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Nutritive properties of taro root and poi and its possible relation to the preservation of teeth of the polynesians.

By J. F. McCLENDON, P. J. RILEY and AGNES EWELL.

[*From the Laboratory of Physiological Chemistry, University of Minnesota, Minneapolis, Minn.*]

Dr. L. R. Sullivan of the American Museum of Natural History, and Dr. H. G. Chappel, examined historic and prehistoric Hawaiian skulls and found nearly all of them above forty years of age to show gingival caries of the teeth, even those buried before 1778 and hence before contact with the whites.

The principal food of the Hawaiians is poi made of taro root. The calorific value of dried poi is 4.17 kilogram calories per gram and hence about the same as starch. Dried poi contained 0.12 per cent phosphorus and 0.1 per cent calcium, and dried peeled taro root 0.12 per cent phosphorus and 0.06 per cent calcium. The difference in the calcium content may have been due to a different variety or sample of the root, or the fact that calcium of the water used in making the poi increased its value. The calcium and phosphorus values are low and comparable to the values for white flour and, like white flour, should be typical rachitic diets, unless containing a fair amount of antirachitic vitamine. White rats were fed a white flour diet containing 10 per cent casein and 1 per cent yeast, but two of these were fed one gram each of raw taro root per day. The taro root showed no antirachitic effect. On some days, however, not all of the taro root was eaten. In another experiment, one rat was fed one gram of boiled taro root per day which showed no antirachitic or anti-osteoporotic effect. Two controls were used. If any very large amounts of vitamine were present it should have been detected. It is therefore probable that the diet of the Hawaiians was no more antirachitic than that of ours in that poi is comparable to white bread. If the diet had anything to do with their caries it was the adult diet, since the children and adolescents had well developed, sound teeth. If it could be shown, statistically, that teeth were made worse by contact with the white man, it might be attributed to the reduced amount of sunlight reaching the skin in changing the native dress to European clothes. The association of Hawaiian caries with pyorrhea complicates the problem.