Comments and Communications

Trenches in Venezuelan Archeology

DURING recent exploration in the Río Negro region in the Territorio Federal Amazonas (Venezuela) the author was advised of the existence, in a place known as *"lugares viejos de los indios,"* of man-made trenches about 300 ft long, 6 ft deep, and 6–9 ft wide. Sherds, some with anthropomorphic decorations, found in the immediate vicinity of these trenches are evidence of former human habitation. In this same zone and, probably, in the same locality or in its immediate vicinity, lanceolate-shaped canoe paddles of hard wood with anthropomorphic decorations on the handle have been found. A wooden implement, decorated with a carved human face, has been found in Caño Loro by Sr. Clemente Calderón of San Carlos de Río Negro and donated by him to Salesian Rev. Father Bombequio, who in turn presented it to the convent of this order in Puerto Ayacucho.

Trenches of this type are reported to be present in many other places, among which are the following: Caserio de Mayagua, Río Pasimoni, Caserio Solano, Caño Pasimoni, Capaco, Caserio Iguaynape, Caño Darigua, Caserio Uraña, Caño Motuiti, Laguna de la Brega, and Caño Bunte, all in Distrito San Carlos de Río Negro. Wooden paddles are said to have been recovered in all these places.

Recently the writer had an opportunity to study one of these trenches in Santa Rosa de Amenodora. Considerably damaged by modern fill from the surfacing of the adjoining village streets, it still retains its ancient morphology and principal characteristics. Starting in the swampy land near the bank of Río Negro, it forms a shallow crescent in the general direction of the village square. Many of the natives remember it when it was unencumbered by recent fill and when its entire length of 210 ft was 9 ft wide and 9 ft deep.

According to popular belief, these trenches were filled with briars or pointed sticks and loosely covered to serve as traps for an attacking enemy. For lack of any evidence that would confirm or refute this belief, the present author advances the hypothesis that these trenches served as hiding places for the Indian dugouts at night or during wartime. These dugouts would not be left in the river because, in the eventuality of an enemy attack, the group that lost its canoes would find itself in a precarious position indeed, in consequence of loss of mobility in forests that, flooded as they are during the greater part of the year, offer very little facility for foot travel.

In the public square of Santa Rosa de Amenodora, a village originally inhabited by the Baré Indians, in a small exposure where erosion has removed the humous horizon of the soil, the author found numerous sherds of archeologic value. One of the local inhabitants declared that the boys of the village had found clay figurines. Indeed, a fragment of such a figurine was presented to the author, but unfortunately it is so badly disfigured that identification is very uncertain.

These trenches deserve careful study, as does the pottery, in view of the fact that the carved canoe paddles and other anthropomorphic wood carvings are, to the knowledge of the author, the first specimens of wooden artifacts recorded in Venezuelan archeology.

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Tissue Respiration and Body Size

In a recent paper (*Science,* **113**, 599 [1951]) von Bertalanffy and Pirozynski express the opinion that "The experiments seem to be a blow to the hypothesis that the decrease of basal metabolic rates with increasing size is due to cellular factors. . . ."

One wonders what noncellular factors could be responsible. However, what the authors apparently have in mind is that their material does not support the idea that the level of tissue respiration changes with body size to the same extent as the metabolic rate of the whole animal.

The tissues they used originate from one species only, the rat, in sizes from 9 g to 392 g body weight. The metabolic rate in this animal changes approximately according to the usual $M = b\ W^{2/3}$ or $b\ W^{3/4}$. However, if tissues from newborn to adults in one species do not show similar variations, this finding is hardly sufficient for categorically dismissing previous findings of such variations in tissue metabolism in different species. Physiological differences between newborn and adults are too great for use of such material for conclusions concerning the much-disputed "surface law."

The authors refer to Kleiber's review on the subject (*Physiol. Rev.,* **27**, 511 [1947]). A careful reader of his chapter on "Intraspecific Comparisons" will find that "only a few species show great enough differences in mature weight for the establishment of the best fitting power function. . . ." Kleiber here refers to total metabolic rate, but the condition of comparing mature animals should also be fulfilled when relating tissue respiration to body size.

The work of von Bertalanffy and Pirozynski is an interesting contribution to the knowledge of differences between mature and immature individuals, and their data on tissue respiration are valuable. In particular, their data on the diaphragm show a considerable decrease in oxygen consumption with increasing body size, which is not properly described by their words: "But it is definitely smaller than the extent postulated by the surface rule. . . ." When plotting their data for this tissue one finds a curve for total