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0521546184 - Ecological Imperialism: The Biological Expansion of Europe, 900-1900 -

Second Edition

Alfred W. Crosby

Excerpt

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Prologue

GIVE ME A CONDOR'S QUILL! Give me Vesuvius' crater for an
ink stand! Friends, hold my arms!

—Herman Melville, *Moby Dick*

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EUROPEAN EMIGRANTS and their descendants are all over the place, which requires explanation.

It is more difficult to account for the distribution of this subdivision of the human species than that of any other. The locations of the others make an obvious kind of sense. All but a relatively few of the members of the many varieties of Asians live in Asia. Black Africans live on three continents, but most of them are concentrated in their original latitudes, the tropics, facing each other across one ocean. Amerindians, with few exceptions, live in the Americas, and nearly every last Australian Aborigine dwells in Australia. Eskimos live in the circumpolar lands, and Melanesians, Polynesians, and Micronesians are scattered through the islands of only one ocean, albeit a large one. All these peoples have expanded geographically – have committed acts of imperialism, if you will – but they have expanded into lands adjacent to or at least near to those in which they had already been living, or, in the case of the Pacific peoples, to the next island and then to the next after that, however many kilometers of water might lie between. Europeans, in contrast, seem to have leapfrogged around the globe.

Europeans, a division of Caucasians distinctive in their politics and technologies, rather than in their physiques, live in large numbers and nearly solid blocks in northern Eurasia, from the Atlantic to the Pacific. They occupy much more territory there than they did a thousand or even five hundred years ago, but that is the part of the world in which they have lived throughout recorded history, and there they have expanded in the traditional way, into contiguous areas. They also compose the great majority in the populations of what I shall call the Neo-Europes, lands thousands of kilometers from Europe and from each other. Australia's population is almost all European in origin, and that of New Zealand is about nine-tenths European. In the Americas north of Mexico there are considerable minorities

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of Afro-Americans and *mestizos* (a convenient Spanish-American term I shall use to designate Amerindian and white mixtures), but over 80 percent of the inhabitants of this area are of European descent. In the Americas south of the Tropic of Capricorn the population is also dominantly white. The inhabitants of the “Deep South” in Brazil (Paraná, Santa Catarina, and Rio Grande do Sul) range between 85 and 95 percent European, and Uruguay, next door, is also approximately nine-tenths white. Some estimations put Argentina at about 90 percent and others at close to one 100 percent European. In contrast, Chile’s people are only about one-third European; almost all the rest are *mestizo*. But if we consider all the peoples of that vast wedge of the continent poleward of the Tropic of Capricorn, we see that the great majority are European. Even if we accept the highest estimations of *mestizo*, Afro-American, and Amerindian populations, more than three of every four Americans in the southern temperate zone are entirely of European ancestry.¹ Europeans, to borrow a term from apiculture, have swarmed again and again and have selected their new homes as if each swarm were physically repulsed by the others.

The Neo-Europes are intriguing for reasons other than the disharmony between their locations and the racial and cultural identity of most of their people. These lands attract the attention – the unblinking envious gaze – of most of humanity because of their food surpluses. They compose the majority of those very few nations on this earth that consistently, decade after decade, export very large quantities of food. In 1982, the total value of all agricultural exports in the world, of all agricultural products that crossed national borders, was \$210 billion. Of this, Canada, the United States, Argentina, Uruguay, Australia, and New Zealand accounted for \$64 billion, or a little over 30 percent, a total and a percentage that would be even higher if the exports of southern Brazil were added. The Neo-

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European share of exports of wheat, the most important crop in international commerce, was even greater. In 1982, \$18 billion worth of wheat passed over national boundaries, of which the Neo-Europes exported about \$13 billion. In the same year, world exports of protein-rich soybeans, the most important new entry in international trade in foodstuffs since World War II, amounted to \$7 billion. The United States and Canada accounted for \$6.3 billion of this. In exports of fresh, chilled, and frozen beef and mutton, the Neo-Europes also lead the world, as well as in a number of other foodstuffs. Their share of the international trade in the world's most vitally important foods is much greater than the Middle East's share of petroleum exports.²

The dominant role of the Neo-Europes in international trade in foodstuffs is not simply a matter of brute productivity. The Union of Soviet Socialist Republics usually leads the world in the production of wheat, oats, barley, rye, potatoes, milk, mutton, sugar, and several other food items. China outproduces every other nation in rice and millet, and it has the most pigs. In terms of productivity per unit of land, a number of nations outdo the Neo-Europes, whose farmers, small in number but great in technology, specialize in extensive rather than intensive cultivation. Per farmer, their productivity is awesome, but per hectare it is not so impressive. These regions lead the world in production of food *relative to the amount locally consumed*, or, to put it another way, in the production of surpluses for export. To cite an extreme example, in 1982 the United States produced only a minuscule percentage of the world's rice, but it accounted for one-fifth of all exports of that grain, more than any other nation.³

We shall discuss Neo-European productivity again in the final chapter, but now let us turn to the subject of the Europeans' proclivity for migrating overseas, one of their most distinctive characteristics, and one that has had much to do with Neo-European agricultural productivity. Euro-

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peans were understandably slow to leave the security of their homelands. The populations of the Neo-Europes did not become as white as they are today until long after Cabot, Magellan, and other European navigators first came upon the new lands, nor until many years after the first white settlers made their homes there. In 1800, North America,⁴ after almost two centuries of successful European colonization, and though in many ways the most attractive of the Neo-Europes to Old World migrants, had a population of fewer than 5 million whites, plus about 1 million blacks. Southern South America, after more than two hundred years of European occupation, was an even worse laggard, having less than half a million whites. Australia had only 10,000, and New Zealand was still Maori country.⁵

Then came the deluge. Between 1820 and 1930, well over 50 million Europeans migrated to the Neo-European lands overseas. That number amounts to approximately one-fifth of the entire population of Europe at the beginning of that period.⁶ Why such an enormous movement of peoples across such vast distances? Conditions in Europe provided a considerable push – population explosion and a resulting shortage of cultivable land, national rivalries, persecution of minorities – and the application of steam power to ocean and land travel certainly facilitated long distance migration. But what was the nature of the Neo-European pull? The attractions were many, of course, and they varied from place to place in these new-found lands. But underlying them all, and coloring and shaping them in ways such that a reasonable man might be persuaded to invest capital and even the lives of his family in Neo-European adventures, were factors perhaps best described as biogeographical.

Let us begin by applying to the problem what I call the Dupin technique, after Edgar Allan Poe's detective, C. Auguste Dupin, who found the invaluable "Purloined Letter" not hidden in a bookbinding or a gimlet hole in a

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chair leg but out where everyone could see it in a letter rack. A description of the technique, a sort of corollary to Ockham's razor, goes like this: Ask simple questions, because the answers to complicated questions probably will be too complicated to test and, even worse, too fascinating to give up.

Where are the Neo-Europes? Geographically they are scattered, but they are in similar latitudes. They are all completely or at least two-thirds in the temperate zones, north and south, which is to say that they have roughly similar climates. The plants on which Europeans historically have depended for food and fiber, and the animals on which they have depended for food, fiber, power, leather, bone, and manure, tend to prosper in warm-to-cool climates with an annual precipitation of 50 to 150 centimeters. These conditions are characteristic of all the Neo-Europes, or at least of their fertile parts in which Europeans have settled densely. One would expect an Englishman, Spaniard, or German to be attracted chiefly to places where wheat and cattle would do well, and that has indeed proved to be the case.

The Neo-Europes all lie primarily in temperate zones, but their native biotas are clearly different from one another and from that of northern Eurasia. The contrast becomes dramatically apparent if we look at some of their chief grazers and browsers of, say, a thousand years ago. European cattle, North American buffalos,⁷ South American guanacos, Australian kangaroos, and New Zealand's three-meter high moa birds (now, sadly, extinct) were not brethren under the pelt. The most closely related, the cattle and buffalos, were no better than very distant cousins; even the buffalo and its closest Old World counterpart, the rare European bison, are different species. European colonists sometimes found Neo-European flora and fauna exasperatingly bizarre. Mr. J. Martin in Australia in the 1830s complained that the

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trees retained their leaves and shed their bark instead, the swans were black, the eagles white, the bees were stingless, some mammals had pockets, others laid eggs, it was warmest on the hills and coolest in the valleys, [and] even the blackberries were red.⁸

There is a striking paradox here. The parts of the world that today in terms of population and culture are most like Europe are far away from Europe – indeed, they are across major oceans – and although they are similar in climate to Europe, they have indigenous floras and faunas different from those of Europe. The regions that today export more foodstuffs of European provenance – grains and meats – than any other lands on earth had no wheat, barley, rye, cattle, pigs, sheep, or goats whatsoever five hundred years ago.

The resolution of the paradox is simple to state, though difficult to explain. North America, southern South America, Australia, and New Zealand are far from Europe in distance but have climates similar to hers, and European flora and fauna, including human beings, can thrive in these regions if the competition is not too fierce. In general, the competition has been mild. On the pampa, Iberian horses and cattle have driven back the guanaco and rhea; in North America, speakers of Indo-European languages have overwhelmed speakers of Algonkin and Muskhogean and other Amerindian languages; in the antipodes, the dandelions and house cats of the Old World have marched forward, and kangaroo grass and kiwis have retreated. Why? Perhaps European humans have triumphed because of their superiority in arms, organization, and fanaticism, but what in heaven's name is the reason that the sun never sets on the empire of the dandelion? Perhaps the success of European imperialism has a biological, an ecological, component.

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Pangaea revisited, the Neolithic reconsidered

GOD SAID, 'Let the waters under heaven be gathered into one place, so that dry land may appear'; and so it was. God called the dry land earth, and the gathering of the waters he called seas; and God saw that it was good.

—Genesis 1:9–10

THREE SLENDER THINGS THAT BEST SUPPORT THE WORLD: the slender stream of milk from the cow's dug into the pail; the slender blade of green corn upon the ground; the slender thread over the hand of a skilled woman.

—*The Triads of Ireland* (ninth century)

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PANGAEA REVISITED

IT IS NECESSARY TO BEGIN at the beginning in considering the Neo-Europes, and that means not in 1492 or 1788 but about 200 million years ago, when a series of geological events began that brought these lands to their present locations. Two hundred million years ago, when dinosaurs were still lolling about, all the continents were jammed together in one great supercontinent that the geologists call Pangaea.¹ It stretched over scores of degrees of latitude, and so we can assume that it had some variations in climate; but with only one land mass, there would not have been much variety among its life forms. One continent meant one arena for competition, and so only one set of winners in the Darwinian struggle for survival and reproduction. Reptiles, including all the dinosaurs, were the dominant kinds of land animals in Pangaea – and, therefore, the world – for three times as long as mammals have held that position since, and yet reptiles diversified into only two-thirds as many orders.

About 180 million years ago Pangaea began to break up like some immense tabular iceberg rotting in the heat of the Gulf Stream. First it split into two supercontinents, and then into smaller units that became, in time, the continents we know. The process was more complicated than we can describe here (indeed, more complicated than geologists completely understand as yet), but, in broad terms, Pangaea broke up along lines of intense seismic activity that later became undersea ridges. The most thoroughly examined of these is the Mid-Atlantic Ridge that boils and bubbles from the Greenland Sea to Spiess Seamount, twenty degrees of latitude and twenty of longitude southwest of Cape Town, South Africa. From this and other ancient drowned cordillera, lava poured (and in many cases still pours), generating new ocean floor and carrying continents on either side of a given ridge farther and farther from each other. Where these floors, moving away from the ridges that spawned them, back into each other, they curl

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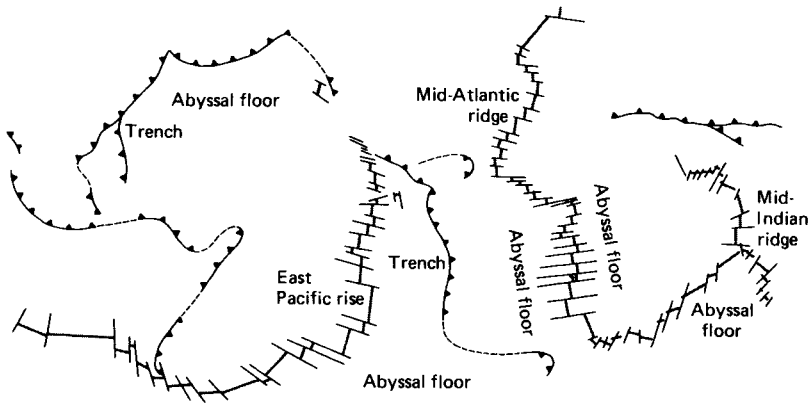


Figure 1. The seams of Pangaea. Reproduced by permission from W. Kenneth Hamblin, *The Earth's Dynamic Systems* (Minneapolis: Burgess Publishing Co., 1982), 23.

downward into the earth's mantle, grinding and grating, sometimes scuffing continental mountain ranges up to the skies, sometimes creating underwater trenches, the deepest features on the surface of the planet. Geologists, who sometimes have a stony insensitivity to nuances, call this awesomely vast and eon-consuming activity "continental drift."²

When mammals succeeded dinosaurs as the globe's dominant land animals and began to diversify into their myriad orders over the past few score million years, the separations of the continents seem to have been at their extremes, certainly more so than today, and there were large inland seas partitioning South America and Eurasia into two subcontinents each. On these fragments of Pangaea, life forms developed independently, and in many cases uniquely. This helps to account for the remarkable degrees to which mammals diversified and the speed at which they did so.³

Continental drift largely accounts for the differences, often extreme, between the flora and fauna of Europe and