

THE TROPICS AND THE WHITE MAN

THE THIRTEENTH ANNUAL CHARLES FRANKLIN CRAIG LECTURE

HERBERT C. CLARK¹

From the time of the invasion of the tropics by the white race of the north the question of what happens to it when permanently established in the tropics has been studied and debated. It is still a controversial subject.

How can one study the race and its succeeding generations over a long period of time in regard to the effects of climate *per se* without being able to isolate the race from all social, economic and disease factors? Considerable evidence has accumulated from animal experimentation and from physiological investigations but the problem of colonization has not been completely solved.

Price (1) in his book *White Settlers of the Tropics* divides the white races into those of North European ancestry and those of South European ancestry. He is also careful to separate the *sojourner* from the *permanent settler* whose objective is colonization. One of his conclusions is as follows: "To the racial purist the future that lies before the white settler in most parts of the tropics is far from promising."

Mills (2) insists that migration from the temperate zone to the tropics does indeed entail a developmental retardation, no matter how great the precautions taken to avoid dietary deficiencies and disease dangers. He thinks that scientific evidence in recent years indicates that man responds to his climatic environment in no uncertain manner. His energy level and vitality, his inventiveness and ingenuity, his progressiveness and ability to accomplish things, all seem to depend largely on the degree of climatic stimulation to which he is subjected. Lack of storm changes and too high a mean temperature level lessen his energy and aggressiveness. On the other hand, Mills in discussing mental stability states that a prolonged sojourn in tropical calmness and warmth will often make possible desired mental relaxation, just as it reduces physical load or stress on the heart. Chronic arthritic disorders cause less discomfort when the individual resides in the tropics. Some believe that climate cannot be accurately reproduced experimentally even when temperature, humidity, air movement and dust content of the air are controlled.

Cilento (3) courageously states that the conquest of climate is essentially the conquest of disease.

Manson, Sambon, Guiterras and Gorgas (4) believed that climate *per se* has no deleterious effect on the white man. Gorgas (5) believed that any part of the tropics could be colonized by the northern white race if protected against disease and supplied with safe water, food and shelter.

Chamberlain (6) with experience in the Philippines and the Panama Canal, claims that by far the large part of sickness and death formerly attributed to tropical climate is not due to climate *per se* but to isolation, tedium, nostalgia,

¹ Director, Gorgas Memorial Laboratory, Panama, R. de P.

venereal diseases, alcoholic excess, and to infection with specific parasites whose invasion is now almost entirely preventable. He feels that facts justify the hope that the progress of tropical sanitation may ultimately permit the permanent colonization of certain parts of the tropics.

Castellani (7) does not believe it possible for the northern white race to colonize the low, hot, moist regions of the tropics.

Manson and Sambon (8) direct attention to the fact that in 1665 eight Dutch soldiers were sent by The Netherlands East India Company to the little island of Kissa, sixteen miles off the most easterly point of Timor. A fort was built but the Company forgot all about this lonely outpost and they soon realized they were marooned. They had their wives with them. They set to work to build houses and cultivate the land. The descendants of these couples still remain. In two and a half centuries the 16 have risen to 300 and they are a strong, sturdy race showing no signs or evil effects from interbreeding. They still keep their blood pure. They work hard and the consequence is that after 250 years in this tropical island they are still fertile, indeed prolific, and still keep their Northern European characteristics. These facts are taken from the *The Dutch East* by MacMillan Brown. Australia is slowly colonizing with Northern Whites the best part of their arid regions and thus far are pleased with the results. Observations on later generations are still very much to be desired.

There are many colonies of both Northern and Southern European whites in Brazil who have thrived for years and even a few generations under somewhat unfavorable climatic conditions. Others have failed or degenerated.

Dr. Vincent (9) always took pleasure in pointing out the fact that Malthus in 1798 attempted to forecast the future of the population of the globe. It is significant that he included the tropics in his purview. He disputed vigorously the idea then current that tropical food supplies were automatically abundant. Dr. Vincent believes that the trend of population and the source of future food supply must be toward the equator. He also feels that there is a temptation, perhaps unduly, to exult over what has already been accomplished in sanitation and that we should keep in mind the difficulty of climate, international relations and the intermingling of races. Given all of the benefits of modern civilization he feels there might still exist the hazard to a fullness of health in the low tropics.

Broek (10) takes up the question of pioneering in new lands. After 400 years of migration by the European peoples, there are still large areas which they have avoided or only thinly settled. The remaining sparsely settled regions are those in which climate is a serious drawback—the hot wet regions, the hot dry regions the cold regions. At least it is not considered today that these regions are uninhabitable; the problem is to find techniques for overcoming the climatic drawbacks; but this involves high costs. There is an increased interest in colonization at present because of the search for places where European refugees can settle. The view is becoming more optimistic about the ability of the white man to remain healthy in these regions. It seems quite possible with good diets, proper sanitation, regular exercise, good housing and perhaps air conditioning. All of these things imply a high standard of living. There will probably not be much settle-

ment in such regions by large numbers of the white races unless there are very powerful reasons for it. The fact remains that there are potential regions for immigration. The majority of the whites who at present live in the tropics as sojourners or settlers, belong to the social-economic upper strata relying on other races for the laboring class.

Johnson (11) recently discussed tropical deterioration or tropical neurasthenia as it occurred in white troops during World War II. Evidence was collected by medical surveys in Pacific and Asiatic areas where fighting was prolonged and severe. Troops were efficient after continuous presence for as much as 2 years in severe tropical environments. Men react, under certain well recognized types of stress, similarly in tropical, temperate and cold environments. Tropical deterioration in relation to nutritional requirements offered no support to the proponents of a large intake of vitamins or a low intake of animal protein.

Bazett (12) states that the primary need of the tropics is the assurance of an adequate food supply; the second is the provision of improved living conditions. He claims that emphasis has been placed on the disability of individuals to do muscular work in the tropics but that such work can be performed efficiently; it is limited only in quantity, not in quality. Mental work on the contrary suffers on both counts. He claims that the impression is unwarranted that large scale air-conditioning of indoor working and sleeping quarters in the tropics is impracticable. Such conditions could be attained in Bombay throughout the year with an energy load for air-conditioning which would be far below the normal heat load for heating houses in Philadelphia or New York through the winter.

World War II has increased the growing apprehension of the tremendous rise in world population and the fear that in another century the food supply will not be sufficient. The future is pointing more and more to the tropics and the world seems to believe that it is for the northern white man to decide the course of development in those regions.

William Vogt, Pan American Union conservation expert writing in the United States Department of Agriculture Publication "Foreign Agriculture" says the conservation problem in Latin America is even more serious than in the United States. He estimated that South America now has about 2.2 acres of land per capita suitable for growing food. He believes that by 1983, merely as a result of population increase, the amount of arable land will be decreased to 1.1 acres per capita. This adds another reason that will operate against any idea for colonization by the white race in the tropics of our hemisphere.

We have all had opportunities in recent years to see the invasion of the tropics by large American business organizations and to observe the building and operation of the Panama Canal. Such organizations have required only their executive and administrative personnel on tropical locations, sojourners rather than settlers. The remainder of the employees and labor forces have of necessity been drawn from citizens of the countries in which they operate. Our assistance should be directed to the *home, health and transportation problems* for the improvement of all races in the tropics. Small migrations into the tropics by the northern white race will in a few generations be lost because of race intermingling. It

is worth repeating here the statement of Price: "To the racial purist the future that lies before the white settler in most parts of the tropics is far from promising."

The economic integration of the world will eventually force a solution of the white man's place in the tropics.

The knowledge of the effects of climate upon the northern white man is so incomplete that no answer can be given at present except to cite the Dutch Colony on the island of Kissa, the white settlements in Australia, Brazil and the Canal Zone. The facts only will be secured from a study of many later generations of such settlers. We, at present, are forced to confine our observations to the sojourner of many years residence in the tropics. I fully realize that the monotony of the tropical climate is not as interesting as the changing seasons of the temperate zone, but in all countries there are mountains where people can, if they wish, seek a cool climate without the time and cost of a trip to the temperate zone. When I recall the summers that I have spent in Philadelphia, New York and Washington, I can truthfully say that I prefer Panama. There, at least, the second part of the night is cool. I have seen and heard of more cases of heat exhaustion and sun-stroke in the cities named than has been true of my long residence in the tropics.

Perhaps the only new bit of information that I can add to the subject of climate in the tropics is to give you my own personal history since 1909. It was never my intention to locate in the tropics. An unexpected arrangement was made for a temporary tour of duty of six months in the Panama Canal Zone. I had been a victim of an extensive generalized case of psoriasis from 1905 to 1909 and the best authorities in Philadelphia held little hope of a cure of this skin disease. I gave the disease no attention after my arrival in Panama but the lesions spontaneously disappeared within two months. The winters of 1917 and 1918 were spent in France and during the second winter the disease reappeared in a more or less general manner. On my return to Panama it again spontaneously disappeared in about two months.

While on duty in the United States for the fall and some of the winter months of 1938 the skin lesions reappeared in the scalp, over the shoulders and a few patches on the back. On my return to Panama they disappeared in the usual time. It never bothers me in the tropics. I can offer no reason for its disappearance unless it be the correct relationship of light, heat and moisture. Summer time in the United States never caused it to disappear. I have always been fortunate in having a fair part of my duty out of doors and this fact as well as my interest in hunting, fishing and bowling provided the needed exercise that, in my opinion, is even more important in the tropics than in the temperate zone.

My medical history, otherwise, since 1909 is as follows:

1911 appendectomy caused by an accident during a diving contest at Taboga Island. Something happened in the right side of the abdomen and I believed it to be some pulled muscle fibers. I was helped out of the water and taken to Ancon Hospital for observation. The next morning the surgeons reported that the appendix had apparently been coiled up and attached in a post cecal position

and the accident had torn it away from its attachment and gangrene of the entire length of the appendix had followed.

1912 was the next illness. Otitis externa, bilateral and severe.

1926 Bacillary dysentery while on temporary duty in Haiti.

1927 Dengue fever while on temporary duty in Haiti.

1933 Thyroidectomy for multiple adenomata-colloid goiter. I shall always believe this followed an accident in June 1917. We were hunting deer on horseback and I was told the horse I rode was used to having riders fire from his back. I got a shot and the horse ran away. He ran under the low hanging branches of a big tree. My right leg was hooked over the saddle as I turned low and backward but just the same a limb of fair size struck me on the left and front of the neck. No marked swelling occurred at the time but my neck was black and blue for several days. Two months later, while engaged in bowling, something happened in the left side of my neck that felt like someone had stung me with a small rubber band. Before the evening was over a lump the size of a hen's egg had formed, probably a hemorrhage. It completely disappeared during the next two years but in 1925 the collar band of my shirt had to be changed from a number 15 to a 16 and by the fall of 1933 I wore a number 17 collar band and Dr. Crile decided on operative relief. It may be pure coincidence but I feel that the accident of 1917 helped prepare the way for the cystic goiter.

1934 Tonsils removed.

1941 Dengue fever in Panama. Ever since 1933 I have made it a practice to examine my urine every two months expecting sometime to find a cast or two and perhaps a trace of albumen but nothing was found until the attack of dengue in 1941 when a trace of albumen was found and to my great surprise the sugar test was positive. Only at long intervals does this test prove positive but the blood sugar has remained on the average at 150. Never at any time have any parasites been found in my alimentary tract or in my blood films.

Over the years I have been host to 16 *Dermatobia hominis* larvae scattered here and there over the body.

Since 1933 I have set aside two or three days for a *health audit* in whatever medical center of the United States happened to be convenient for me. Perhaps some who are interested in climatology and physiology would like some of the reports made by these clinics.

Blood Pressure records from 1933 to 1947 made in four different medical centers ranged from 145 over 80 to 168 over 88. The average has been about 150 over 90.

Electrocardiograms were made in 1941 and 1947. Sinus arrhythmia was reported the first year and a normal report in 1947.

Eye refractions have been made from 1920 to 1948. Reading glasses were first used in 1920 and bifocals since 1942.

Basal metabolism tests were made seven times. In 1933 prior to the removal of the left lobe, isthmus and part of the right lobe of the thyroid gland it was -8 and -6 . In 1934 it was -3 . From that date to 1947 it ranged from -15 to $+30$. No thyroid extract has been taken since 1935.

X-Ray examinations of the chest and abdomen were done at three health audits and all were reported negative.

Blood cell counts were done in 1933, 1941 and 1948. All were normal for both the red and white cells.

Differential counts were done in 1933, 1941 and 1947. These were all reported as normal.

Hemoglobin estimations were done in the same years and they varied from 94 per cent to 104 per cent. Many tests made in Panama and the Canal Zone have never revealed an estimation below 90 per cent.

Blood chemistry examinations were made in 1933, 1941 and 1947. Prior to the removal of the thyroid in 1933 glucose was reported as 113 mg. per 100 cc. of blood. In 1941 it was 145 and in 1947 it was 161. Eighteen times in the Canal Zone the reports ranged from 145 to 239 but the average has remained at about 150. In only 6 tests made frequently in Panama did the urine show a positive test for sugar. Renal function tests made five times were within normal limits. Albumen and casts have never been found in the urine except during the second attack of dengue fever.

Non-protein nitrogen tests have been made 18 times with a range of 32.7 to 46.9, an average of 35.1 mg. per 100 cc. of blood. Sedimentation rate ranged from 12 to 30 in sixteen tests. The average was 20.

These health audits were made in Cleveland, Philadelphia, Baltimore, Canal Zone and Panama.

I have lived and worked in the Central American tropics for 37 years, and 34 years in the temperate zone. The tropics have been very good to me. However, I have been able to live a protected life in sanitized areas with proper food and water supply, and my duty has seldom required hours after sundown in an unsafe region. Nevertheless, I find it hard to believe that the time will ever come when it will be necessary for the northern white race in vast numbers to colonize the tropics. We know from the results of years of experience by large American business organizations in the tropics that the white sojourner can do very well over long periods of time if prepared and willing to live under proper discipline in regard to quarters, food, water and general sanitation. Perhaps climate, *per se*, as it affects man has been over emphasized. It is my belief that the northern white sojourner with the assistance of native tropical labor and artisans will produce and transport the necessary food products and other necessities without colonization of the tropics by that race.

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