

CLIMATE MAKES THE MAN

BY CLARENCE A. MILLS

HUMAN ability and accomplishment rise high in the earth's cool climates; people express an undeniable lusty vigor. In other regions, those blanketed by depressive moist heat, men are more complacent or passive and life flows on at a leisurely pace. Varying racial heritages account for part of this contrast. Infectious and parasitic diseases greatly exaggerate the tropical handicap. Excessive rainfall and leaching of the soil interfere with the production of wholesome foods to sustain physical vigor. But overlying all such factors is the influence climate exerts directly upon man himself.

Ellsworth Huntington first put forward the well-supported thesis that climate does indeed influence and direct the course of human progress. The writer's contribution to the subject has been to explore how climate accomplishes these effects — to detail the mechanism

of its action on body and mind.

In order to understand this action, one must consider the human body as a machine. Its working efficiency is about the same as that of a good motor: both waste roughly three-quarters of their combustion energy in using the other quarter. Because this unused energy must be given off as waste heat, an effective cooling system is needed for its rapid dissipation. It is here that climatic dominance has its roots. Unless this heat can be given off readily, the body must either bank its fires or face a rise in internal temperature. In the automobile motor, temperatures may rise two hundred degrees without much damage; but in the delicate human machine, just a little fever may produce serious trouble.

The blood in our vessels brings the body heat out to the skin surfaces for dissipation in much the same manner as water circulating

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around an automobile engine. For brief periods of stress, however, we have an additional means of heat loss — the evaporation of sweat — which permits us to continue physical exertion even in very warm surroundings. Since it is not natural to continue voluntarily with a vigor which calls for free perspiration over any long period of time, a person tends to reduce his efforts to the point where other avenues of heat loss can care for his needs.

Thus it is that man and other warm-blooded animals reduce their activity and internal combustion rates as rising outside temperatures make body heat loss more difficult. Middle temperate regions of the earth seem to provide our bodies with most nearly the proper ease of cooling for highest vitality. There growth is most rapid, development most accelerated, resistance to infection highest, and energy for thought or action most abundant.

In the moist heat of tropical lowlands, or in the severe summer heat waves of cooler lands, the tissue fires burn less brightly and life is reduced more nearly to the vegetative level. Health loses its buoyant, lusty quality and assumes a more negative or passive character. Lowered body resistance allows infectious diseases to run rampant.

(Northerners are fortunate that this lowered vitality in summer heat is accompanied by freedom from sudden storm changes, otherwise respiratory diseases would prove more deadly.)

The age-old belief in the early tropical maturity of girls is now known to be untrue. It may well have held for mankind twenty thousand years ago when present middle temperate latitudes had polar climates and optimal conditions for man were to be found only in the outer tropical or subtropical lands. Kentucky then had a climate like Greenland's today, with the crackling, grinding edge of the enormous ice sheet lying just across what is now the Ohio River. Medical literature of the last two thousand years has carried along this fallacy of early tropical maturity, so its origin may indeed date back to the last Ice Age.

Growth today is most rapid and maturity earliest in the cool climates of middle temperate latitudes. Nowhere do girls begin their sexual cycles so early as in the upper half of the Mississippi basin or in northern France. Experimental animals have thoroughly verified this quickening effect of cool surroundings. The matter is no longer one of conjecture or blind belief. The menses of girls

begin at the age of fourteen or fifteen in tropical lowland heat, with fertility coming on at an average age of about eighteen; in temperate coolness, the corresponding ages are approximately thirteen and fifteen.

Domestic livestock is just as much affected as are people by depressive heat and stimulating coolness. Hogs, which reach the 200-pound slaughter size in six to seven months in Iowa or Illinois, take fifteen months in Panama and that represents almost their full growth in the tropics. In cool climates, they may go on to four hundred or five hundred pounds. The Iowa or Dakota steer will reach the 1000-pound size in fifteen to eighteen months, while four to five years are required on tropical ranches. The slow-growing tropical meats are tough and lower in B vitamin content than are the tender, juicy cuts from temperate zone animals. This may in part be due to the poor quality of the coarse tropical grasses or to a leaching out of vital minerals by the heavy rainfall.

As it happens, a deficiency of B vitamins in tropical meats is doubly unfortunate, since the body's requirement for certain of these vitamins is highest in hot environments. Several of the B vitamins act as combustion catalysts in the

cells, making possible the burning of glucose and the liberation of adequate energy to run our vital machinery. They are, in this respect, somewhat analogous to the tetraethyl lead added to quicken the burning of gasoline in automobile motors. Without them we weaken and die; with them, in optimal amounts, we are most healthy.

Animals subjected to continuous heat do best when their food contains twice as much thiamin (B₁) as is needed for optimal response in the cold. Certain other B fractions are also needed in larger amounts in the heat. Yet tropical meats are deficient in these very substances; thus people in hot climates, especially in need of these vitamin catalysts, face a two-fold handicap.

II

These drawbacks of hot environments apply not only to people in equatorial lands, but also to people of the southern United States, where stagnant heat holds sway there for five months of every year. There is today a growing interest in nutritional problems of the South — not just in the prevention or cure of vitamin deficiency diseases, but in the steps necessary to give the people optimal health. Unfortunately, too

many medical scientists have focussed their attention upon deficiency diseases rather than on the means of maintaining good health.

Tropical man — well over half the human race — faces many disadvantages from living under his eternal blanket of depressive moist heat. Nutritional discoveries which free him from these hindrances, or lessen their retarding influences, may do much to lift such population masses out of their low estate. To eliminate their indolence, filth and disease will call for energy; and that energy can come to them only from a more active burning of glucose in their body cells. Tropical people will approach the levels of temperate zones more rapidly only when their vital machinery is brought to optimal functioning.

The coolness of temperate lands offers man his chance for a most active existence because proper ease of heat loss favors a rapid combustion in the tissues and a high head of working energy. Vitality runs high in all its aspects. There is also a dark side to the picture, however, for in these regions the stress of activity becomes too great for our bodies to stand. Signs of exhaustion and breakdown appear, involving particularly those parts of the body carrying the load of supporting the tissue fires. Most in-

involved in this breakdown is the vascular system (heart and blood vessels) which must carry all food and oxygen to the cells. High blood pressure, arteriosclerosis and heart failure are decidedly more common in people of the earth's stimulating climates than in tropical residents of similar age. Only in stimulating climates does acute exhaustion occur in the bone marrow and other tissues where the red cells are produced, resulting in the disease known as pernicious anemia.

Another disease, diabetes — which represents (so far as we now know) a breakdown in the body's ability to change foods into the special kind of glucose needed by the tissue fires — is also worse in these same regions and of little moment among tropical populations. Exhaustion occurs also in other body organs concerned with keeping up food burning in the cells. This combustion is most rapid in the brain and nervous tissues — perhaps explaining the high rate of nervous breakdown among energetic populations.

III

The action of climate upon man is not represented only by this dominance over tissue combustion. Storms and sudden weather change

provide another factor of great importance. Certain large areas of the earth have great turbulence of the atmosphere, with frequent and sharp weather changes; other regions are always calm and placid. Most of North America falls into the stormy category; it is the most tempestuous of all continents. Only in the plateau and desert regions of Mexico and the Southwest is there freedom from storms.

Just how changeable weather brings on respiratory and rheumatic infections is not known, but it seems a fact that colds, sinusitis, pneumonia and rheumatic troubles are worst in the stormy regions of the earth and during the most stormy seasons of each year. Body chilling, as the rains fall and temperatures drop, is probably an important factor, but there is ground for suspecting that the rise and fall in barometric pressure also plays a part. Body tissues tend to take up water and swell as outside pressures decline. Such swelling interferes with their function and perhaps opens the way for infections to start in the throat, where disease-producing organisms constantly lurk.

Each sudden weather change brings its crop of colds and other respiratory infections through the colder half of the year, while such

illnesses remain at a minimum through the calm warmth of summer. It is this lessening of the storms, and not the more plentiful sunlight of the summer months, which brings us freedom from colds and other respiratory troubles. Actually our tissues and white blood cells fight infection best in winter cold, when their combustion rate is highest. Were northern winter storminess to be inflicted suddenly upon a tropical population, there would be a holocaust of pneumonia deaths. Even active northerners are hard hit by the first few cold waves of autumn.

The disturbances brought by pressure changes do more than bring on infectious attacks. People think less clearly on days of falling pressure and are then more likely to become despondent and attempt suicide. Cloudy mental functions at such times lead to feelings of futility and frustration and these in turn to an increased irritability which causes us to snap and snarl on slight provocation. Domestic quarrels and short tempers in the home lead to real bitterness on the falling pressure evenings before a storm. A knowledge of these facts and a small measure of forbearance at such times would add greatly to peace at home and abroad. (Domestic animals show this same increased

restlessness and irritability before a storm; it is best to restrict the petting of strange dogs or cats to the clear, cool days of rising pressure).

In the energizing climates of middle temperate latitudes, the seasons bring changes almost as great as the differences between temperate and tropical regions. Energy and vitality rise high through the months of winter cold and are subdued by summer heat; this is most strikingly true during the summer, when severe heat settles over the country for weeks at a time. People then tend to become distinctly more "tropical" in their reactions.

This seasonal swing in the vigor and vitality of human beings carries over into their offspring, for children conceived during the cooler half of the year are more vigorous, more likely to secure a college education and achieve success in life. As Huntington and Peterson have shown, the names of persons conceived in the winter and spring months largely fill the pages of *Who's Who*. Such persons live to a riper old age and leave a more lasting imprint on human affairs.

The mind is affected fully as

much as the body through these environmental influences over combustion. Intelligence and aptitude tests of college students in middle temperate latitudes result in sharply lower ratings (30-40 per cent) if the tests be given in summer heat; but in such northern states as Minnesota, Wisconsin and Maine, similar classes of summer students show no such slump. Even mid-winter testing in the South gives results about 25 per cent below those of the North, but much of this may be due to the more backward educational system in the South and the migration of the better students to Northern colleges. However, experimental animals raised in warm surroundings show this same mental sluggishness. The matter seems beyond question and its significance in life should receive due appreciation.

No matter what one's family or racial heritage, the climatic background of his life will always be acting to vivify and encourage his efforts or to smother him into sluggish passivity and complacency. Here lies a truly dominating force for mankind; to a considerable extent, climate really does make the man.





VICHY
PALACE HOTEL

There was a crooked man,
And he walked a crooked mile,
And he found a crooked
sixpence,
Beside a crooked stile.
He bought a crooked cat,
Which caught a crooked mouse,
And they all lived together
In a little crooked house.



LAVAL

COLLABORATION



PAVELICH



HORTHY



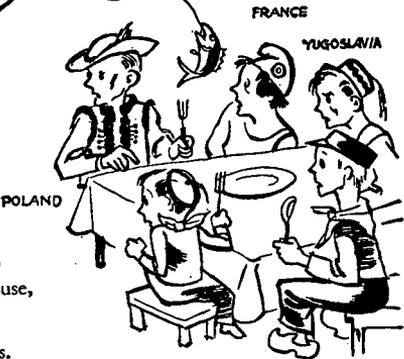
ANTONESCO

Three blind mice!
Three blind mice!
See how they run!
See how they run!

They all ran after the farmer's wife,
She cut off their tails with a carving knife,
Did you ever see such a thing in your life
As three blind mice?



GOERING



FRANCE

YUGOSLAVIA

POLAND

Little Tommy Tittlemouse,
Lived in a little house,
He caught fishes
From other men's dishes.

Derzo of Helen