

Sechura, to find them we must dig the bed of the dried up torrents. It is at once to this absorption of an arenaceous soil, and to the frequency of the drizzling rain or *guaruas*, that the country comprehended between Tumbes and Chilí owes its not being a desert throughout its whole extent.

It is exactly in this zone, where rain is sufficiently rare to be considered an event, between Payta and the Rio Loa, that the beds of ammoniacal guano are situated. Below, more to the north, as also more to the south of these extreme points, the guano, exposed to the tropical rains, is generally deprived of ammonia and soluble salts; an insoluble salt has resisted; this is phosphate of lime, the base and characteristic of earthy guano.

For guano to have been accumulated in sufficiently large quantities in the *huaneras*, it requires a concurrence of circumstances favourable alike to its production and preservation—a climate of unusual dryness, under which the birds have not to screen themselves from rain, in which terrestrial accidents offer crevasses and vents in which they can repose, lay, and hatch, sheltered from the strong gales of the south; a short finding food such as they find in the waters of the coast. In no part of the world is fish more abundant. It sometimes happens during the night, as I have myself witnessed, that they come stranded alive upon the beach in prodigious numbers, without the sea being agitated, as if they wished to escape from the pursuit of the enemy.

One of the Spanish navigators who accompanied the French academicians to the equator, Antonio de Ulloa, relates that the anchovy is in such abundance on that coast, that there are no figures to express or represent the quantity. It suffices to say that they serve for food to an immense number of birds, which make war upon them. These birds are commonly called *guanos*, among which are many albatrosses, a species of cormorant; but all are comprised under the general name of *guanos*. Sometimes, arising on these isles, they form a cloud which obscures the sun. They take an hour and half or two hours in passing from one place to another, without any perceptible diminution of their numbers. They extend themselves above the sea, and occupy a large space, after which they begin their fishing in a very amusing manner; for, suspending themselves in the air, and whirling round at a height proportioned to their sight immediately they perceive a fish they soar higher, head downwards, and then clasping their wings to their bodies, they strike with so much force, that we perceive the bubbling of the water at a great distance. Afterwards they resume their flight, while swallowing the fish. Sometimes they remain a long time under water, and emerge far from the place where they had plunged in, doubtless because the fish made an effort to escape, and they pursued it, disputing with

it the lightness in swimming. Thus we see them incessantly in the places frequented by them, some falling into the water, others rising from it, and as the number is very great, it is amusing to see their confusion. When they are satisfied they repose upon the waves; they go to rest with the sun, collect together, and all this numerous band seek their resting place. We have observed at Callao that the birds who visit the isles and islets situated to the north of that port go at early morn to fish on the southern coast, and return in the evening to the places from whence they came. When they cross the port, one can see neither the beginning nor the end of the flight.

To be continued in our next.

Good Cultivation v. Bad Cultivation, from a Chemical Point of View.

There is a difference between good and bad management in farming, that is not so easily accounted for as practical agriculturists are sometimes led to imagine. This is no less true in the cultivation of land than in the rearing and fattening of cattle. In either department of the farm it is common to attribute success to skill and capital, and the reverse to the contrary. But we all know that it is neither skill nor capital that makes corn and cattle grow. These are but means to certain ends, and when we come to inquire what those ends are, we often find ourselves beyond our depth in an unfathomable sea of troubles, doubts, and perplexities.

Let us confine our observations on the present occasion to land. A march fence runs up between two farms: geologically there is no difference between the soil and subsoil on the one side and the other, but there is a wide difference between their agricultural conditions as to fertility, and the amount of produce they respectively yield. In short, the one is "farmed with skill and capital," and the other is not, and such is considered quite sufficient to account for all differences. But to understand what "farmed with skill and capital" really means in every individual sense, and also the adverse management, the practical farmers require to see the land itself and the crops it yields. With them "seeing is believing;" for in the absence of ocular demonstration, such expressions have little more than the shadow of a meaning relative to what they are intended to convey. The land speaks for itself; so do the crops produced by it, and practical agriculturists are familiar with the language of both, although they may not be able to give a proper account of all that they see.

The difficulty experienced amongst practical men, it will thus be seen, is to give a scientific exposition of the facts of the case in the two systems of management, good and bad, under