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Nature's Inequalities

Geography has fallen on hard times. As a student in elementary school, I had to read and trace maps, even draw them from memory. We learned about strange places, peoples, and customs, and this long before anyone had invented the word "multiculturalism." At the same time, at higher levels far removed, schools of economic and cultural geography flourished. In France, no one would think of doing a study of regional history without first laying out the material conditions of life and social activity.[1] And in the United States, Ellsworth Huntington and his disciples were studying the ways that geography, especially climate, influenced human development.

Yet in spite of much useful and revealing research, Huntington gave geography a bad name.[2] He went too far. He was so impressed by the connections between physical environment and human activity that he attributed more and more to geography, starting with physical influences and moving on to cultural. In the end, he was classifying civilizations hierarchically and assigning the best—what he defined as best—to the favors of climate. Huntington taught at Yale University and not coincidentally thought New Haven, Connecticut, had the world's most invigorating climate. Lucky man. The rest of the world

went down from there, with the lands of the peoples of color toward or at the bottom of the heap.

Yet in saying these things, Huntington was simply echoing the tradition of moral geography. Philosophers easily linked environment with temperament (hence the long-standing contrast between cold and hot, between sober thoughtfulness on the one hand, ebullient pleasure seeking on the other); while the infant discipline of anthropology in the nineteenth century presumed to demonstrate the effects of geography on the distribution of merit and wisdom, invariably most abundant in the writer's own group.[3] In our own day, the tables are sometimes reversed, and Afro-American mythmakers contrast happy, creative "sun people" with cold, inhuman "ice people."

That kind of self-congratulatory analysis may have been acceptable in an intellectual world that liked to define performance and character in racial terms, but it lost credibility and acceptability as people became sensitized and hostile to invidious group comparisons. And geography lost with it. When Harvard simply abolished its geography department after World War II, hardly a voice protested—outside the small group of those dismissed.[4] Subsequently a string of leading universities—Michigan, Northwestern, Chicago, Columbia—followed suit, again without serious objection.

These repudiations have no parallel in the history of American higher education and undoubtedly reflect the intellectual weaknesses of the field: the lack of a theoretical basis, the all-embracing opportunism (more euphemistically, the catholic openness), the special "easiness" of human geography. But behind those criticisms lay a dissatisfaction with some of the results. Geography had been tarred with a racist brush, and no one wanted to be contaminated.

And yet, if by "racism" we mean the linking, whether for better or worse, of individual performance and behavior to membership in a group, especially a group defined by biology, no subject or discipline can be less racist than geography. Here we have a discipline that, confining itself to the influence of environment, talks about anything but group-generated characteristics. No one can be praised or blamed for the temperature of the air, or the volume and timing of rainfall, or the lay of the land.

Even so, geography emits a sulfurous odor of heresy. Why? Other intellectual disciplines have also propagated nonsense or excess, yet no other has been so depreciated and disparaged, if only by neglect. My own sense is that geography is discredited, if not discreditable, by its nature. It tells an unpleasant truth, namely, that nature like life is un-

fair, unequal in its favors; further, that nature's unfairness is not easily remedied. A civilization like ours, with its drive to mastery, does not like to be thwarted. It disapproves of discouraging words, which geographic comparisons abound in.[5]

Geography, in short, brings bad tidings, and everyone knows what you do to that kind of messenger. As one practitioner puts it: "Unlike other history . . . the researcher may be held responsible for the results, much as the weather forecaster is held responsible for the failure of the sun to appear when one wishes to go to the beach."[6]

Yet we are not the wiser for denial. On a map of the world in terms of product or income per head, the rich countries lie in the temperate zones, particularly in the northern hemisphere; the poor countries, in the tropics and semitropics. As John Kenneth Galbraith put it when he was an agricultural economist: "[If] one marks off a belt a couple of thousand miles in width encircling the earth at the equator one finds within it *no* developed countries. . . . Everywhere the standard of living is low and the span of human life is short."[7] And Paul Streeten, who notes in passing the instinctive resistance to bad news:

> Perhaps the most striking fact is that most underdeveloped countries lie in the tropical and semi-tropical zones, between the Tropic of Cancer and Tropic of Capricorn. Recent writers have too easily glossed over this fact and considered it largely fortuitous. This reveals the deepseated optimistic bias with which we approach problems of development and the reluctance to admit the vast differences in initial conditions with which today's poor countries are faced compared with the pre-industrial phase of more advanced countries.[8]

To be sure, geography is only one factor in play here. Some scholars blame technology and the rich countries that have developed it: they are charged with inventing methods suited to temperate climates, so that potentially fertile tropical soil remains fallow. Others accuse the colonial powers of disrupting the equatorial societies, so that they have lost control of their environment. Thus the slave trade, by depopulating large areas and allowing them to revert to bush, is said to have encouraged the tsetse fly and the spread of trypanosomiasis (sleeping sickness). Most writers prefer to say nothing on the subject.

One must not take that easy way out. The historian may not erase or rewrite the past to make it more pleasing; and the economist, whose easy assumption that every country is destined to develop sooner or later, must be ready to look hard at failure.[9] Whatever one may say

about the weakening of geographical constraints today in an age of tropical medicine and high technology, they have not vanished and were clearly more powerful earlier. The world has never been a level playing field, and everything costs.

We begin with the simple, direct effects of environment and go on to the more complex, more mediated links.

Climate first. The world shows a wide range of temperatures and temperature patterns, reflecting location, altitude, and the declination of the sun. These differences directly affect the rhythm of activity of all species: in cold, northern winters, some animals simply curl up and hibernate; in hot, shadeless deserts, lizards and serpents seek the cool under rocks or under the earth itself. (That is why so many desert fauna are reptiles: reptiles are crawlers.) Mankind generally avoids the extremes. People pass, but do not stay; hence such names as the "Empty Quarter" in the Arabian desert. Only greed—the discovery of gold or petroleum—or the duties of scientific inquiry can overcome a rational repugnance for such hardship and justify the cost.

In general the discomfort of heat exceeds that of cold.* We all know the fable of the sun and wind. One deals with cold by putting on clothing, by building or finding shelter, by making fire. These techniques go back tens of thousands of years and account for the early dispersion of humanity from an African origin to colder climes. Heat is another story. Three quarters of the energy released by working muscle takes the form of heat, which the body, like any machine or engine, must release or eliminate to maintain a proper temperature. Unfortunately, the human animal has few biological devices to this purpose. The most important is perspiration, especially when reinforced by rapid evaporation. Damp, "sweaty" climes reduce the cooling effect of perspiration—unless, that is, one has a servant or slave to work a fan and speed up evaporation. Fanning oneself may help psychologically, but the real cooling effect will be canceled by the heat produced by the motor activity. That is a law of nature: nothing for nothing; or in technical terminology, the law of conservation of energy and mass.

The easiest way to reduce this waste problem is not to generate heat; in other words, keep still and don't work. Hence such social adaptations as the siesta, which is designed to keep people inactive in the

* In general. It is easier to stay warm if one has the means—the appropriate clothing and housing. Faujas de Saint Fond, a French traveler of the late eighteenth century, remarks that whereas English cultivators lived snug and warm thanks to coal fuel, French peasants often kept to bed in winter, thereby aggravating their poverty by forced idleness.

heat of midday. In British India, the saying had it, only mad dogs and Englishmen went out in the noonday sun. The natives knew better.

Slavery makes other people do the hard work. It is no accident that slave labor has historically been associated with tropical and semitropical climes.* The same holds for division of labor by gender: in warm lands particularly, the women toil in the fields and tend to housework, while the men specialize in warfare and hunting; or in modern society, in coffee, cards, and motor vehicles. The aim is to shift the work and pain to those not able to say no.

The ultimate answer to heat has been air conditioning. But that came in very late—really after World War II, although in the United States it was known before in cinemas, doctors' and dentists' offices, and the workplaces of important people such as the denizens of the Pentagon. In America, air conditioning made possible the economic prosperity of the New South. Without it, cities like Atlanta, Houston, and New Orleans would still be sleepy-time towns.

But air cooling is a costly technology, not affordable by most of the world's poor. Moreover, it simply redistributes the heat from the fortunate to the unfortunate. It needs and consumes energy, which generates heat in both the making and using (nothing for nothing), thereby raising the temperature and humidity of uncooled surroundings—as anyone knows who has walked near the exhaust vent of an air conditioner. And of course, for most of history it was not available. The productivity of labor in tropical countries was reduced accordingly.†

So much for direct effects. Heat, especially year-round heat, has an even more deleterious consequence: it encourages the proliferation of life forms hostile to man. Insects swarm as the temperature rises, and parasites within them mature and breed more rapidly. The result is faster transmission of disease and development of immunities to countermeasures. This rate of reproduction is the critical measure of the danger of epidemic: a rate of 1 means that the disease is stable—one

* Cf. Adam Smith, *Wealth of Nations,* Book IV, ch. 7, Part 2: "In all European colonies the culture of the sugar-cane is carried on by negro slaves. The constitution of those who have been born in the temperate climate of Europe could not, it is supposed, support the labour of digging the ground under the burning sun. . . . "

† Not everyone would agree. Cf. Blaut, *The Colonizer's Model,* p. 70, who says that it has become clear, "from many sources of evidence including physiological studies, that human bodies of all sorts can labor as effectively in the tropics as elsewhere if the bodies in question have had time to adjust to tropical conditions." Blaut is ideologically opposed to the notion that the favors of nature may be unequally distributed.

new case for one old. For infectious diseases like mumps or diphtheria, the maximum rate is about 8. For malaria it is 90. Insect-borne diseases in warm climes can be rampageous.[10] Winter, then, in spite of what poets may say about it, is the great friend of humanity: the silent white killer, slayer of insects and parasites, cleanser of pests.

Tropical countries, except at higher altitudes, do not know frost; average temperature in the coldest month runs above 18°C. As a result they are a hive of biological activity, much of it destructive to human beings. Sub-Saharan Africa threatens all who live or go there. We are only beginning to know the extent of the problem because of the appearance of new nations with armies and medical examinations for recruits. We now know for example that many people harbor not one parasite but several; hence are too sick to work and are steadily deteriorating.

One or two examples will convey the gruesome picture.

Warm African and Asian waters, whether canals or ponds or streams, harbor a snail that is home to a worm (schistosome) that reproduces by releasing thousands of minute tailed larvae *(cercariae)* into the water to seek and enter a mammal host body through bites or scratches or other breaks in the skin. Once comfortably lodged in a vein, the larvae grow into small worms and mate. The females lay thousands of thorned eggs—thorned to prevent the host from dislodging them. These make their way to liver or intestines, tearing tissues as they go. The effect on organs may be imagined: they waste the liver, cause intestinal bleeding, produce carcinogenic lesions, interfere with digestion and elimination. The victim comes down with chills and fever, suffers all manner of aches, is unable to work, and is so vulnerable to other illnesses and parasites that it is often hard to say what is killing him.

We know this scourge as snail fever, liver fluke, or, in more scientific jargon, as *schistosomiasis* or *bilharzia,* after the physician who first linked the worm to the disease in 1852. It is particularly widespread in tropical Africa, but afflicts the whole of that continent, plus semitropical areas in Asia and, in a related form, South America. It poses a particular problem wherever people work in water—in wet rice cultivation, for example.[11]

In recent decades, medical science has come up with a number of partial remedies, although the destructive power of these vermicides makes the cure almost as bad as the disease. The same for chemical attacks on the snail host: the molluscicides kill the fish as well as the snails. The gains of one year are canceled by the losses of the next: schistosomiasis is still with us. It was even deadlier in the past.

Better known is *trypanosomiasis*—a family of illnesses that includes nagana (an animal disease), sleeping sickness, and in South America Chagas' disease. The source of these maladies is trypanosomes, parasitic protozoans so named because of their augur-shaped bodies; they are borers. The *Trypanosoma brucei* is also "a wily beast, with a unique ability to alter its antigens."[12] We now know a hundred of these; there may be thousands. Now you see it, now you don't. The body's immune system cannot fight it, because it cannot find it. The only hope for resistance, then, is drugs—still in the experimental stage—and attacks on the vector.

In the case of African trypanosomiasis, the vector is the tsetse fly, a nasty little insect that would dry up and die without frequent sucks of mammal blood. Even today, with powerful drugs available, the density of these insects makes large areas of tropical Africa uninhabitable by cattle and hostile to humans. In the past, before the advent of scientific tropical medicine and pharmacology, the entire economy was distorted by this scourge: animal husbandry and transport were impossible; only goods of high value and low volume could be moved, and then only by human porters. Needless to say, volunteers for this work were not forthcoming. The solution was found in slavery, its own kind of habit-forming plague, exposing much of the continent to unending raids and insecurity. All of these factors discouraged intertribal commerce and communication and made urban life, with its dependence on food from outside, just about unviable. The effect was to slow the exchanges that drive cultural and technological development.* (Table 1.1 shows data on tropical and semitropical diseases.)

* Some scholars would not agree with this historical sequence. They see the slave trade as not indigenous but rather imported by the European demand for labor. This trade "changed trypanosomiasis from an endemic disease to which both humans and cattle had some immunity and exposure, which was kept in check by the relatively full occupation of lands into a devastating disease that, since the end of the last century, has indeed prevented the development of animal husbandry in some areas of Africa." Blaut, *The Colonizer's Model*, pp. 79–80, who miscites Giblin, "Trypanosomiasis Control." (Giblin is concerned, not with the effects of Atlantic slaving beginning in the sixteenth century, but rather those of colonial administration from the 1890s [pp. 73–74], a very different story.) Even on this later period, scholars disagree. Cf. Waller, "Tsetse Fly," p. 100.

Note, moreover, that there is abundant testimony to the existence of slavery in Africa long before the coming of the Europeans, as well as of an active slave trade by Arabs seeking captives for Muslim lands. Gordon, *Slavery*, pp. 105–27. On the other hand, whatever the origins and effects of these earlier manifestations, the Atlantic trade certainly aggravated them. Cf. Law, "Dahomey and the Slave Trade"; and Lovejoy, "Impact." Even here, however, Eltis, *Economic Growth*, p. 77, disagrees.

TABLE 1.1. Scope and Incidence of Tropical Diseases, 1990

Disease	*Countries Affected*	*Number Infected ('000)*	*Number at risk ('000,000)*
Malaria	103	270,000	2,100
Schistosomiasis	76	200,000	600
Lymphatic filariasis	76	90,000	900
River blindness	34	17,000	90
Chagas' disease	21	16–18,000	90
Leishmaniasis	80	12,000	350
Leprosy	121	10–12,000	1,600
African sleeping sickness	36	25	50

SOURCE: World Health Organization (WHO), Special Program for Research and Training in Tropical Diseases, 1990, cited in Omar Sattaur, "WHO to Speed Up Work on Drugs for Tropical Diseases," p. 17.

To be sure, medicine has made great strides in combatting these maladies. Its role goes back almost to the beginning of the European presence: Europeans, physically unprepared for the special rigors and dangers of warm climes, brought doctors with them. In those early days, of course, ignorant if well-intentioned physicians did more harm than good; but they did put people out of their misery. Not until the second half of the nineteenth century did the germ theory of disease lay the basis for directed research and effective prevention and treatment. Before that, one relied on guesswork empiricism and imagination. These techniques, fortunately, were not haphazard. The stress on observation and the reality principle—you can believe what you see, so long as you see what I see—paid off beyond understanding.

Take the biggest killer worldwide: malaria. Before the discovery of microbic pathogens, physicians attributed "fevers" to marshy miasmas—wrong cause, but not an unreasonable inference from proximity. So the French in Algeria, appalled by losses to illness, undertook systematic drainage of swamps to get rid of bad air *(malaria)*. These projects may or may not have cleared the air, but they certainly banished mosquitoes. Military deaths from malaria fell by 61 percent in the period 1846–48 to 1862–66, while morbidity fell even more sharply from the 1830s to the 1860s.[13] Such measures, moreover, yielded beneficial side effects. We do not have figures for civilians, but their health must also have improved, natives as well as French colonists. Say what

you will about French policies and actions in Algeria, they enabled millions of Algerians to live longer and healthier. (To which an Algerian Muslim might reply, drainage also increased the land available for European colonists.)

The Algerian experience illustrates the gain to environmental improvement: better to keep people from getting sick than to cure them once ill. Over the past century, medicine and public hygiene in alliance have made an enormous difference to life expectancy—the figure for tropical and poor populations have been converging with those of kinder, richer climes. Thus in 1992 a baby born in a low-income economy (population over 1 billion people if one excludes China and India) could expect to live to fifty-six, whereas one born in a rich country (population 828 million) could look forward to seventy-seven years. This difference (37.5 percent longer), not small but smaller than before, will get smaller yet as poor countries grow richer and gains in longevity in rich societies bump up against a biological ceiling and the environmental diseases of affluence.[14] The most decisive improvements have occurred in the care of infants (under one year): a fall in mortality from 146 per thousand live births in 1965 in the poorest countries (114 in China and India) in 1965 to 91 in 1992 (79 in India, 31 in China). Still, the contrast with rich countries remains: their low infant death rates fell even faster, 25 to 7, over the same period.[15] They can't go much lower.

All of this does not justify complacency. Modern medicine can save babies and keep people alive longer, but that does not necessarily mean they are healthy. Indeed, mortality and morbidity are statistically contradictory. Dead people do not count as ill, as the researcher for the American tobacco industry implied when he argued straightfacedly that estimates of the high health costs of smoking should be reduced by smokers' shorter life expectancy. So, conversely, for the tropics: antibiotics, inoculations, and vaccinations save people, but often to live sickly lives. The very existence of a specialty known as tropical medicine tells the character of the problem. As much as this field has accomplished, the bill, among scientific researchers as well as among indigenous victims and sundry imperialists, has been high.[16]

Meanwhile prevention is costly and treatment often entails a protracted regimen of medication that local facilities cannot supply and that patients find hard to use. As of 1990, most people with tropical illnesses lived in countries with average annual incomes of less than $400. Their governments were spending less than $4 per person on health care. No surprise, then, that pharmaceutical companies, which say it

costs about $100 million to develop a drug or vaccine and bring it to market, are reluctant to cater for that kind of customer.[17] Even in rich countries, the cost of medication can exceed patients' resources and the tolerance of medical insurance. The latest therapies for AIDS, for example, cost $10,000 to $15,000 a year for a lifetime—an unthinkable fortune for Third World victims.[18]

Finally, habits and institutions can favor disease and thwart medical solutions. Diseases are almost invariably shaped by patterns of human behavior, and remedies entail not only medication but changes in comportment. There's the rub: it is easier to take an injection than to change one's way of living. Look at AIDS in Africa. In contrast to other places, the disease afflicts women and men equally, originating overwhelmingly in heterosexual contacts. Epidemiologists are still seeking answers, but among the suggested factors are: widespread and expected male promiscuity; recourse to anal sex as a technique of birth control; and the persistent wound of female circumcision (clitorectomy), intended as a deterrent to sexual pleasure and appetite. None of these vectors is properly medical, so that all the doctors can do is alleviate the suffering of victims and delay the onset of the full-blown disease. Given the poverty of these societies, this is not much.

Aside from material constraints, modern medicine must also reckon with ideological and religious obstacles—everywhere, but more so in poorer, technically backward societies. Traditional nostrums and magical invocations may be preferred to foreign, godless remedies. A science-oriented Westerner will dismiss such practices as superstition and ignorance. Yet they may offer psychosomatic relief, and native potions, even if not chemically pure and concentrated, do sometimes work. That is why modern scientists and drug companies spend money exploring the virtues of exotic *materia medica.*

The pattern of occasional empiricist success, in combination with anticolonist resentment and a sentimental attachment to indigenous culture (to say nothing of the vested interest of old-style practitioners), has given rise to political and anthropological criticisms of tropical (modern) medicine and a defense, however guarded, of "alternative" practice.[19] For Africa, this literature argues that tropical medicine, in its overweening pride and its contempt for indigenous therapies, has done less than it might have; further, that Europe-drawn frontiers and European-style commercial agriculture have wiped out traditional barriers to disease vectors (bugs, parasites, etc.). Even "perfectly sensible" measures of public health may offend indigenous susceptibilities, while

medical tests and precautions may be seen as condescending and exploitative.[20]

Water is another problem. Tropical areas generally average enough rainfall, but the timing is often irregular and unpredictable, the downpours anything but gentle. The drops are large; the rate of fall torrential. The averages mean nothing when one goes from one extreme to the other, from one year or season or one day to the next.[21] In northern Nigeria, 90 percent of all rain falls in storms of over 25 mm. per hour; that makes half the average monthly rainfall at Kew Gardens, outside London. Java has heavier pours: a quarter of the annual rainfall comes down at 60 mm. per hour.

In such climes, cultivation does not compete easily with jungle and rain forest: these treasure houses of biodiversity favor every species but man and his limited array of crops. The result is a kind of war that leaves both nature and man losers. Attempts to cut down valuable plants and timber take the form of wasteful, slashing hunts. Nor does the exuberance of the jungle offer a good clue to what is possible under cultivation. Clear and plant, and the unshaded sun beats down; heavy rains pelt the ground—their fall unbroken by leaves and branches—leach out soil nutrients, create a new kind of waste. If the soil is clayey, composed in large part of iron and aluminum oxides, sun plus rain bakes the ground into a hard coat of armor. Two or three years of crops are followed by an indefinite forced fallow. Newly cleared ground is rapidly abandoned, and soon the vines and tendrils choke the presumptuous dwellings and temples. Again towns cannot thrive, for they need to draw on food surpluses from surrounding areas. Urbanization in Africa today, often chaotic, rests heavily on food imports from abroad.

At the other extreme, dry areas turn to desert, and the sands of the desert become an implacable invader, smothering once fertile lands on the periphery. Around 1970, the Sahara was advancing into the Sahel at the rate of 18 feet an hour—in geological terms, a gallop.[22] Such expansions of wasteland are a problem in all semi-arid climes: on the Great Plains of the United States (remember the Okies of Steinbeck's *Grapes of Wrath*), in the Israeli Negev and the lands just east of the Jordan, in western Siberia. Less rainfall, and the crops die of thirst and the topsoil blows away. In temperate latitudes, however, the crops come back when rainfall picks up; tropical and semitropical deserts are less forgiving.

One answer to irregular moisture is storage and irrigation; but this is countered in these regions by incredibly high rates of evaporation. In the Agra region of India, for example, rainfall exceeds the current needs of agriculture for only two months in the year, and the excess held in the soil in those wet months dries up in only three weeks.

It is no accident, then, that settlement and civilization followed the rivers, which bring down water from catchment areas and with it an annual deposit of fertile soil: thus the Nile, the Indus, the Tigris and Euphrates. These centers of ancient civilization were first and foremost centers of nourishment—though the Bible reminds us that even the Egyptians had to worry about famine. Not all streams are so generous. The Volta drains over 100,000 square kilometers in West Africa—half the area of Great Britain—but when low, averages at its mouth a meager flow of only 28 cubic meters per second, as against 3,500–9,800 at the peak. Drought in the Volta basin comes at the hottest and windiest time of year, and loss of water to evaporation is discouragingly high.[23]

Then we have the catastrophes—the so-called once-in-a-hundred-year floods and storms and droughts that happen once or twice every decade. In 1961–70, some twenty-two countries in "climatically hostile areas" (flood-prone, drought-prone, deserts) suffered almost $10 billion in damages from cyclones, typhoons, droughts, and similar disasters—almost as much as they got in loans from the World Bank, leaving just about nothing for development. The cyclone of 1970 in Bangladesh, which is a sea-level plain and easily awash, killed about half a million and drove twice that number from their homes. In India, which has been striving to achieve 2–3 percent annual growth in food crops, one bad growing season can lower output by over 15 percent.[24] The impact of such unexceptional exceptions can be extremely costly even to rich societies, witness the losses due to Hurricane Andrew in 1992 and the great midwestern floods of 1993 and 1997 in the United States. For marginally poor populations living on the edge of subsistence, the effects are murderous. We know something about these if there are television cameras present; if not, who hears or sees the millions who drown and starve? And if they are unheard and unseen, who cares?

Life in poor climes, then, is precarious, depressed, brutish. The mistakes of man, however well intentioned, aggravate the cruelties of nature. Even the good ideas do not go unpunished. No wonder that these zones remain poor; that many of them have been growing poorer; that numerous widely heralded projects for development have failed

abysmally (one hears more of these before than after); that gains in health peter out in new maladies and give way to counterattacks by old.

Africa especially has had a hard struggle against these handicaps, and although much progress has been made, as mortality rates and life expectancy data show, morbidity remains high, nourishment is inadequate, famine follows famine, and productivity stays low. Once able to feed its population, it can do so no longer. Foreign aid is primarily food aid. People there operate at a fraction of their potential. Government cannot cope. In view of these stubborn natural burdens, the amazing thing is that Africans have done so well as they have.

Yet it would be a mistake to see geography as destiny. Its significance can be reduced or evaded, though invariably at a price. Science and technology are the key: the more we know, the more can be done to prevent disease and provide better living and working conditions. We can clearly do more today than yesterday, and the prognosis for tropical areas is better than it used to be. Meanwhile improvement in this area requires awareness and attention. We must take off the rose-colored glasses. Defining away or ignoring the problem will not make it go away or help us solve it.

"I Have Always Felt Reinforced and Stimulated by the Temperate Climate"

Personal experiences can be misleading, if only because of the variance among individuals. One person's discomfort is another's pleasure. Still, the law of heat exhaustion applies to all, and few manage to work at full capacity when hot and wet. Here is a Bangladeshi diplomat recalling his own experience and that of compatriots when visiting temperate climes:

"In countries like India, Pakistan, Indonesia, Nigeria and Ghana I have always felt enervated by the slightest physical or mental exertion, whereas in the UK, France, Germany or the US I have always felt reinforced and stimulated by the temperate climate, not only during long stays, but even during brief travels. And I know that all tropical peoples visiting temperate countries have had a similar experience. I have also seen hundreds of people from the temperate zone in the tropics feeling enervated and exhausted whenever they were not inside an air-conditioned room.

"In India and other tropical countries I have noticed farmers, industrial labourers, and in fact all kinds of manual and office workers working in slow rhythm with long and frequent rest pauses. But in the temperate zone I have noticed the same classes of people working in quick rhythm with great vigour and energy, and with very few rest pauses. I have known from personal experience and the experience of other tropical peoples in the temperate zone that this spectacular difference in working energy and efficiency could not be due entirely or even mainly to different levels of nutrition."[25]