



**NEWSLETTER OF THE LONDON CHAPTER,  
ONTARIO ARCHAEOLOGICAL SOCIETY**

*c/o Museum of Ontario Archaeology  
1600 Attawandaron Road, London, ON N6G 3M6*



September & October 2013

13-5 & 6

The April meeting of the London Chapter OAS will be held on Thursday, April 10, 2014 at the Museum of Ontario Archaeology. The speaker will be Dr. Christopher Watts, SSHRCC Post-Doctoral Fellow in Western's Anthropology department, who will speak about his recent archaeological research including that at the enigmatic Cedar Creek Earthworks near Lake Erie in a presentation entitled: *Common Themes/Uncommon Histories: Late Woodland Earthworks in the Lower Great Lakes*.

✦✦ **UPCOMING EVENT** ✦✦

The **47<sup>th</sup> Annual Meeting of the Canadian Archaeological Association** will be held in London this year. So block out the days between May 14<sup>th</sup> and May 18<sup>th</sup>, it is shaping up to be a fantastic conference! The meetings will be at the downtown Hilton (300 King Street). For more details check out [canadianarchaeology.com/caa](http://canadianarchaeology.com/caa).

Speaker's Night is held the 2<sup>nd</sup> Thursday of each month (January to April and September to December) at the Museum of Ontario Archaeology, 1600 Attawandaron Road, near the corner of Wonderland & Fanshawe Park Road, in the northwest part of the city. The meeting starts at 8:00 pm. Doors open at 7:30 PM and as usual there will be free juice and cookies!

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## Three Burials from the Libby-Miller Site, Kent Co., Ontario

Michael W. Spence

### INTRODUCTION

In 1991 excavations were conducted by M.M. Dillon Ltd. on the Libby-Miller site (AdHo-20) in Kent County, Ontario. The Project Director was W. Bruce Stewart and the Project Archaeologist was William R. Fitzgerald. The Libby site is a Western Basin tradition site by the Sydenham River in the town of Wallaceburg (Murphy & Ferris 1990:259; Ferris et al. 1990). European trade beads from the site suggest a date of about 1500-1550 AD, in the later Wolf phase (personal communication, W.R. Fitzgerald; see also Ferris et al. 1990; Murphy and Ferris 1990:259). The site is a substantial palisaded village, probably occupied through most or all of the year (Prevec 1991a).

In the course of the excavation, three burials were found by the north edge of the site. After their careful excavation by the field crew, the bones recovered from the burial pits were passed to me for analysis (Spence 1992a, 1992b). Also included here are a few isolated finds of human bone. The analysis was conducted in August and September of 1991, after which the bones were returned to Dean Jacobs of the Walpole Island Research Centre, who arranged for their reburial by traditionalist Nelson Shogosh. Care was taken during the analysis to sort out all extraneous material (non-human bone, nut shell, pottery sherds, chert flakes, etc.) from the human bone, so that only the human bone would be included in the reburial. Also, following the wishes of traditionalists, none of the bone was contaminated with catalogue numbers, glue or other modern substances. Below the detailed analysis of the bone from each burial pit is presented, followed by a description of the few scattered finds of additional human bone.

### BURIAL FEATURE 15N10WF1

#### *Organization and Treatment*

In square 15N10W, Feature no. 1 (hereafter F1) was a pit used for a multiple burial. The southern part of the pit had been disturbed when a palisade extension was built through it. Much later, the north part of the pit was truncated by the construction of a modern drainage trench and its associated retaining wall. The burial had thus been disturbed at least twice before its excavation. None of the human bone recovered from the feature had been burned, and a careful examination revealed no signs of cutting or scraping.

The skeletal material rested in five clusters around the base of the feature. The bones represent four distinct people, individuals A-D. The clusters are:

**Cluster 1** - in the south central part of F1. The human skeletal and dental material are all from individual A, an adult. Present were five teeth: the upper left third molar (ULM3), URC, lower right first premolar (LRPM1), LRM3, and an upper premolar that cannot be more specifically

identified. The skeletal elements included the first, second and third cervical vertebrae; a right rib; and the right clavicle. The teeth and cervicals were clustered in the south part of the cluster, the rib and clavicle further to the north. The cervical vertebrae were articulated, although the palisade extension posts would have caused some disturbance to individual A.

**Cluster 2** - located on the southwest edge of F1, about 30 cm from Cluster 1. There are several bones and a tooth from individual B, an adolescent female. The identifiable elements are URM3, the right clavicle, at least four left ribs, five middle to lower thoracic vertebrae, a fragment of hand phalanx, part of the left first metacarpal, and a small piece of femur or humerus proximal epiphysis. Preservation was poor, but laboratory observations show that at least some of the ribs and vertebrae were articulated despite probable disturbance by the palisade construction. Some burned wood fragments were also found, one of them adhering to a rib. However, none of the bone from the pit showed any trace of fire, so the association may just be a fortuitous result of post-depositional mixing.

**Cluster 3** - by the west edge of F1, some 25 cm northwest of unit 2. Cluster 3 consists of the left and right ischia, right ilium, left and right pubes, an unfused proximal femur epiphysis, a rib fragment, two proximal row hand phalanges, and the right capitate, navicular and lunate of individual B; and four hand phalanges (two middle and two proximal row), the right hamate, the left lunate and the left triangular of individual A. This part of the pit had not been disturbed by the palisade or retaining wall construction, and the pelvis segments of B were still articulated with one another.

**Cluster 4** - by the north edge of the surviving part of the pit, in an area probably disturbed during the building of the retaining wall. There are four permanent teeth, all of individual D, a child: ULI2, URI2, ULI1 and URC. Some bone was noted around the teeth but it was too disintegrated to identify. The teeth, though clustered together, were not aligned. Probably a cranium had originally rested there. If the body had been more complete, it would have been removed during the construction of the retaining wall.

**Cluster 5** - in the northeast part of the pit, about 30 cm east of cluster 4. There are several teeth and skeletal elements, all of individual C, an adolescent: LLII, LRII, URII, ULPMI, ULM3, URM3, part of the left clavicle, part of a proximal or middle row hand phalanx, several rib fragments (perhaps representing as few as two or three ribs), and a number of vertebral fragments. The latter represent at least four vertebrae: the first and second cervical vertebrae, another cervical from somewhere in the C3-C7 span, and a thoracic. During excavation some rib and vertebral articulations were observed. In laboratory analysis the dirt-encased material was observed to include some intermingled teeth and ribs, and some ribs in juxtaposition with one another but at varying angles to each other. This part of F1 had not been directly disturbed by the drainage ditch and retaining wall. Apparently individual C had originally been at least partially articulated but the bones had been disturbed and somewhat displaced by some later event. The

absence of the major long bones and scapulae is significant, given the presence and partial articulation of the torso.

Also from F1, but of uncertain provenience within the feature, are one or two fragmented thoracic vertebrae of individual A.

All four individuals were quite incomplete but, with the possible exception of D, at least partially articulated at the time of recovery. This incompleteness may be due in part to the disturbances of the feature by aboriginal palisade construction and the modern drainage trench, but another form of disturbance (discussed below) seems also to have been involved. It is impossible to be sure of the original condition of the burials, although some evidence survives. Based on that evidence, individual A was at least partially fleshed when first deposited here. The articulated cervical vertebrae of cluster 1 indicate as much. The clustering of upper and lower teeth suggests that the cranium and mandible had been in close proximity, perhaps articulated with each other and with the cervicals. The rib and clavicle a bit to the north may also have been close to their original positions. There is thus good evidence to believe that at least the fleshed upper torso and head of an adult had been placed in the pit, with the head at the south edge of the feature. The wrist and hand bones of A in cluster 3 have probably been displaced to some degree, but the extent of their displacement is unknown.

Numerous parts of individual A are absent: all of the cranium and mandible (except some of the teeth), all the major limb bones, and the lower torso. The central portion of the pit (where some of these missing elements would have been situated if the burial had been a complete primary one) had not obviously been disturbed by either of the later events, the palisade and retaining wall construction. This suggests that individual A had been partially exhumed for inclusion in a secondary burial.

Individual B is an adolescent female. Parts present include elements from clusters 2 and 3. These are the articulated but still unfused pelvic elements, an unfused proximal femoral epiphysis, a tooth, ribs and vertebrae (with some articulations), the right clavicle, and some wrist and hand bones. As with individual A, there are numerous missing elements (including the cranium, mandible and long bones) and no signs of dismemberment. Individual B, like A, may have been partially exhumed at some time after the original primary burial in F1.

Individual C, confined to the northeast corner of the pit in cluster 5, is represented only by some teeth, ribs and vertebrae, the left clavicle, and a hand phalanx. At least some of the ribs and vertebrae were articulated. Among the missing elements were the cranium, mandible and long bones, again suggesting exhumation.

Individual D is represented only by the teeth of cluster 4. Field observations note the presence of some disintegrated bone, but the bone could not be recovered and the area had been badly impacted by the drainage ditch and retaining wall construction. The postcranial body was probably obliterated by the drainage ditch.

### *Sex and Age Evaluation*

It was possible to make a sex identification only for individual B. There the relatively wide sciatic notch and the marked preauricular sulcus of the right ilium indicate a female. The other three individuals were too poorly represented or too young for reliable sex assessment.

Individual A is a full adult. The epiphyseal plates of the vertebrae have fully fused, indicating an age over 20 years. This age is corroborated by the eruption of the third molars. Attrition is moderate, by Patterson's (1984) scale: stage 5 for the upper canine, stage 3 for the lower first premolar, and stage 2 for the lower third molar. Although no precise age can be assigned, it is likely that individual A lies somewhere in the 25-40 year span.

Individual B has not yet reached the point where the proximal epiphysis of the femur, the sternal epiphysis of the clavicle, or the epiphyses of the rib head and tubercle had fused. The epiphysis of the ischial tuberosity has not yet fused to the ischium, nor has the ischium fused to the ilium. The auricular area, though not completely preserved, shows the raw surface and transverse billowing characteristic of a young person, between puberty and 24 years (Lovejoy et al. 1985). The symphysis pubis is also incomplete, represented by only part of the dorsal area, but can be placed in phase 1 (15-24-years) of the Suchey-Brooks system (Suchey & Katz 1998). The upper third molar is at Trodden's (1982) stage 7, with the root only about one-quarter complete. Trodden assigns an age of approximately 15.5 years to this stage of development for Indian females. With all of the evidence considered, an age of 15 years seems appropriate for individual B.

The proximal epiphysis of an individual C hand phalanx has not yet fused. The upper medial incisor shows some occlusal wear, revealing the dentin, while the upper third molars have reached Trodden's (1982) stage 8 (root half developed) on the right and stage 9 (root three-quarters complete) on the left. For Indians of combined sex, this suggests an age of 15.7-18 years. An age of 17 seems plausible. Note that the upper right third molar of individual C has developed to Trodden's stage 8, while the same tooth of individual B is at stage 7.

Individual D is the youngest in the F1 burial. The general stage of development of the recovered teeth, evaluated by Ubelaker's chart (1978: fig. 62), is about 9 years  $\pm$  24 months. The upper lateral incisors in Trodden's system (1982) have developed to stage 9 (root three-quarters complete), while the upper medial incisor is at stage 11 (root apex virtually closed). The data presented by Trodden on combined sexes among Indians (1982: Table XIII) indicate an age of 8-12 years, with 10 years being a plausible compromise among the various possibilities.

### *Pathology*

The poor preservation and past disturbances of the F1 burials makes it difficult to say much about pathology. Of the five permanent teeth of individual A that were recovered (URC, UPM, ULM3, LRPM1, LRM3), all but the ULM3 could be examined for dental pathology. Dental

trauma in the form of fractures is absent in all four observable teeth. Chips were noted on the crowns of the URC and LRPM1 (one chip each). Caries were absent on URC and LRPM1. The LRM3 has two small caries, one on the buccal face of the crown and one on the lingual side. The upper premolar has one small caries at the tooth neck (cej).

The only tooth recovered from the fifteen-year-old individual B is the URM3. It shows no pathology, but had probably not erupted before death. Individual C, about 17 years of age, is represented by six teeth (URI1, ULPM1, ULM3, URM3, LLI1, LRI1). None show caries or trauma. Individual D, about 10 years old, is represented by the ULII, ULI2, URI2 and URC. There is no evidence of dental pathology.

## **BURIAL FEATURE 10N10WF4 (F4)**

### ***Organization and Treatment***

Features 2 to 4 are clustered together and partially overlapping in the 10N10W square. These pits and F2A (see below) are inside the small palisade extension that cut through F1. There is a quantity of cremated human bone from F4, which also produced some charcoal and ash. However, there is no evidence of *in situ* burning. There is some fire-reddened soil in the adjacent F3, which is partially cut into by F4, but no human bone was found there. In view of the fact that some bone would inevitably have been left at the original cremation area, and seeing that F4 intruded into F3, it is unlikely that the cremation was originally conducted in F3. It must have taken place somewhere beyond this complex of pits. Also included in this collection are a small piece of burned adult calvarium from provenience 2150, topsoil about one meter east of the pit, and a burned subadult right third metatarsal from provenience 2048, the topsoil immediately over the pit.

A total of 3914.6 grams of cremated fragmentary human bone was recovered for analysis. In addition, there are 130.0 grams of non-human material (mammal and fish bone, some freshwater shell fragments, some nut shells, and a few small bodysherds and chert flakes) that were sorted out of the mass of recovered bone. Considerable pain was taken to remove all the non-human material from the collection, though a minor amount might have remained undetected among the numerous small bone fragments. In contrast to the human bone, much of the non-human bone is unburned.

The human bone includes the remains of six individuals: two adults, two children and two infants. Most of the fragments cannot be precisely identified, though the majority are adult human. Only 93.8 of the total 3914.6 grams can be assigned unequivocally to the subadults.

The numerous fragments are generally in the 3-35 mm size range, though a very few reach 70 mm. Most are too small to identify to element (cervical vertebra, femur, parietal, etc.), but many can be assigned to a category (vertebra, long bone, calvarial fragment, etc.). Virtually all pieces show the effects of fire. The only identifiable pieces that appear unburned are five permanent

teeth (all possibly from one adult, to judge by the fairly heavy attrition), part of an adult right scapula, and part of an adult right fibula. The fibula actually has one small blackened area on the shaft. Although all of these may be from a single individual, they cannot be taken as evidence for the presence of a relatively unburned person in the deposit. As noted above, the vast majority of the fragments (including, presumably, numerous fragments from this person) are burned.

None of the fragments show cut or scraping marks, though of course most are too altered by fire to allow observation. The burning was thorough. Bones range from smoked (blackened, an early stage in burning) through grey and blue to calcined (white, the most heavily burned).

The adult bone did not show any clear bias in the degree to which particular elements were burned. Fragments from each general category (long bones of the leg, cranial bones, long bones of the arm, etc.) show the full range from lightly to severely burned (smoked to calcined). This evidence suggests that the fires were not concentrated on any particular part of the adult bodies.

The condition of the adult bones indicates that the cremation took place while they were still encased in flesh (Binford 1963). The long bones frequently show deep, curved, transverse cracks. Some bones are warped, and checking is rare. These characteristics, however, may not be as diagnostic of fleshed burning as once believed (Buikstra and Swegle 1989).

In their experiments, Buikstra and Swegle (1989) established that one of the few good criteria of dry bone burning is the presence of an apparently unburned, tan exterior surface over a blackened interior. No such fragments were noted in the collection. However, it is still possible that the bones were burned while green, that is, after the removal of the flesh but before the bone had dried. Nevertheless, other evidence indicates that the bones were still in articulation with one another when burned, and so presumably fleshed (Buikstra 1973:19). In several instances it could be seen that the shaft or body of a bone was more severely burned than the articular surface, which must have been protected by the articulating element. Examples include a distal humerus fragment, a proximal radius, a proximal femur, two metacarpals, one metatarsal, and five vertebral fragments that show less burning on their articular facets than on their body surfaces.

The older of the two children had probably also been burned while fully fleshed. The articular facets of the first and second cervical vertebrae are less severely burned than the other parts of those vertebrae. Most of the cranial bones, the first and second cervical vertebrae, and some ribs were calcined. The thoracic vertebrae, parts of the frontal and temporal bones, and both mandibular rami were brown to black, indicating less severe burning, while the long bones ranged from blue through white. This suggests that the burning may have been focused more on the uppermost body and head, but the evidence is not conclusive.

The younger child was cremated in either fleshed or "green bone" condition, since no evidence of dry bone burning was observed. The fire may have been concentrated on the upper body, with the cranial and mandibular elements largely white and the right clavicle blue to white, while a fibula, some vertebral fragments, and part of the right orbit show less intense burning.

The two infants also show no evidence of dry bone burning, though it is not clear whether they were fleshed or defleshed when cremated. In both cases the fire may have been concentrated on the upper body and head, with cranial bones generally calcined and postcranial elements tending more to be only smoked or brown. The same patterning was seen in a number of other subadult bones that could not be assigned to a particular child or infant. However, the greater severity of burning on calvarial fragments does not necessarily mean that the fire was focused on the head. It may simply be that the thinner flesh of the scalp offered less protection from the fire.

The bones of the adults and subadults seem to be intermingled in the deposit, with no perceptible tendency for particular elements or individuals to be concentrated in any one sector. Some non-human bone was also mixed with the human bone. Some of this is certainly refuse, since a few chert flakes and small bodysherds are included in it. The bones represent a variety of different fish and animals, and are for the most part unburned (Prevec 1991b). They were certainly not included in the cremation fire. However, Prevec also notes the presence of a series of whitefish or lake herring (*Coregonus* sp.) vertebrae, which seem to indicate the presence of a single complete or largely complete (the head may be missing) fish in the deposit. This material may represent a burial offering. Unfortunately I cannot say whether or not these bones were present in the deposit as an articulated vertebral column. One of the subadult primary burials at the contemporaneous Huron Keffer site was accompanied by the articulated vertebral column of a fish, which rested immediately above the body and had undoubtedly been placed there as an offering. The suggestion that the F4 fish was present as an offering is reinforced by a similar occurrence in F2A, the other cremation (Prevec 1991b). In both cases, the offering fish made up the majority of the non-human bone identified to the genus or species level.

In sum, F4 represents the thoroughly cremated remains of six individuals. At least some, and probably all, had been cremated while their bodies were still at least partially encased in flesh. Two of the adult metacarpals show less severe burning on their distal articular surfaces than on the adjacent shafts, indicating that whatever decomposition had taken place before cremation had not yet reached the stage where the proximal row of phalanges had become detached. One adult distal hand phalanx was identified. However, it is difficult to say for certain whether each individual had been cremated at death, with their bones later deposited together in a joint secondary burial, or whether each was kept separately after death to later undergo a joint cremation and burial with all other individuals who had died in that particular period. If the latter alternative is correct, the joint cremation must have occurred before extensive decomposition had taken place. This would suggest that no more than, and quite likely less than, a year intervened between death and cremation. What evidence is available, in fact, suggests that the bodies were largely complete when burned, and that no selection of elements or dismemberment had taken place. The F4 material includes numerous fragments of ribs, vertebra, and the small tubular bones of the hands and feet, despite the greater fragility of these elements.

### *Sex and Age Evaluation*

The six identified individuals are two adults, two children and two infants. The MNI of six is based on bone duplications and on the considerable age differences represented in the collection. The presence of two distinct adults is indicated by two right mandibular sections, both showing eruption of LRM3; two distal right fibula fragments with fused epiphyses; and two proximal right radius segments with fused epiphyses. Other elements showing the presence of two individuals, but with their identification as adults based on size rather than epiphyseal fusion, include fragments of maxilla, right scapula, frontal bone, occipital bone, right mastoid, sphenoid and navicular. Still other adult elements represented in F4 are humerus, ulna, femur, tibia, rib, vertebra (cervical, thoracic, lumbar), pelvis (sacrum, ischium, ilium), lunate, greater multangular, talus, phalanx (hand), metatarsal and metacarpal.

The widely varying sizes of bones from the two individuals suggest a male and female. This interpretation is supported by a rounded superior orbital margin, suggesting a male, and a frontal fragment from the other individual showing only a very slight supraorbital ridge. Nevertheless, no secure sex identification is possible with this evidence.

Ages are also somewhat uncertain. There has been full fusion of the epiphyses of the distal humerus, proximal radius (both individuals), distal ulna, proximal and distal femur, proximal and distal (both individuals) fibula, and proximal left third and right fourth metatarsal. There was also full fusion of the head and tubercle epiphyses of the ribs and the epiphyseal plates of the vertebrae. The lower third molars of both individuals had erupted. Attrition, in the system described by Patterson (1984), is stage 6 for a lower canine and first premolar and an upper second premolar, quite possibly all of the same individual, and stage 3 for an upper second molar. One cranial fragment includes a section of fully closed but still ectocranially visible sagittal suture. Thus, both individuals are probably full adults, and one may be of middle age to judge by dental attrition.

The older (non-infant) subadult bones can be assigned to two children, one somewhat older than the other. The older child is represented by fragments of radius, ulna, femur, scapula, rib, vertebra (including first and second cervical, other cervical, and thoracic), mandible and cranium (including frontal, occipital, temporal and maxilla). Material from the younger child includes the right clavicle, both fibulae, the left second cuneiform, cervical and lumbar vertebrae, mandibular fragments, and parts of the cranium (frontal and maxilla). Still other fragments are of the children, but it is impossible to say which child.

One of the thoracic vertebrae of the older child shows fusion of the body and arch, but the line of fusion is still visible, indicating an age of 7 years or more (Bass 1987:96). The maxillary permanent incisors, canines, premolars and first molars had erupted, but the areas of the second and third molars have been lost or destroyed. By Ubelaker's chart (1978: fig. 62), these observations would suggest a minimal age of 11 years  $\pm$  30 months, or approximately 8-14 years.

A loose maxillary second premolar in the collection had developed to stage 6 (crown complete) in Trodden's (1982) system. Using her combined sex Indian data, an age of  $7.04 \pm .82$  years would be assigned. The best compromise among these data would be an age of 8 years.

The vertebral arch halves of the young child had fused to one another, but at least in the case of a cervical, had not fused to the body. The mandibular and maxillary deciduous first and second molars had erupted, but damage prevents observations on the status of the permanent first molars. These factors, taken together, suggest an age of 2-3 years (Bass 1987; Ulebaker 1978: fig. 62). The crowns of the left and right maxillary first molars were found loose in the collection. Their morphology shows that they are from the same person, the younger child to judge by their stage of development. Each had reached stage 6 (crown complete) in Trodden's (1982) system, which in her combined sex Indian data suggests an age of  $3.19 \pm .43$  years. In sum, an age of three years seems reasonable.

The bones of the two infants can be differentiated in some cases, since one is slightly older than the other. The older infant is represented by a complete right ulna (length- 69 mm); parts of a right femur, left humerus, and tibia; and the petrous segments of both temporal bones. The younger infant is represented by fragments of nine vertebral arch elements, two ribs, eight hand or foot elements (one identifiable as a hand phalanx), a complete left scapula (scapula length - 36 mm, scapula breadth - 32 mm), both humeri, the right femur, the left scapula, an ischium, the left malar, the left pars lateralis of the occipital, and the petrous segment of the left temporal. In addition, as with the two children described above, a number of other fragments could be assigned generally to this age category but not to a particular infant.

The older infant, on the basis of ulna length, would be placed between infants P1 and K20 in the seriation of Ontario Iroquois subadults by Saunders and Spence (1986: Table 4). This evidence suggests an age of between birth and two months, probably about 1-2 months (Scheuer & Black 2000: Table 9.18). The other infant is younger, to judge by the smaller size of its bones. The scapula dimensions indicate a newborn (Scheuer & Black 2000: Tables 8.3-8.5). A loose deciduous ULM2 in the collection had reached developmental stage XIX in the Kraus and Jordan (1965) system, also suggesting the infant died at birth.

### ***Pathology***

No abscesses were present in the recovered adult mandibular and maxillary fragments. However, there was premortem loss with socket resorption of the right first and third molars of one mandibular fragment. The second molar socket in the fragment is porous and shows some swelling at the apex of the distal root, though the loss of the tooth appears to have been postmortem.

Four permanent teeth were recovered that can be assigned to the adults, to judge by their attrition. Two of the four (LRC, URM2) show trauma in the form of chipping, and all four have caries. The URPM2 has a small caries on the distal edge of the occlusal surface. The LRPM1 has

two small caries at the cej, one mesial and one distal, and a larger one on the distal face of the crown. The LRC has a mesial caries at the cej, while the URM2 has a distal cej caries.

## **BURIAL FEATURE 10N5WF2A (F2A)**

### ***Organization and Treatment***

F2A, like F4, was located within the palisade extension that cut across F1. The human bone was found in a dense concentration, with no articulations, in the lowest level of F2A. Although the bone had been cremated, there is no evidence of burning in the feature itself. It thus seems that the cremation took place elsewhere, the burned remnants then being transferred to the pit for final burial. This suggestion is reinforced by the small size of the deposit. The human bone weighed only 131.1 grams. Mixed in with it was an additional 8.6 grams of fish and non-human mammal bone, showing much less thorough burning than the human material (Prevec 1991b). Included in the non-human bone was the better part of a *Coregonus* sp. vertebral column.

The burning was intense, somewhat more so than with the F4 bone, which tends to have relatively fewer calcined and more smoked pieces. Two individuals can be identified, an adult and a child. Both were probably cremated while they were still partially or fully fleshed. Neither shows the tan surface over burned interior that is characteristic of bone that has been burned when dry (Buikstra and Swegle 1989). The adult bones show deep and curving transverse cracks, some deep checking, and some warping. One adult vertebral facet is less severely burned on its articular surface, suggesting that it was still in articulation when burned. The same is true of a cervical articular facet that can be assigned to the child.

The adult bones from any one body part show a wide range in the severity of burning, but there is a tendency for the vertebrae to be least burned (brown to black) and the cranial pieces to be calcined. This observation also holds true for the subadult bones, although the sample is small. It may be that this pattern reflects more concentrated burning on the uppermost body and head. However, if the bodies were burned while still encased in flesh, it is also possible that the thinner flesh of the scalp simply provided less protection from the flames.

### ***Sex and Age Evaluation***

Identifiable bones that can be assigned to the adult include pieces from the femur, humerus, left tibia, talus, ribs, cervical and thoracic vertebrae, parietal, temporal, frontal and teeth (a lower mandibular molar and a maxillary premolar). The only indication of sex is a broad and rounded superior orbital margin, suggesting a male. Considerable age is indicated by the near obliteration of the sagittal suture and the heavy attrition on the maxillary premolar, worn to the point where the root functioned as part of the occlusal surface.

Only twelve fragments could be assigned to the child: 9 from the calvarium, 1 sphenoidal, a cervical vertebra arch, and a vertebral body that is probably also a cervical. The arch and body

had not yet fused, indicating an age of less than three years. The size of the vertebral elements suggests a child of about two years.

### *Pathology*

The only evidence of pathology is a caries that has destroyed part of the crown of the worn maxillary premolar.

### **ISOLATED FINDS**

In addition to the burials described above, there were several scattered finds of human bone that do not seem to have been actual burials. These are described below under their bag numbers.

**1484.** From square 10N10W subsquare 15LC came an unburned LLC. The wear is fairly pronounced, indicating a middle-age adult. No caries or trauma are present.

**1534.** From 10N5WF3, the distal end of a left humerus and a LLM3 were recovered. The humerus fragment shows full fusion of the distal epiphysis, and has been blackened by fire. The LLM3 is unburned. It is of a full adult (the wear is stage 6 in Patterson's system). No caries are present, but there is a chip on the mesiolingual corner of the crown. The tooth and humerus may be from the same adult. However, the presence of these two isolated elements in F3 does not indicate a burial there. Possibly they were displaced from the nearby cremation of F2A, though the F3 and F2A pits do not overlap.

**2002.** From 15N10W subsquare 22B were recovered four unburned permanent teeth, probably all from a single subadult: URC, URPM2, URM1 and LLM1. The developmental stages are, in Trodden's (1982) system: URC-stage 8 (root half complete), URPM2-stage 8, URM1-stage 11 (root complete), LLM1-stage 9 (root three-quarters complete). Trodden's combined sex Indian data (1982: Table XIII) suggest an age of 8-9 years for the subadult. The only evidence of trauma is a chip on the distal edge of the URM1 crown. There are no caries.

Although the teeth were together, there were no other human remains in the feature. This excavation subsquare is only about one meter from the F1 burial, but the teeth are not from any of the four individuals represented there. Although individual D of F1 is about the same age, the URC of individual D was recovered and establishes D as a separate person from the subadult represented by the bag 2002 teeth. Perhaps the 2002 teeth are from a primary burial that had been largely exhumed, leaving behind only those teeth that had fallen out during decomposition.

**2007.** A fragment of the left parietal and temporal of a young adult (to judge by the size and state of fusion) was found on the surface of 5N25WF2. F2 appears to have been a pit for refuse disposal, and contained no other evidence of burial. The cranial fragment may have been deposited here as refuse, or as a remnant of a disturbed burial from elsewhere in the site.

**2020.** The burned root of a premolar was recovered from 10N10W subsquare 20. The provenience is about two meters from either of the two cremations described above (F2A and F4), so the tooth may not be related to them.

**2073.** Ten fragments of bone, all burned black, were recovered from posthole 29 of square 10N10W. The total weight is 10.7 grams. Five are unidentifiable, one is from one of the larger long bones (probably femur), and four are from an adult cranium. Of the latter, one is from the left parietal and another is from the left temporal. The left lambdoidal suture is closed and still visible ectocranially but fully obliterated endocranially, suggesting that the adult was not young. It is probably safe to assume that all of the fragments are from the same adult. The size and degree of burning of the cranial fragments is much like that of the adult male cremation of F4, but posthole 29 is about a meter from F4 and the line of postholes does not intrude on F4. It is thus possible that the 2073 bone is material displaced from a separate, unidentified cremation.

## CONCLUSIONS

The 1991 excavation at the Libby-Miller site uncovered three burial features in a relatively small area, as well as some isolated finds of human bone that may represent material displaced from disturbed or exhumed burials. F1 included four individuals: an adult, an individual about 17 years old, a female of about 15 years, and a child of about 10. None were cremated. There is no evidence of the post-mortem defleshing that is often observed in Western Basin tradition burials, but the recovered bones do not include the elements that would normally show such alteration (Spence 1990; Raemsch 1993). At least three of the bodies were partially or totally fleshed when placed in the pit.

The elements recovered from F1 include clavicles, vertebrae, ribs, phalanges, carpals, a metacarpal, teeth (which often fall from the bone during the initial decomposition of the flesh), and segments of the unfused pelvis of individual B. Elements consistently missing are the major long bones of the arms and legs, the scapulae, the innominates (except for individual B), and the crania and mandibles. Even the cranium of individual C may not have been present; only some unidentifiable and badly disintegrated bone was noted in the vicinity of the teeth, which were unaligned and did not form a complete sequence (the URI1 was not present). These absences are more than can be explained by coincidence or the vagaries of preservation. If delicate bones like the ribs and vertebrae are preserved, so too should be the long bones with their higher proportion of cortical bone.

The roster of recovered elements, in fact, matches well with those left in exhumed primary burials elsewhere in Ontario (Fox 1982; Spence 1988). The elements consistently missing from F1, the crania and the largest postcranial bones, are those most often exhumed from primary burials for transfer to a secondary burial. These selections may be partially due to the fact that the small bones are more likely to be overlooked in an exhumation, but they also probably reflect a special value placed on some of the exhumed elements, like the cranium. Note, however, that

some of the smaller elements may also be transferred to the secondary burial, perhaps because decomposition was still incomplete or simply because they were noticed and collected in the course of the exhumation (e.g. Spence 1988).

F1, then, probably represents a multiple primary burial from which selected elements were later removed for secondary burial. Since numerous teeth and smaller bones were left behind in the primary grave, it may be assumed that some degree of decomposition had taken place between the initial primary burial and the exhumation. Deceased individuals in Western Basin and Ontario Iroquoian societies were often given an individual primary burial at their time of death, and then were later exhumed for a joint secondary burial. If this reconstruction is correct, several months may have intervened between the primary and secondary burials. This would allow some decomposition, though cutting may have been required to disarticulate some elements (especially in the case of those who died not long before the secondary burial).

Most primary burials of this sort would not be expected to hold more than one or perhaps two individuals. The deaths of more at any one time would be very unlikely in the normal run of things in such small communities. However, exceptional events such as raids, accidents, and devastating natural events do occur, and can lead to a sudden spike in the normal annual mortality profile. This may have been the case with F1, which apparently held four primary burials that had been made at the same time. The ages of three of the four people in the burial, approximately 10, 15 and 17 years, fall in a span that is generally underrepresented in burials (Merrett 2003). The normal mortality patterns show high mortality in the first year, perhaps with a subsequent small spike at the time of weaning around two to four years, and then low mortality until the dangerous period of pregnancy (Merrett 2003; Pfeiffer 1986; Ubelaker 1978). Deaths in older childhood or adolescence are not generally common, although there may be some Ontario exceptions (Jackes 1986:36). The occurrence of three such deaths at the same time suggests an unusual episode, a disaster of some sort in the community.

The other two burial features, F4 and F2A, held cremations. F4 contained six individuals while F2A held two. The age profiles, emphasizing adults, younger children and infants, are more in line with demographic expectations than those of F1. The bodies were cremated while fresh or green, probably while still at least partially fleshed. It is not clear whether each was cremated at the time of death, the remains later being deposited with those of the others in a joint secondary burial, or whether each was interred separately at death, to later be exhumed and cremated together with all the others who had died that year. The former alternative is more probable, given the good representation of lesser bones like ribs, vertebrae, and the small bones of the hands and feet. To judge by the F1 data, these are usually left in the primary grave. Most likely, then, full bodies were cremated and the surviving fragments retained for secondary burial. Although the crania seem to be more severely burned than other body areas, this may merely be due to the thinner flesh covering them.

The season of the final burial is not known. Among the Early Ontario Iroquoian Glen Meyer people it may have occurred in the spring, with the shift in settlement to the warm-season occupation site (Spence 1988). However, Prevec (1991a) believes that the Libby-Miller site may have been inhabited through most or all of the year. Thus the final burial, although it may have been timed to coincide with a seasonal change in activities, would not have marked a displacement in settlement.

The faunal material mixed directly with the F4 and F2A human bone offers some evidence on the question of seasonality. Prevec (1991b) identified a number of animal and fish genera in both collections, covering a fairly wide seasonal range. However, each of the two collections contains elements that seem to indicate the presence of a single, relatively complete fish of the *Coregonus* genus (lake whitefish or lake herring). In each case these elements form by far the largest proportion of those identified to the genus or species level. In F4, there are 42 elements of *Coregonus* while in F2A there are 44. The next largest categories are *Stizostedion* sp. in F2A, with 8 elements, and white-tailed deer in F4 with 9 elements. Also from F2A, though collected apart from the cremation deposit, are some 90 scales of *Coregonus*. Unfortunately, it is not known whether the fish bones were present as articulated skeletons or were somewhat scattered in the deposit. If they were indeed offerings, it would suggest a late fall (late November-December) date for the burial event (Prevec 1991b).

No faunal material that would allow seasonal identification was directly associated with the F1 burials. The refuse-rich soil overlying the human bone, which was at the base of the pit, included an extensive spring-summer faunal sample, with an emphasis on fish (Prevec 1991a). However, the relationship of this refuse to the burial is not clear. It might have been deposited there after the burials had been exhumed for the final burial elsewhere.

There is also the question of the relationship of the three burial features to one another. The two cremations are near one another and presumably not far apart in time. They may represent the final burial events in two successive years. The excavators note that they lie just outside the main palisade but inside a small extension to the north of it, and suggest that this extension (which is too small to hold additional houses) may have been created specifically to enclose the burial area. The extension posts ran through F1, so F1 was clearly earlier than F2A and F4.

If F4 and F2A represent successive annual burial episodes, they indicate some variation in mortality from year to year. This is only to be expected in a small community. The episode represented by F1 underscores this, but should not be included in demographic calculations because of its unusual nature. Given an annual crude death rate of about 30-40 per 1000 for northern agriculturalists (Merrett 2003:177; Ubelaker 1978:96; Pfeiffer 1983:10), F4 would suggest a contributing population of about 150-200 while F2A would suggest only 50-70. However, these estimates may be too low. We have no evidence that all of the community's dead from over the year were given a joint secondary burial. Some bodies may not have been recovered after death, or may not have been removed from their primary graves for some reason.

Libby 13, another Libby-Miller site burial, was the fully articulated skeleton of an adolescent who had not been exhumed for secondary burial, perhaps because of a number of congenital problems that would have been visible to others in the community (Spence 1998).

The F1 burial is different. It may represent a particular and tragic event in the life of the community. It also seems to represent a distinct variant in the mortuary programme. The secondary burial that would have followed it would look very much like the multiple secondary Miller burial found elsewhere on the site (Spence 1990). It held eight uncremated individuals and consisted almost exclusively of crania, mandibles and long bones. Some of the long bones showed evidence of dismemberment. The cremations, in contrast, include a good representation of smaller elements, and apparently represent an alternative set of procedures. In other words, the elements removed from F1 were probably not cremated before reburial, at least to judge by the kinds of material recovered from F2A and F4.

At the moment we do not have the data to determine why some Wolf phase burials from this area were fully cremated and others not at all. It may reflect different causes of death. The F1 people may have died unexpectedly, perhaps violently. Two of the Miller Burial individuals, a young woman and a child of eight years, had been scalped (Spence 1990). Warfare with the Neutral ultimately forced the late Wolf phase people out of Ontario and into Ohio and Michigan (Ferris and Spence 1995:121). Alternatively, the difference may represent time changes within the late Wolf phase. F1, though near F4 and F2A, was somewhat earlier. The palisade extension that enclosed F4 and F2A cut into and disturbed part of F1.

Little can be said about health, given the incompleteness and poor condition of the remains. However, dental pathology can be assessed with the teeth of the full adults of F1, F4, F2A and the isolated finds. No fractures were observed but five of ten teeth have chips. One of the subadult teeth, a first molar from bag 2002, is also chipped. Seven of the eleven teeth that can be assigned to adults have caries. By tooth, the caries incidences are 1/13 for canines, 4/5 for premolars, and 2/3 for molars.

Patterson (1984) has described a general trend over time in Ontario Iroquoian populations toward lower levels of antemortem trauma (both chipping and fracturing) and higher levels of caries, and suggests that it reflects their increasing reliance on agriculture produce. The Libby-Miller site data are too sparse to be placed in that sequence. There are only a few teeth from no more than six adults. However, one interesting fact is apparent. Both antemortem trauma and caries are well represented, at 50% and 63% respectively. This suggests a subsistence mix rather different from that of the Huron and Neutral, with a considerable reliance on agricultural products but also the use of harder, non-agricultural foods (or, perhaps, different food preparation techniques).

Evidence suggesting ritual ablation of the upper medial incisors has been observed on some Western Basin skeletons (Spence 1992c; Murphy and Ferris 1990:267). It is difficult to assess this possibility at Libby-Miller. Individuals C and D of F1, respectively 10 and 17 years of age,

were apparently buried with these teeth still in place, but it is impossible to say anything about the other two people in Fl. No upper medial incisors were recovered from the cremations, but maxillary fragments show that at least both adults and the older child still had those teeth at death. The significance of these observations is not clear. It is quite possible that ritual ablation was conditioned by certain factors (age, sex, marital status, etc.) that are difficult or impossible to assess in the Libby-Miller series. The absence of evidence for the practice in the available sample, then, does not necessarily mean that it did not occur in this population. That will have to be determined with future research.

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## Chapter financial report by Jim Keron

Year ended - December 31,  
Chapter2012  
London Chapter

<b>INCOME AND EXPENSES</b>		
	2012	2011
BANK BALANCE - START OF YEAR	9,470.54	11,420.36
<b>PLUS - CASH RECEIPTS</b>		
Membership fees for the Chapter	1,992.00	930.00
Membership fees for the Provincial Society		
Grants		
Donations		
Interest		
Publication sales	303.00	155.00
Other sales		143.78
Symposium profit		
Public outreach programs		
Subscriber Fees	39.60	98.68
Other receipts		
<b>TOTAL RECEIPTS</b>	<b>2,334.60</b>	<b>1,327.46</b>
<b>LESS - CASH PAYMENTS</b>		
Membership fees for the Provincial Society		
Administration	106.50	59.93
Publications	1,169.31	2,651.13
Public outreach programs		
Donations		
Awards		
Museum Rental	0.00	400.00
Cash On Hand		
Other payments	18.62	166.22
<b>TOTAL PAYMENTS</b>	<b>1,294.43</b>	<b>3,277.28</b>
BANK BALANCE - END OF YEAR	10,510.71	9,470.54
<b>OTHER ASSETS</b>		
Petty cash	6	6
Promotional materials		
OAS Display unit		
Back issues of Occasional Publications		
	6	6