case encouraging to note the present-day decline of the attitude that experimental investigation is work of a lower order, which can be put out like so much washing, for the employment of an inferior caste. We at the present day, however we may be labeled, are not merely willing to admit, but eager to assert, that we can not recognize fundamentally distinct methods of physiology, of psychology, of medicine, of chemistry or of physics; we only admit a method of experimental inquiry common to all science and slightly modified to suit particular cases.

The close connection which is now generally admitted between physiology and medicine was clearly foreseen by Claude Bernard in 1855. Medicine, he said, is a science, and physicians who describe it as an art injure it, because "they exalt a physician's personality by lowering the importance of science." "True experimenting physicians," he says, "should be no more perplexed at a patient's bedside than empirical physicians. They will make use of all the therapeutic means advised by empiricism; only, instead of using them according to authority and with a confidence akin to superstititon, they will administer them with that philosophic doubt which is appropriate to true experimenters." And this attitude, I venture to think, is the one which is almost universal to-day.

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(To be concluded)

GEOLOGICAL AND ARCHEOLOGICAL RECORDS OF THE YUCATAN PENINSULA

CAREFUL work during the past two decades upon the part of such men as Blum, Gann, Spinden, Morley, Gregory Mason and others, within the region comprising the old homeland of the Maya race, from northern Guatemala (Peten), British Honduras, Campeche, Yucatan and Quintana Roo, has established a few broad facts upon which all are agreed. These may be summarized as follows:

(1) The origin of the Mayan race and its culture somewhere south of Peten in Guatemala, at some indefinite time preceding the Christian era.

(2) The gradual migration of temple cities and cultural centers progressively northward, during the fourth and fifth centuries of the Christian era and the abandonment of previously occupied capitals to the south until a last stand was made at Chichen Itza and Mayapan near the northerly tip of the Peninsula.

(3) The weakening of the race during the latter part of this migration until during the time of the occupancy of the two northern capitals at Chichen Itza and Mayapan, the territory was conquered by the Toltecs from the north, and the Maya race became a dependency of the Mexican, somewhere during the twelfth century A. D.

(4) During the Toltec domination, not long before the coming of the Spaniards in the sixteenth century, the remnants of the Maya peoples were still further decimated by the ravages of disease, leaving but a comparatively few spiritless people to resist the Spaniards, with relatively little memory of their ancient culture, with temples and cities abandoned to the jungle.

(5) During the past two centuries has occurred still further decrease in the population of the aboriginal race in Yucatan, by yellow fever, dysentery, malaria and diseases brought by the white race. Recently the influenza epidemic has killed thousands.

Wide areas of forested lands to-day cover territory once supporting an agricultural population numbering millions, where to-day a few hundreds of chicle gatherers eke out a meager existence during the season of sap flow. The question as to the reason for this progressive northward migration, and later the virtual disappearance of the Maya race, is one which has bothered all investigators. That the two phases of Mayan history may have been related by a common cause has suggested itself. Foreign wars on a national scale there were none, except what incidental fighting occurred toward the end, when the Toltec political ascendancy took place. Contacts with outside peoples, with the bringing of strange plagues to a race with little immunity, could have been very slight. The infiltration of foreigners along the narrow neck of Central America and incidental canoe-borne traffic could have offered few opportunities for the breaking out of epidemics carried by outsiders, who were few and of essentially the same habits of life as the Mayas. The great progressive migration took place during the flowering of the Mayan culture of the First Empire, when they were at the height of their strength and population.

Morley suggests that the land was cleared and corn (maize), upon which the race was dependent for food, planted. Then after a few plantings the heavy grass choked out the corn, and this necessitated the clearing of fresh lands. This hypothesis can not be accepted by any one familiar with the Indian method of planting corn in the tropics. In new land, the underbrush is frequently cleared, the corn sown and the forest felled over the sowing. The first crop sends its stalks up through the felled timber and brush, sometimes to a height of twenty feet. Meanwhile the timber is rotting and collapsing, so that each new crop of corn encounters less difficulty in reaching the air and sun and is better bearing. There is no grass that the writer has ever seen which would retard Indian corn. The comparative ease of clearing enough grass for a hill of corn as compared with clearing new timber

lands, for a people with no metal implements, answers this question beyond any controversy.

There is, however, a perfectly plain geological record throughout this region, which answers the question as to the reason for this migration, and as well answers the question why no important number of people can live in this region to-day, which is apparently one of the healthiest forest regions which the writer has ever had an opportunity of visiting during twenty years spent in Central and South America.

An explanation of this record must be prefaced by a description of the peculiar conditions which exist within this region, making it unique among all tropical regions of similar size in the western hemisphere. This is summarized by saying that while there is a heavy annual rainfall there is little or no surface water except for a few principal rivers around the edges of this region, and scattered small lakes or "cenotes," with no surface outlets. This entire peninsula is composed of porous limestone, ranging in age from Lower Cretaceous to upper Tertiary; but all alike in the one respect of being filled with underground channels through which all fresh-water drainage takes place seaward. Occasionally during the rainy season a surface stream is seen following a shallow bed, but it will be found soon to disappear in the limestone and can not be picked up again except by inference at one of the great springs along the coast line or near one of the main branches of the Usamacinta River.

The comparatively large Lake Peten, in central Peten, has no outlet. This lake, as well as all smaller pools and "cenotes," seems to have a uniform water-table, without reference to the rainy seasons. However, all the larger lakes such as Peten have definite terraces and high level dry beds of previous tributary basins. There are innumerable dry "cenotes" or deep sink holes, which previously contained water. The great temple city of Tikal is located beside what was once an extensive lake, of which only a small stagnant pool remains. The geological record thus shows a progressive tilting of the land from the south, which has raised the surface above the permanent watertable in the cavernous limestone bedrock, draining the lakes and "cenotes" *from the bottom* progressively northward, until there are only remnants of their number remaining. These are not enough in number or size, with a few notable exceptions, to support a large population. In spite of the rainfall, in traveling through Peten and Yucatan, one is forced to carry drinking water from one water hole to another, which in some cases are several days journey apart.

With the diminution of the water supply, and a large population, the nature of these stagnant pools remaining, plus the lack of knowledge of sanitation on the part of the people, plus perhaps their custom of throwing sacrificial victims into the same or connecting bodies of water, might easily have caused epidemics. "The gods are angry, and we must move" —and always northward, the direction of the progressive tilting. Once crowded to the tip of the peninsula, and their numbers and their virility depleted by both lack of food sources and by epidemics, they were easy victims to the raids of the Toltecs.

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LANCETILLA EXPERIMENT STATION

THREE years ago the United Fruit Company established Lancetilla Experiment Station on the north coast of Honduras, near the port of Tela. This station, under the direction of Wilson Popenoe, is one of the several branches of the research department of the company. Its purpose is the introduction and testing of new agricultural products which may be grown successfully in tropical America, and the study of conditions affecting banana production, the chief and only important industry of the Atlantic coast of Central America.

Lancetilla Station, situated six kilometers south of Tela, is reached by a tram line over which motor cars are operated. The site lies in a narrow valley at an altitude of nineteen meters. On each side rise densely forested hills, with a maximum elevation of six hundred meters. The lower ground of the valley formerly was planted with bananas, but the hills, except for a few clearings made by squatters, retain their primeval vegetation. They are intersected by many swift streams of clear water.

At the station there has been assembled a large collection of economic tropical trees, including the best representation of tropical Asiatic trees to be found anywhere in America. All the trees are still small, but they are growing rapidly, and in a few years will make an impressive showing.

There has been established at Lancetilla, also, the Serpentarium of the Antivenin Institute of America, maintained by the Tela Railroad Company, the Museum of Comparative Zoology of Harvard University and the H. K. Mulford Company. The serpentarium prepares serum from the Honduran rattlesnake and the *barba amarilla* for use in tropical North America.

The purpose of the present note is to direct attention to the suitability of Lancetilla as headquarters for research work in the natural sciences. Living conditions are exceptionally favorable, with good water, protection against malarial mosquitoes and all modern conveniences. The Tela Railroad Company