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STRONTIUM AND OXYGEN ISOTOPIC EVIDENCE FOR MIGRATION TO 19TH-
CENTURY GRAFTON, ILLINOIS

by

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ABSTRACT

The “Great Migration” in 19th century America was a period of rapid demographic change. Grafton, Illinois, located on the Mississippi and Illinois Rivers, offered prosperity in shipping commerce, fishing, farming, and limestone quarrying. Based on historical reports, Grafton drew populations from Kentucky, North Carolina, Pennsylvania, and elsewhere; however, little is known of the immigrant identity such as age during migration and biological sex. This study utilizes stable isotopic methods to detect mobility in a skeletal population from 19th century Grafton to investigate how national historic migration trends were reflected on a local scale.

Strontium and oxygen isotopic analyses were conducted on the premolar enamel of 27 individuals; of these, 15 yielded $^{87}\text{Sr}/^{86}\text{Sr}$ ratios, and 25 yielded $\delta^{18}\text{O}_{\text{VPDB}}$ values. $^{87}\text{Sr}/^{86}\text{Sr}$ ratios show a large range (0.70863-0.71215) indicating that 80% (12/15) of the sample was composed of potential migrants. $\delta^{18}\text{O}$ values range from -7.3 to -4.0‰, suggesting that 40% of the sample population (10/25) potentially originated from nonlocal areas. Considering both datasets, 19 individuals out of the total sample are interpreted as potential migrants. Lead isotopic ratios were available from a previous study for 12 individuals, only 4 of which showed potential agreement with both $^{87}\text{Sr}/^{86}\text{Sr}$ ratios and $\delta^{18}\text{O}$ values. These conflicting isotopic results indicate that factors other than migration may have an input on isotopic values in 19th-century American populations. The age profile of interpreted migrants is broad, including 4 children (age 5-10), 7 young to middle-aged adults (age 20-45), and 8 older adults (age 55+). Of 11 potential migrants whose biological sex was determined, 5 are assigned as male and 6, female. This demographic range diverges from historical accounts of young male migrants marrying local females, and suggests that 19th century American migration patterns were more complex than previously understood.