

EVIDENCE FOR PRE-COLUMBIAN GOITER  
IN GUATEMALA

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## EVIDENCE FOR PRE-COLUMBIAN GOITER IN GUATEMALA\*

Detailed medical surveys recently concluded have shown Guatemala, and particularly the Guatemalan highlands, to have one of the highest incidence rates for endemic goiter in the world (Muñoz, Pérez, and Scrimshaw 1955a: 36-43; 1955b: 963-9). At the present time only the tropical and sparsely populated northern Department of Petén is without goiter as a serious public health problem. The incidence in the other departments varies from 21% to 68%.

It is now well established that endemic goiter arises as a result of the deficiency of iodine in the diet, which, in turn, is due to a lack of sufficient iodine in the water and soil on which food crops are grown. Mild goiter may be only disfiguring, but severe goiter is associated with high incidence of deaf-mutism, mental deficiency, and thyrotoxicosis. Cretinism is the most serious consequence.

As early as 1648 Thomas Gage (1928: 176-7) mentioned the existence of goiter in a large part of the population of Sacapulas, Department of Quiché. Since his description of goiter went unnoticed in the medical literature, it may be worthwhile to quote it in its entirety. Gage, traveling in 1628 from Comitán, Chiapas, to Guatemala City, stopped in the town of Sacapulas and made the following observation:

. . . I found in an harbour by the water side the Prior of Sacapula himself with a good train of Indians waiting for me with a cup of chocolate. At the first sight I was a little daunted to behold the Prior, who looked most fearfully with a bladder from his throat swelled almost round his neck, which hung over his shoulders and breast, and stayed up his chin, and lifted up his head so that he could scarce look any whither but up to Heaven. In our discourse he told me that disease had been upon him at least ten years, and that the water of that river had caused it in him, and in many others of that town. . . .

When I came to the town, I discovered many men and women with bladders in their throats like the poor Prior, which made me almost unwilling to drink there any chocolate made with that water, or eat anything dressed with it, until the Prior did much encourage me and told me that it did not hurt all but only some, and those who did drink it cold.

The incidence of goiter in the same town in 1955 was found to be 37%. Hidalgo (1798: 169) in 1798 stated that all the inhabitants of Jacaltenango in the Department of Huehuetenango had goiters. Shattuck's survey (1938: 179-84) considered goiter one of the great public health problems of Guatemala. The 1955 survey made by the Institute of Nutrition of Central America and Panama (INCAP) reported an incidence of 38% for the Department of Huehuetenango. There have been a number of subsequent reports of the occurrence of endemic goiter in Guatemala such as that of Dunn (1828: 256), but nowhere has mention been found of the occurrence of endemic goiter among the highland Indian populations of Guatemala prior to the observation of Gage in 1628, only a little more than 100 years after the conquest of Guatemala by the Spaniards in 1524.

Since it is unlikely that the soil and water in pre-conquest times contained any more iodine than today, it becomes a matter of considerable interest to determine whether or not goiter was present in pre-Columbian times and if not, to account for its apparent absence. With this in mind, collections of pre-Columbian figurines and effigy whistles of the Guatemalan National Museum and several private individuals were examined. Of several thousand figurines available from the highland and southern coastal areas of Guatemala only about fifty, all complete with torso, were considered suitable material for a goiter survey. The sample examined included 2 specimens, an effigy whistle and a solid figurine fragment, with swelling in the neck area which appeared to experienced medical eyes representative of goiter. On the other hand from the northern Maya area which includes the essentially goiter-free Petén and Yucatán (Muñoz, Pérez, and Scrimshaw 1955a, 1955b) of today, approximately a thousand unbroken or partially broken figurines and effigy whistles have been examined without goiter being noted.

Figure 1 *a, a'*, an effigy whistle estimated to be approximately 4000 years old, is one of the Las Charcas type. This earliest known archaeological phase in the central Guatemalan highlands is considered by Shook (1952: 14) to have lasted from approximately 2000 to 1800 B.C. The specimen was found in 1951 by Raúl Moreno, owner of Finca Copalché, and now forms part of his private collection. It was excavated by him near Finca Copalché in a bottle-shaped Las Charcas phase storage pit along with several other archaeological specimens, all of known Las Charcas type. The specimen is a nude, standing, female figure, 18 cm. in height, and may represent an early stage of pregnancy. The swelling in the neck occurs in the thyroid region and is plainly visible on both frontal and lateral views. The whistle is made of a coarse reddish brown ware, containing numerous small quartz particles. The figurine is covered with a well-polished chocolate brown slip, and has a mouthpiece which actually forms part of the elaborate coiffure. The central punched eye of the figure is characteristic of most of the Las Charcas figurines. It was found with the head broken off and is now restored.

The second specimen (Fig. 1 *b, b'*) is a small solid figurine fragment of the Miraflores phase, measuring 5.5 cm. in height. This archaeological phase is dated at 1000 to 500 B.C. (Shook 1952: 4). The figurine, representing a female, is made of a coarse, unpolished grayish ware containing many small quartz particles. It was found, along with other archaeological material, at La Zarca, Platanar, below Ayutla on the road to Ocos, Department of San Marcos, by E. M. Shook of the Carnegie Institution, in 1942. It is now in the collections of the Guatemalan Archaeological Museum (Lot No. K-19). The figurine represents a pug-nosed, puffed-cheeked individual, with slit eyes and long hair. Although the fragment consists only of the head and upper torso, the enlargement of the neck in the thyroid area is readily visible in both frontal and lateral views and suggests a goitrous condition.

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a



a'



b



b'

FIG. 1 [Borhegyi and Scrimshaw]. *a*, *a'*, effigy whistle, from Las Charcas, Guatemala City. Las Charcas phase. Height: 18 cm. *b*, *b'*, figurine fragment, from Ocós, Department of San Marcos. Miraflores phase. Height 5.5 cm.

The 2 archaeological specimens described would then suggest the pre-Columbian presence of goiter among the Indian population of the Guatemalan highlands. They do not necessarily indicate that goiter was endemic in pre-conquest times, since these might represent sporadic cases of a relatively infrequent condition. However, it is probably significant that despite the much larger number of relatively intact specimens available, no figures or effigy whistles with goiter were found from the northern Maya area where endemic goiter does not occur in modern times.

Though it is known that sea salt was an important basis for trade in pre-Columbian times between the coastal and highland Maya Indians, it should be noted that the iodine of sea water is almost entirely lost in the process of evaporation, the most frequent method of salt producing known in those days. It is known, however, that persons consuming significant quantities of marine food receive enough iodine to prevent the development of endemic goiter (Carson 1951: 188-94). There is considerable evidence from fish bones and beads made from fish vertebra found during the excavations at archaeological sites, as well as the representation of large fish on pre-Columbian pottery, murals, frescoes, and bas-reliefs, to suggest that marine food may have formed a much larger part of both highland and lowland Indian diet than at present. The fish can be identified as marine, since freshwater fish of this size are not ordinarily found in the area. There are also large numbers of shells, sting-ray spines, shark's teeth, and other material of marine origin that can be taken as further evidence.

Since recent dietary surveys in rural areas (Flores and Reh 1955) indicate that the amount of fish consumed by Guatemalan highland Indians at present is negligible, it appears probable that a great many more marine products were brought or traded from the sea coast to the highlands in pre-Columbian times than today (Shook 1949: 16). Although it is dangerous to indulge in too much speculation from very scanty material, it is important from a medical point of view to know that goiter did occur and was known in the Guatemalan highlands as far back as 2000 B.C. as represented by the 2 specimens described. On the other hand, the scarcity of goitrous figurines and the archaeological evidence indicating a greater consumption of marine products suggests that goiter may not have been as common then as it is now. It is possible that the settling of the Ladinos in the coastal areas after the conquest may have reduced the amount of iodine obtained from food of marine origin consumed by breaking up the traditional pattern of commercial exchange between Pacific-Atlantic coastal and highland Maya Indian groups.

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