

The Child Burial from the Melville Site

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The skeletal remains of a child recovered in 1978 near the Melville Site (BbHa-7), an early 17th century Petun site, are the first such exhumed in that area to be reported following a detailed examination. A chronological age of about five years is assigned on the basis of the dentition, but the developmental age, as indicated by skeletal age, lags by as much as one and one-half years to two and one-half years behind this estimated chronological age. This is due to the individual having experienced repeated biological insults, and these are reflected by the presence of numerous Harris' lines on the long bones.

On a découvert les restes squelettiques d'un enfant aux abords du Site Melville (BbHa-7), site remontant au dix-septième siècle sous occupation Petun. Il s'agit du premier squelette sub-adulte découvert sur un site Petun. L'examen de la dentition suggère un âge d'apex près cinq ans. L'âge développementale, indiqué par le squelette, est moins élevé. Il pourrait s'agir d'un retard d'un an et demi à deux ans et demi par rapport à l'âge chronologique estimé par les dents. Cet écart est dû à des insultes biologiques répétées et démontrées par la présence de nombreuses lignes de Harris.

Introduction

The Melville Site (BbHa-7) at Creemore, Simcoe County, Ontario (Fig. 1) represents a Petun habitation. During excavations at the site in June 1978, two skeletal elements of a young child were recovered from the soil mound beside a woodchuck burrow which was 170 metres east of the habitation area and 13 metres north of the side baseline (Fig. 2). A coroner's warrant for excavation and a certificate from the Medical Officer of Health for Simcoe County were obtained, permitting removal of the burial, since the remains initially recovered were too incomplete "to allow determination of the ancestry or antiquity of the individual, and association with the habitation was uncertain.

One of the authors (C. G.) personally obtained permission to take possession of the bones from Mr. Mont Cotter, Chief of the Wyandotte Tribe of Oklahoma, the nearest descendants of the Petun people who had lived at this site.

The relationship of the burial to the village

The burial was found approximately 170 metres east of the village area, possibly near what had once been a trail into the village. Although no evidence of former trails has survived, the topography and varying slopes of the land favour certain approaches to the site. It was in approaching the site by the easiest route from below that Robin Etherington, a member of the archaeological crew excavating the site under Licence 78-0250 (Charles Garrad) noticed two bones in a woodchuck burrow mound, leading to the discovery of the burial. According to the previous owner of the site, Clifford Melville (confirmed in 1978 by his daughter Mrs. Donna Melville Hubel), a number of burials had been found in the immediate vicinity, known as the "gravel pit" (Fig. 2) during the removal of sand. The fortuitous discovery of this burial indicates that not all had been destroyed, and it is possible that others might yet remain.

Another Petun area burial, (BcHb-13), located under fairly similar circumstances on a possible trail near a village, has been reported by Garrad (1970).

The proximity of the 1978 burial to such a large village, for which no other burial area is known, allows the assumption that the burial was contemporaneous with the village, and was part of its population.

The geographic and historic placement of the Melville Site

The Melville Site (BbHa-7) is located on a terrace of the Corn Hill Moraine on the north side of, and overlooking, the Mad River Valley at Creemore, Ontario. Visible from the Melville Site on a corresponding terrace opposite on the south side of the Mad River Valley is the Sidey-Mackay Site (BbHa-6) interpreted as the earlier proto-historic location of at least part of the Melville community (Fig. 1). Further west and upstream, the Hamilton-Lougheed Site (BbHa-10) is seen as the succeeding location in the sequence; it may be Ehwae, the

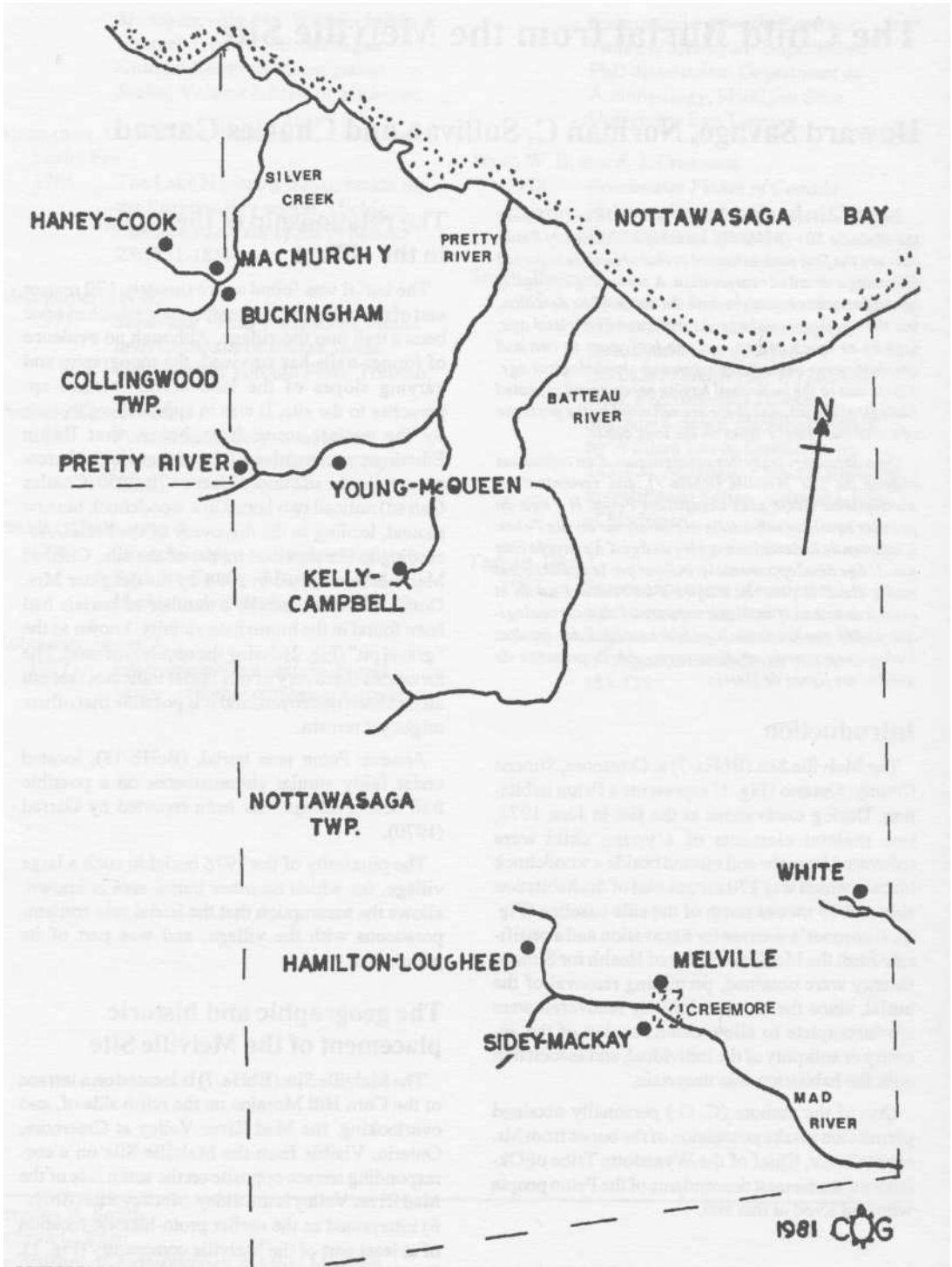


FIGURE 1
Map showing some Petun sites in the vicinity of the Melville Site.

Jesuit "St. Peter and St. Paul". The proposal that the three sites were occupied respectively in the proto-historic, contact, and Jesuit periods, is derived from the dates assigned to the artifacts recovered from each site. The suggestion that the sites were occupied in sequence by people of the same community is based on artifact similarities and coefficients-of-similarity among the three pottery assemblages. Ehwae (Hamilton-Lougheed) was described in 1639 as the principal village of the Petun. If the community had held this status at its previous location, then the contact period Melville site had been in its turn the principal Petun village, and was very probably visited by Samuel de Champlain in 1616 (Garrad 1981).

The excavation of the burial

The burial was recovered by Mr. Patrick Home and several students under the supervision of one of us (H. S.). No grave goods were directly associated with the burial, nor are there any distinguishing biological features which unequivocally demonstrate Native American ancestry. Nonetheless, its proximity to the Melville village makes it highly probable that the burial was made by the people living there. The inhumation was located on the side of a sandy knoll in a dark loamy soil which underlay a stratum of sod and light coloured loam. The dark loam continued below and to the south of

the burial. The skeleton was lying on its back, oriented generally to the southeast, with the skull turned to its left and slightly raised. The arms were drawn into the sides of the body. The forearms were tightly flexed and directed upwards, with the hands situated near the clavicles. The lower limbs were not found *in situ* and therefore their disposition is unknown (Fig. 3).

The axial skeleton

The cranium is exceptionally well preserved, even including the right malleus. Some bones have been detached but it is possible to reconstruct the skull almost in its entirety. The mandible is also complete. The cervical vertebrae are all perfectly preserved. All twelve thoracic vertebral arches and ten centra are present and virtually complete. Three lumbar vertebrae, including the first lumbar, were recovered. The first sacral vertebra is also present but partly broken. All twenty-four ribs are present although a few have suffered some destruction. Three sternal segments were recovered, as well as the manubrium.

The appendicular skeleton

The clavicles and scapulae are complete except for some slight damage confined to the edge of the vertebral borders of the scapulae. The humeri are

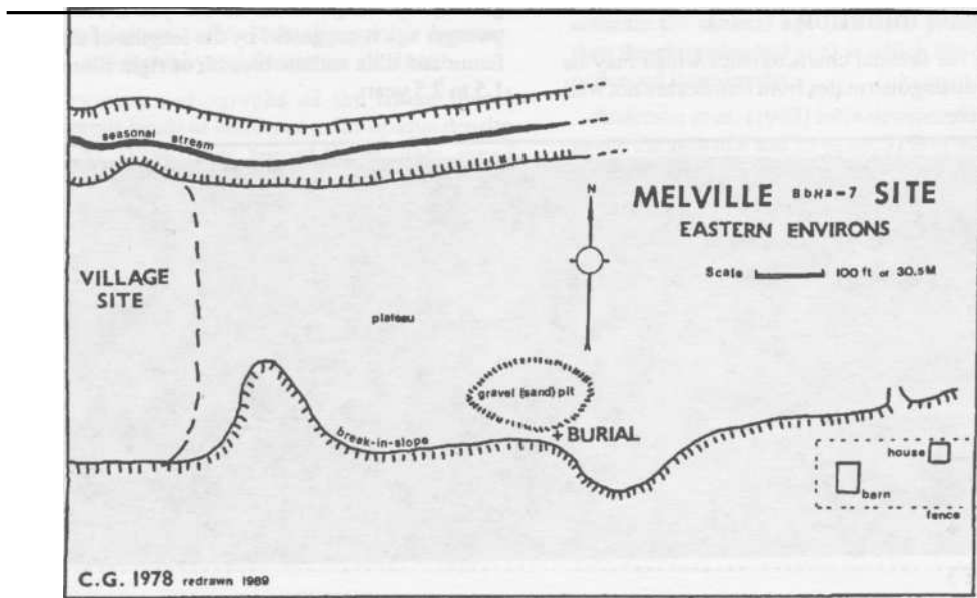


FIGURE 2

Map showing Melville Site habitation area and location of child's burial.

present and except for some slight breakage at the distal end of the left humerus, are complete. Both radii are perfectly preserved. The left ulna is complete, while the right has part of the olecranon broken away. The innominate bones are incomplete, although what is present is in perfect condition. The right and left ilia are present along with the right ischium. The femora, tibiae and fibulae, although separated from the rest of the skeleton, are all in perfect condition. Five carpal bones were recovered. All are of indeterminate side and are unidentifiable, except for one scaphoid. Five metacarpals and five metatarsals, all of indeterminate side, were also present. In addition, seven proximal, eight middle and four distal phalanges were present. Because the upper limbs were undisturbed, these are presumed to have come from the hands.

Dental remains

All of the deciduous teeth are present and most are still in their sockets. Only the right mandibular lateral incisor and canine, as well as the right maxillary lateral incisor, canine and first molar were not in the sockets. Some of the permanent teeth are also present. The first and second molars of both the mandible and maxillae, as well as the right maxillary canine, are in their crypts. The maxillary right first premolar is also present, but not *in situ*.

Sex determination

Since the skeletal characteristics which may be used to distinguish males from females are not well

developed in juvenile individuals, it was not possible to estimate reliably the sex of the Melville child.

Age determination

Dental calcification is very closely associated with chronological age (Lewis and Garn, 1960). Therefore, precedence is given here to the stage of mineralization of the teeth as a means of determining the age of the Melville individual. The standards of Moorrees *et al.* (1963a; 1963b) and Anderson *et al.* (1976) were used. In addition, tympanic plate development (Weaver, 1979) and long bone growth (Merchant, 1971) were employed to determine age.

Comparison of the stages of calcification of the mandibular teeth to the standards of Moorrees *et al.* gives an age of 4.5 years to just over 5.0 years, using both the male and female schedules. The age, derived from the standards of Anderson *et al.*, is between about 4.8 years and 5.6 years if the child is male and 4.6 and 5.2 years if it is female.

The tympanic plate corresponds to the fifth stage of development in Weaver's (1979) scheme, indicating an age of over 3.0 but less than 4.0 years. The ages assigned on the basis of the length of the long bones or the iliac breadth are also under 5.0 years. Ages determined from diaphyseal lengths of the right humerus and ulna, and of the left radius, give an age range of 2.5 to 3.5 years. An even younger age is suggested by the lengths of the left femur and tibia and the breadth of right ilium, i.e. 1.5 to 2.5 years.



FIGURE 3

Photograph showing upper half of child's skeleton *in situ*. Note woodchuck burrow in the position of the removed lower half of the skeleton.

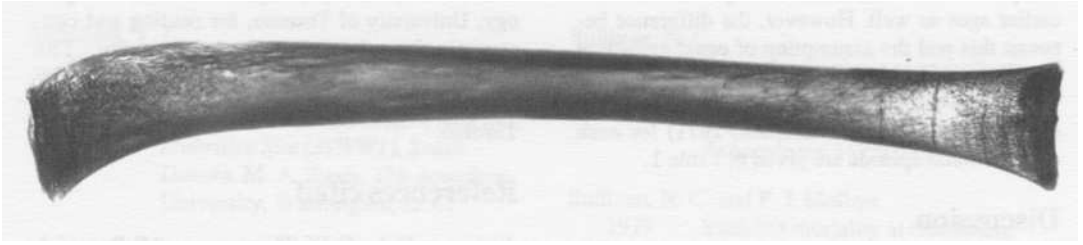


FIGURE 4

X-ray photograph of child's right tibia, showing six transverse Harris' lines at spaced intervals.

The dental development of this child indicates an age of between 4.5 and 5.0 years. Skeletal age is less and is generally between about 2.5 and 3.5 years. Assuming that the more conservative estimates based on dental calcification would be less affected by bone growth interruption, the actual chronological age at time of death was most likely about 5.0 years or slightly less.

Pathology

The teeth and skeletal remains were examined for signs of disease. Gross visual observations revealed no indications of any pathological condition. The typical signs of biological stress, including dental enamel defects, *cribra orbitalia*, *porotic hyperostosis*, and metaphyseal flaring are all absent.

However, radiographs of the tibiae reveal numerous bands of increased radio-opaque density (Fig. 4). These bands, termed Harris' lines, are of

uncertain etiology to some extent, but are usually associated with febrile episodes (Hewitt *et al.*, 1955) or with various states of inadequate nutrition (Platt and Stewart, 1962; Jones and Dean, 1956; Martin *et al.*, 1984). Regardless of the specific cause, Harris' lines do represent events of growth arrest of varying duration.

At least six instances of growth arrest can be discerned on the Melville child. The Harris' lines representing these episodes occur at more or less regular intervals and are situated on the tibia at 2, 4, 5, 10, 1.7 and 24 mm from the distal end of the diaphysis. If it is assumed that the distal and proximal ends grew at similar rates, it is possible to estimate the skeletal age (which is probably less than the chronological age) at which the child experienced these insults.

Anderson *et al.* (1963) have determined that between the ages of 8 and 15 years, 57% of the growth in the length of the tibia occurs at the proximal end.

Diaphyseal length mm	Probable skeletal age years	Skeletal age range years
143	1.5 — 2.5 (at death)	1.5 — 3.5
139	1.5 — 2.5	1.5 — 3.5
135	1.5 — 2.5	1.5 — 2.5
131	1.5 — 2.5	0.5 — 2.5
123	0.5—1.5	0.5—1.5
109	0.5—1.5	0.5—1.5
95	0.5—1.5	NB—1.5

TABLE 1

Timing of growth disturbances in the Melville Site burial based on tibial Harris' lines.

It is probable that this differential growth occurs at earlier ages as well. However, the difference between this and the assumption of equal growth at both ends is too small to affect materially the results. The estimated diaphyseal lengths and probable skeletal ages (cf. Merchant, 1971) for each dysfunctional episode are given in Table 1.

Discussion

The Melville burial is of interest because there are no other published detailed examinations of child burials from Petun sites. In addition, there are indications of a high level of morbidity in this child before death. It is most likely that the repeated experience of morbidity has caused much of the disparity among the various age determinations. Dental age is a relatively close estimate of actual chronological age since the timing of tooth development is less affected by biological insult than other developmental events. On the other hand, skeletal age is a better reflection of developmental status.

Individuals between the ages of three and five are known to be subject to high degrees of stress and mortality in many prehistoric societies (Clark, 1977; Sullivan, 1986; Sullivan and Weaver, 1983), and this is true of Iroquoian populations as well (Sullivan and Melbye, 1979). Therefore, it is not surprising to find evidence of morbidity which occurred at ages 3.0 to 4.0 years in this individual. The Melville child suffered at least six major insults in his or her short life. These were strong enough to retard skeletal growth and leave distinctive Harris' lines. These insults are multifactorial in their origin (disease, fever, malnutrition, etc). Whatever the cause, it is clear that this child suffered from high morbidity in a relatively short period. Indeed, we could cite seven events if we consider that the final morbid condition may have resulted in the individual's death.

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