

Natural History, General and Particular
 Georges-Louis Leclerc, *Compte de Buffon*

[. . .] The seal, or sea-calf, seems to be confined to northern countries, and is found equally on the coasts of Europe and of North America.

These are nearly all the animals which are common to the Old and New Worlds; and from this number, which is not considerable, we ought, perhaps, to retrench more than a third part, whose species, though apparently the same, may be different in reality. But, admitting the identity of all these species with those of Europe, the number common to the two Continents is very small, when compared with that of the species peculiar to each. It is farther apparent, that, of all these animals, it is those only which frequent the northern countries that are common to both Continents; and that none of those which cannot multiply but in warm or temperate climates are found in both worlds.

It is, therefore, no longer a doubtful point, that the two Continents either are, or have formerly been, contiguous towards the north, and that the animals common to both have passed from the one to the other by lands with which we have now no acquaintance. We are led to believe, especially since the discoveries made by the Russians to the north of Kamtschatka, that the lands of Asia are contiguous to those of America; for the north of Europe seems to have been always separated from the New World by seas too considerable to permit the passage of any quadruped. These animals, however, of North America, are not precisely the same with those of the north of Asia; but have a stronger resemblance to the quadrupeds of the north of Europe. It is the same with the animals which belong to the temperate climates. The argali or Siberian goat, the sable, the Siberian moles and the Chinese musk, appear not in Hudson's Bay, nor in any other north-west part of the New Continent; but, on the contrary, we find in the north-east parts of it, not only the animals common to the north of Europe and Asia, but likewise

those which appear to be peculiar to Europe, as the elk, the rain-deer, &c. It must, however, be acknowledged, that the north-east parts of Asia are so little known, that we can have no certainty whether the animals of the north of Europe exist there or not.

We formerly remarked, as a singular phenomenon, that the animals in the southern province of the New Continent, are small in proportion to those in the warm regions of the Old. There is no comparison between the size of the elephant, the rhinoceros, the hippopotamus, the camelopard, the camel, the lion, the tiger, &c. and the tapir, the cabiai, the ant-eater, the lama, the puma, the jaguar, &c. which are the largest quadrupeds of the New World: the former are four, six, eight, and ten times larger than the latter. Another observation brings additional strength to this general fact: All the animals which have been transported from Europe to America, as the horse, the ass, the ox, the sheep, the goat, the hog, the dog, &c. have become smaller; and those which were not transported, but went thither spontaneously, those, in a word, which are common to both Continents, as the wolf, the fox, the stag, the roebuck, the elk, &c. are also considerably less than those of Europe.

In this New World, therefore, there is some combination of elements and other physical causes, something that opposes the amplification of animated Nature: There are obstacles to the development, and perhaps to the formation of large germs. Even those which, from the kindly influences of another climate, have acquired their complete form and expansion, shrink and diminish under a niggardly sky and an unprolific land, thinly peopled with wandering savages, who, instead of using this territory as a master, had no property or empire; and, having subjected neither the animals nor the elements, nor conquered the seas, nor directed the motions of rivers, nor cultivated the earth, held only the first rank among animated beings, and existed as crea-

tures of no consideration in Nature, a kind of weak automations, incapable of improving or seconding her intentions. She treated them rather like a step-mother than a parent, [. . .]

I have said enough to guard the reader against errors both of general and particular kind, which are no where so numerous as in the works of nomenclators; because, being solicitous to comprehend every thing within the limits of their systems, they are obliged to associate all that they are ignorant of with the little that they know.

From what has been advanced, the following general conclusions may be drawn: That man is the only animated being on whom Nature has bestowed sufficient strength, genius, and ductility, to enable him to subsist and to multiply in every climate of the earth. No other animal, it is evident, has obtained this great privilege; for, instead of multiplying every where, most of them are limited to certain climates, and even to particular countries. Man is totally a production of heaven: But, the animals, in many respects, are creatures of the earth only. Those of one Continent are not found in another; or, if there are a few exceptions, the animals are so changed and contracted, that they are hardly to be recognised. Is any farther argument necessary to convince us, that the model of their form is not unalterable; that their nature, less fixed than that of man, may be varied, and even absolutely changed in a succession of ages; that, for the same reason, the least perfect, the least active, and the worst defended, as well as the most delicate and heavy species, have already, or will soon disappear; for their very existence depends on the form which man gives or allows to the surface of the earth?

The prodigious *mammoth*, whose enormous bones I have often viewed with astonishment and which were, at least, six times larger than those of the largest elephant, has now no existence; yet the remains of him have been found in many places remove from each other, as in Ireland, Siberia, Louisiana, &c. This species was unquestionably the largest and strongest of all quadrupeds; and, since it has disappeared, how many smaller, weaker, and less remarkable species must likewise have perished, without leaving any evidence of their past existence? How many others have undergone such changes, either from degeneration or improvement, occasioned by the great vicissitudes of the earth and waters, the neglect or cultivation of Nature, the continued influence of favourable or hostile climates, that

they are now no longer the same creatures? Yet the quadrupeds, next to man, are beings whose nature and form are the most permanent. Birds and fishes are subject to greater variations: The insect-tribes are liable to still greater vicissitudes: And, if we descend to vegetables, which ought not to be excluded from animated Nature, our wonder will be excited by the quickness and facility with which they assume new forms.

Hence, it is not impossible, that, without inverting the order of Nature, all the animals of the New World were originally the same with those of the Old, from whom they derived their existence; but that, being afterwards separated by immense seas, or impassable lands, they would, in the progress of time, suffer all the effects of a climate that had become new to them, and must have had its qualities changed by the very causes which produced the separation, and, consequently, degenerate, &c. But these circumstances should not prevent them from being now regarded as different species of animals. From whatever cause these changes, produced by the operation of time and the influence of climate, have originated, and though we should date them from the creation itself, they are not the less real. Nature, I allow, is in a perpetual state of fluctuation: But it is enough for man to seize her in his own age, and to look backward and forward, in order to discover her former condition, and what future appearances she may probably assume.

With regard to the utility of this mode of comparing animals, it is evident, that, independent of ascertaining names, of which some examples have been given, it extends our knowledge of the animal creation, and renders it more certain, and perfect; that it prevents us from ascribing, to American animals, properties which are peculiar to those of the East Indies, only because they have the same name; that, in examining the notices of foreign animals communicated by travellers, it will enable us to distinguish names and facts, and to refer each to its proper species; and, lastly, that it will render the history which I am now composing less defective, and perhaps more conspicuous and complete that they can be compared to none of them, and that it is impossible to refer them to any common origin, or to ascribe to the effects of degeneration the prodigious differences in their nature from that of any other animal.

Thus, of ten genera and four detached species, to which we have endeavoured to reduce all the animals

Excerpts are transcribed from pages 127–29, 149–52, and 450–52 of the 1791 translation by W. Smellie of Buffon's *Histoire Naturelle, Générale et Particulière* (1761).

peculiar to the New World, there are only two, namely, the genus of jaguars, ocelots, &c. and the species of the pecari, with their varieties, which can, with any degree of probability, be referred to the animals of the Old World. The jaguars and ocelots may be regarded as a species of the leopard or panther, and the pecari as a species of hog. There are also five genera and one detached species, namely, the species of the lama, the genera of sapajous, sagoins, moussettes, agoutis, and ant-eaters, which may be compared, though in an equivocal and very distant manner, with the camel, the monkeys, the pole-cat, the hare, and the scaly lizards: And, in line, there remain four genera and two detached species, namely, the opossums, the coaitis, the armadillos, the sloths, the tapir, and cabiai, which can neither be referred nor compared to any genera or species in the Old Continent. This seems to be a sufficient proof, that the origin of these animals peculiar to the New World cannot be attributed to degeneration alone: However powerful we may suppose the effects of degeneration, we can never suppose, with any appearance of reason, that these animals were originally the same with those of the Old Continent. It is more probable, that the two Continents were formerly united, and that the species which inhabited the New World, because the soil and climate were most agreeable to their nature, were separated from the others by the irruption of the waters, when they divided Africa from America. This is

a natural cause; and similar causes might be conceived which would produce the same effect. For example, if the sea should make an irruption into Asia from east to west, and separate the southern regions of Africa and Asia from the rest of the Continent, all the animals peculiar to these countries, as the elephant, the rhinoceros, the giraffe, the zebra, the orang-outang, &c. would be in the same situation with those of South America. They would be entirely separated from those of the temperate regions, and could not be referred to an origin common to any of the species or genera which inhabit these countries, solely because some imperfect resemblances might be discovered between them.

Hence, to discover the origin of these animals, we must have recourse to the period when the two Continents were united, and tract the first changes which have happened on the surface of the earth. We must, at the same time, consider the two hundred species of quadrupeds as constituting thirty-eight families: And, though this is by no means the present state of nature, but, on the contrary, a state of much greater antiquity, which we can reach only by inductions and relations almost equally fugitive as time, that seems to have effaced their traces; we shall, however, endeavour to ascent, by facts and monuments still existing, to those first ages of Nature, and to exhibit those epochas which shall appear to be most clearly indicated.

PAPER 3

From *Observations Made during a Voyage Round the World*

Johann Reinhold Forster

CHAPTER V

Remarks on the Organic Bodies

OMNIS NATURA VULT ESSE CONSERVATRIX SUI, UT & IN GENERE CONSERVETUR SUO.

M. Tullius Cicero *de Fin. Bon. & Mal.* l. 4¹

The next article which demands our attention in the lands of the South Sea, is the history of the organic bodies, which partly form, and partly dwell on their immediate exterior surface. They constitute the vegetable and animal kingdoms in the system of nature, the latter being distinguished from the first, by the powers of perception, or the senses, the peculiar attributes of animal being.

ORGANIC BODIES

SECTION I

Vegetable Kingdom

The vegetation which cloaths our earth, VARIES considerably in every country we met with during our circum-navigation, even as the appearances of the lands themselves, are new and singular in almost every one of them. Between the tropics, we met with the Low Islands, consisting of mere coral rocks, scarce covered with sand. The Society Isles of vast height, surrounded by rich plains, and included in coral reefs: and many other clusters of mountainous islands, destitute both of reefs and plains. We have observed how much the least attractive of these tropical countries, surpasses the ruder scenery of New Zealand: how much more discouraging than this, are the extremities of America; and lastly, how dreadful the southern coasts appear, which we discovered. In the same manner, the plants that inhabit these lands, will be found to differ in number, stature, beauty, and use.²

VEGETABLE
KINGDOM

Reprinted from *Observations Made during a Voyage Round the World*, ed. Nicholas Thomas, Harriet Guest, and Michael Dettelbach (Honolulu: University of Hawai'i Press, 1966), 113, 119-23, 128, 135-36.