



A69 The Skeletal Trauma Casework of Walter H. Birkby, PhD: Setting a Standard for Future Generations

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After attending this presentation, attendees will understand the impressive scope of the skeletal trauma casework performed by Dr. Walter Birkby during his long and distinguished career.

This presentation will impact the forensic science community by discussing the influence Dr. Birkby's peri-mortem skeletal trauma casework had on his students, as well as on future generations of forensic anthropologists.

The distinguished career of the late Walter H. Birkby spanned more than 40 years and encompassed more than 2,300 forensic anthropology cases. From the years 1965 to 2008, Dr. Birkby consulted for medical examiner offices and law enforcement agencies across Arizona and the west. Approximately 15% of his total cases involved the analysis of peri-mortem skeletal trauma. Interestingly, his very first forensic case, on November 2, 1965, included a description of sharp force defects to the skeleton.

Of Dr. Birkby's 310 peri-mortem skeletal trauma cases, 169 cases were gunshot wounds (55%), 94 were blunt force trauma (30%), and 47 were sharp force trauma (15%). From 1965 to 1979, his number of trauma cases was modest, totaling approximately 40. Beginning in the 1980s, there was a sharp increase in trauma consultations, and this trend continued through the 1990s. Over the two-decade period from 1980 to 1999, Dr. Birkby worked 88% (272) of his total trauma cases. These ranged from the analyses of homicides and suicides to skeletonized undocumented border crossers to the re-evaluation of cause of death from exhumed remains. Indeed, the scope of casework performed by Dr. Birkby proves difficult to summarize as it encompasses so many aspects of forensic anthropology.

Despite not publishing extensively on skeletal trauma, his legacy involving trauma analysis is a powerful one, both through the large number of trauma cases he worked and through his keen analytical skills, careful descriptions paired with meticulous diagrammatic and high-quality photographic documentation, and the succinct, streamlined case report writing style he developed. Most importantly, at the foundation of his legacy is the impact he had on his graduate students; one that is squarely centered on his daily interactions with those who worked at his side on many of his cases.

In the days before the Scientific Working Group for Forensic Anthropology (SWGANTH), Dr. Birkby trained his students with his own best-practice guidelines on trauma analysis. Many students were given the opportunity to write first drafts and co-author reports with him, following successful assistance with trauma casework. His intensive case volume allowed for training in the recognition of the mechanisms of trauma, as well as distinguishing antemortem and peri-mortem trauma from the postmortem damage generated by the denizens of the Sonoran Desert. Above all, though, he trained his students to be conservative analysts, to front-load analyses with careful, clearly stated descriptions, and to follow up with interpretation only when appropriate.

Many of Dr. Birkby's students are now board-certified forensic anthropologists who have their own graduate



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students, direct their own laboratories, consult on trauma cases, and publish on skeletal trauma, including Alison Galloway who wrote *Broken Bones: Anthropological Analysis of Blunt Force Trauma*, the benchmark of blunt force trauma.¹

Most certainly the presenting author's case experience and training under Dr. Birkby was the impetus for the ongoing interdisciplinary research initiative focused on pediatric and adult cranial and long bone fracture initiation and propagation at Michigan State University. In this collaborative research between forensic anthropologists and biomechanical engineers, a science of skeletal trauma is being built based on controlled biomechanical experiments that are performed in order to test hypotheses and establish relationships between fracture characteristics and variables related to the injury scenario. This application of the scientific method to skeletal trauma analyses follows in the footsteps of Dr. Birkby's objective of understanding the processes behind observations made during skeletal analyses. This, along with the involvement of graduate students in both casework and research, continues the legacy set forth by Dr. Birkby to engage and train the next generation of young scholars interested in pursuing new directions in trauma interpretation and forensic anthropology.

Reference(s):

1. Galloway A. (ed.) (1999). *Broken Bones: Anthropological Analysis of Blunt Force Trauma*. Charles C. Thomas, Springfield, IL.

Trauma Analysis, Walter H. Birkby, PhD, Forensic Anthropology