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Introduction

The Matson Family Cemetery, previously located in Cleves, Ohio (Figure 1), and dating to the early-to-mid 19th century, was relocated in 2008 by surviving family members so that the land could be used for commercial purposes (Figure 2). The recovery effort yielded a total of 29 individuals, however no positive identities have been established due to the lack of specific grave identifiers. Data gleaned from the remains are currently being analyzed, therefore this presentation will focus on a single individual recovered from the cemetery.

While multiple individuals recovered from the cemetery present osseous anomalies and disease states, one particular individual (Individual #26) exhibits a suite of pathologies that likely have a common etiology.

Individual #26

Individual #26 appears to have been a Caucasian female, aged 14-17 years, with significant asymmetry of the lower limbs (Figure 3). An area of reactive bone covers approximately one third of the frontal bone (Figure 4).

The lower limb asymmetry is primarily manifest in the long bones of the left leg, as they are considerably shorter and smaller in diameter than those from the right (Figure 5). The proximal end of the left femur is heavily remodeled with a nearly absent femoral head (necrotic), abnormal muscle attachment sites and it exhibits periostitis on the shaft (Figure 6A). The right tibia also has periostitis on a majority of the shaft (Figure 6B). The acetabular region of the left innominate exhibits hypervascularity, deformity and remodeling, as well as bony bridging between it and the femoral head (Figures 7, 8).

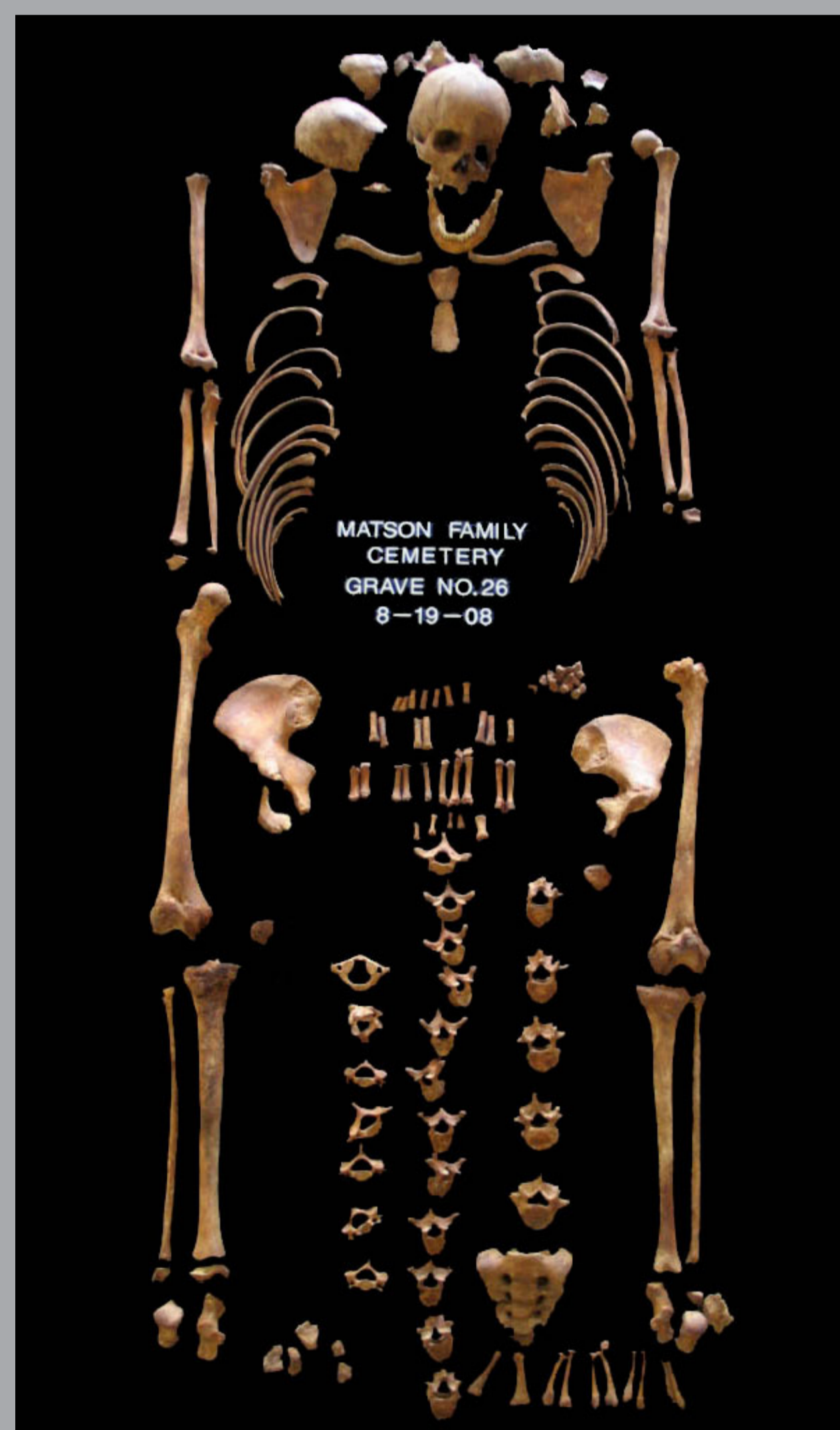


Figure 3. Skeletal remains of individual #26



Figure 4. Skull exhibiting bony destruction on frontal



Figure 5. Right and left femora and tibiae

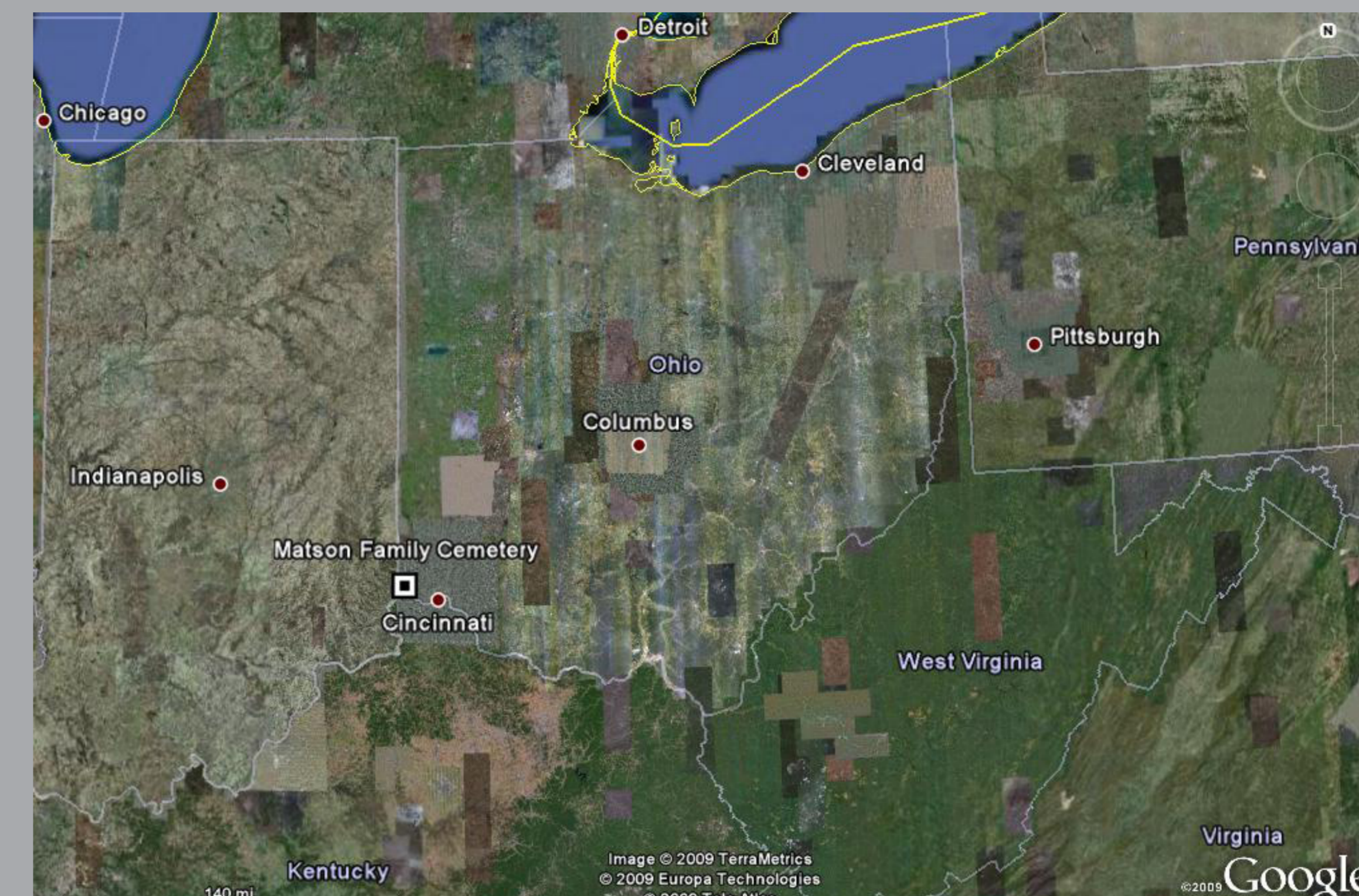


Figure 1. Location of Matson Family Cemetery



Figure 2. Matson graves during excavation



Figure 6. Medial oblique view of left proximal femur with area of bony bridging with innominate highlighted in yellow (A), and medial oblique right tibial shaft exhibiting periostitis (B)



Figure 7. Medial oblique view of left innominate exhibiting hypervascularity and cloaca



Figure 8. Lateral and lateral oblique views of the left innominate with gross bony deformity, cloaca and destructive arthritis. Area of bony bridging with femoral head highlighted in yellow

Discussion

While a congenital dislocation could account for the left hip pathologies, the presence of additional periostitis on the right tibia as well as a cloaca passing through the left acetabular fossa suggests the potential for a traumatic origin. Tuberculosis (TB) of the joint is also possible (with or without the diagnosis of trauma), and would account for nearly all pathological features present. Further, this individual falls within the normal age pattern observed in TB of the hip, which is the second most common bony area affected by the *Mycobacterium tuberculosis* pathogen. However, while TB of the hip cannot be ruled out, it is a weak explanation for the presence of periostitis on the right tibia. Further, cloacae associated with TB generally have sharp margins due to the lack of periosteal reaction, and affected skeletal elements present osteopenia (Aufderheide and Rodríguez-Martín 1998:138). In the present case, no osteopenia was noted and the cloaca exhibited rounded margins (typically associated with periosteal reactions from other infections, such as osteomyelitis).

The cause of death is unknown, but if the bony remodeling reflects the sequelae of a traumatic incident, it is likely that the long-term consequences of this injury (namely infection) contributed to the death of this young individual. TB could also be blamed for the death (if the individual was, in fact, suffering from the disease), however the presence of bony bridging between the acetabulum and femoral head suggests the infection was healing (Ortner 2003:237).

Conclusions

Individual #26 was a young Caucasian female that suffered from gross bony deformities that were likely traumatic in nature. While tuberculosis of the hip cannot be excluded as a contributing factor, it would not sufficiently explain all the pathologies expressed in this individual.

Acknowledgements

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References

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New grave marker for remains moved from Matson Family Cemetery