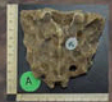


Adrian Murphy

Faces in the Crowd

Individuation of Commingled Burials

Human burials provide archaeologists with a vast array of information that cannot be gained from other sources of data. Although mass graves present various problems for investigators, including individuating remains and accurately determining the number of people present, they are valuable for research on a large sample of people, often from one time period and one location. The use of ultraviolet fluorescence to individuate commingled remains has not been studied since 1975 owing to inconsistent results. This research was a feasibility study to ascertain if a chemical fluorescent dye can enhance the results of this technique.



Bone Sample used for this study.

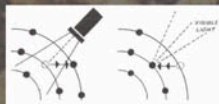
There was a total of 114 bones in the sample collection used for this research. This collection of unknown bones was from the University of Queensland Anthropology Museum, and was donated to the museum by the Queensland Police. The bones were originally stored at the Roma St. Police evidence storage room. In 1974, floods caused the bones to become commingled and the records of where and when they were found were lost due to water damage.

The megalithic tomb of La Chaussee-Tirancourt



Bahn 1996:46

Electron Displacement.



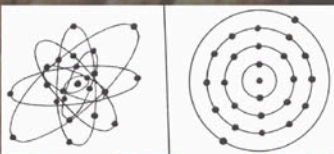
Wain 1965:14

The ultraviolet spectrum in angstrom units



Wain 1965:10

Inside the atom



Wain 1965:13

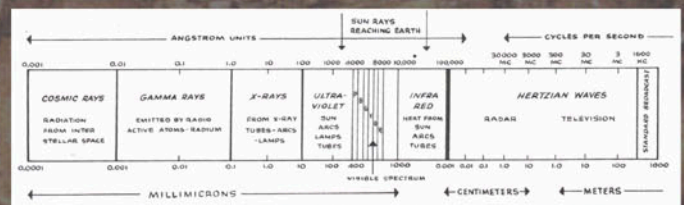
Ultraviolet Fluorescence

Fluorescence occurs at the atomic level with electrons changing orbits when exposed to the energy of short wave ultraviolet light. This continuous shifting of electrons releases energy that is seen as fluorescent light.

Results

Three fluorescent dyes were tested on the human skeletal remains to determine their ability to individuate mixed skeletal remains without effecting the integrity of the specimens. The results indicate that the remains could not be totally individuated using ultraviolet fluorescence and a chemical dye, however the success rate of this process was comparable to methods presently being used and further research into this method needs investigation to remove inconsistency in the results.

Electromagnetic Spectrum.



Wain 1965:6

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