of food is brought from Pisco, to which port the guano diggers occasionally resort to spend in extravagance and dissipation their hard earned wages. The Commandant resides on the North island in a miserable cottage; four poles stuck in the guano, with grass mats or a few reeds stretched between them, and covered in with a flat roof, of the same material, form specimens of a high order of Chinca architecture. Furniture is of course unknown, and clothes are as nearly so as possible; but the high wages given to the laborers appear to balance the *desagremens* of their position; for several Englishmen are amongst their number. Some of these are employed in mooring the ships alongside of the rock.

Guano has been used for agricultural purposes in Peru, ever since the invasion of the Spaniards, and there are good grounds for believing that its use was known to the Indians long anterior to that period. It is now chiefly applied there in the cultivation of maize and potatoes, and large quantities of it are consumed in the haciendas that skirt the banks of the rivers which flow from the mountains through the desert, raising in their passage through the arid sand-ocean, long green islands, of extraordinary fertility. The mode of applying the manure differs considerably from that adopted with us. It is never used with the seed; but when the plants are a few inches above the surface, a long shallow trench is made close to the roots, and in this a small quantity of guano is placed, the white being always preferred.—The trench being laid completely under water by dams and sluices, erected for the purpose, or, where no such system of irrigation exists, other