

Star-fish dried and reduced to powder; mud formed of organic remains; the bed of the ocean, periodically removed; fish of an oily nature; the heads of cods and sardines; banks of marl (maërlé?), and sand will furnish elements capable of sufficing for all the requirements of the land, to whatever degree of perfection we suppose its cultivation to be brought, over whatever extent its clearing may be carried.

The separate employment of each of these agents; their united action; their combination in different proportions, will enable the soil to be submitted to various treatments, which will supply it with more strength than it can lose by the production of crops, and will preserve its fruits from the destructive influences consequent upon a want of equilibrium between the different elements of nutrition.

England in vain looks to the guano of the islands of the Pacific, and to the bones of the battle-field for the phosphorus, which science tells her the soil has been deprived of.

Sicily, worn out by over-forcing its crops, which for many ages made it the granary of the Roman Empire, has lost, through this excessive production, the fertilising salts which man's improvidence has neglected to return in the same proportions as those in which they have been abstracted.

In many parts of the world the crops, not being indigenous, are not suited to the conditions of local vegetation, and, in consequence, corrupt the land; where microscopic animalculæ or infusoria are propagated, like a deadly blight, capable of endangering the existence of nations when they attack the potato, the vine, wheat, or even man himself.

A single one of these invisible animalculæ, which fill the universe, and the accumulation of whose dead bodies form the soil of whole provinces, is capable of producing in four days as many as a hundred and forty billion living creatures. Their minuteness is such, that, according to the calculations of an eminent *savant* at Berlin, no fewer than one billion seven hundred and fifty millions are required to make up the contents of one cubic inch.

In the general economy of nature, there are perpetual multipliers of the living element destined to form the food of the species, a little larger than themselves, which again, absorbed in their turn by other species, distinguishable to the eye, establish a manifest and fundamental link between the visible and invisible world. But this harmony is preserved only on the condition of an antagonism, always ready to turn to the injury of the visible world when any weakness opens the way to its devastating attacks.

In the face, then, of this conflict, at once beneficial and menacing, the chief ambition of science should be to obtain the healthy spread of the useful species, without allowing these invisible blights to become victorious parasites or disturbing agents. Now, as parasites never get the upper hand, except over diseased organizations, it follows that a good rotation of crops will act as a preservative against these destructive epidemics, for the development of an indigenous vegetation will be the means of supplying animals that feed upon it with a wholesome nourishment.

The depths of the ocean contain and develop the endlessly renewed elements of this rotation. All the organic remains formed of the drainage of large cities and the filtrations of the earth, carried by the medium of rivers into this vast receptacle, mingle with the nutritive properties so largely

contained in it. The submarine world, animal and vegetable, convert the parts that will assimilate, *here* into food for man, *there* into a substance adapted for manure.

We have only to draw from this inexhaustible source, and in proportion as we purify the sea from the destructive species which encumber it, to fertilize the earth, in the same proportion the useful races will propagate there,—like a new harvest on soil where pernicious weeds have ceased to choke good wheat.

The increase of the element adapted to man's food in proportion to the extent of ground devoted to its development, will be the means of adding to the natural wealth of a country a much larger amount than that artificially created.

But, for the accomplishment of such a design, a liberal capital is required to induce the maritime population to share in the advantages of the Association, and to place in the hands of the fishermen materials for working, suitable to the perilous nature of their calling. In want of these means these fearless labourers are exhausting our shores in gaining a miserable subsistence, whilst, in their very faces, English fishermen, in vessels enabling them to remain at sea in all weathers, and furnished with the most complete appliances, succeed in making enormous hauls in the deep sea, where fish of large size are most abundant.

No class of men has the same claim on the liberality of Government, for by one of those wonderful combinations which are only met with at certain stages in the progress of social development, the genius of Colbert, in his organization of France, has allotted to them the task of defending our flag. A happy idea, containing in itself the germ of maritime predominancy.

No class of men is so well situated to derive advantage from this country, since the sea, the monopoly of which that great minister granted to them, in return for their noble and uncompulsory obedience, is in fact the property of a community. The spirit of partnership would not, in this case, be fettered by the limits of individual property as it would be on land; and when loans of money have given it the opportunity of extending itself without restraint, its administrative organization will be found to be wonderfully adapted to its wants, because founded on natural conditions.

In each locality the commissioner of maritime inscription lives, as a father of a family, in the midst of the population under his jurisdiction. He keeps a register of the names and services of every one, to enable him to recruit for the navy, and to regulate the superannuation pensions. Merits or demerits, intellectual capacity or the contrary, poverty or easy circumstances, he allows nothing to escape his eye, and is always prepared to advise the Government as to the best application of these resources, without having recourse to endless and expensive inquiries.

The paymasters of pensions, the originators of the first saving banks, will act as disinterested bankers in this work of social regeneration. They will see that the fishermen receive directly the loans destined to assist them, either in their associated or private undertakings, without paying a percentage to rapacious agents.

When the maritime population has placed its working apparatus on a footing to meet all the new demands on its industry, it will begin to repay the Government loans in a way long known to it, and through the same hands that transmitted them to it.