

Section A		
The fields in this section are mandatory.		
Institution: Durham University		
Unit of Assessment: Archaeology		
Title of case study: Bodies of evidence. Transforming approaches to the location, recovery and analysis of human remains in forensic contexts.		
Period when the underpinning research was undertaken: Between 2006 and present		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Rebecca Gowland Janet Montgomery	Professor Professor	Oct 2006 to present Oct 2010 to present
Period when the claimed impact occurred: Between August 2013 and July 2020		
Is this case study continued from a case study submitted in 2014? N		
Section B		
1. Summary of the impact		
<p>For the last ten years Durham Archaeology has developed specialised training in forensic anthropological and archaeological skills for UK and international practitioners directly involved in human identification contexts. This research-led training provides a direct conduit for the transmission of cutting-edge scientific research to stakeholders. Working collaboratively with international NGOs, Gowland has advanced procedural efficiency and enhanced understanding and skills to maximise evidence retrieval and improve identification results at a range of crime and humanitarian contexts across the world (80+ countries). She works with human rights lawyers to provide expert representation for families of the missing in Chechnya, and mother and baby homes in Ireland.</p>		
2. Underpinning research		
<p>Gowland's research highlights the importance of body/society interactions for interpreting burial context and establishing human identity. Since 2006 she has challenged the established methods and interpretive frameworks that underpin how archaeologists, anthropologists and forensic practitioners explore human remains and the human condition in the past and present. Building on her influential 2006 volume <i>The Social Archaeology of Funerary Remains</i>, Gowland has furthered the agenda with the publication in 2013 of <i>Human Identity and Identification</i> [R1]. Key advances in both publications, with direct relevance to the forensic sphere and impact claimed here, encompass a changed understanding of human identification and taphonomic processes.</p> <p>Gowland has applied this innovative experimental work to interrogate human remains from aquatic deposits for the benefit of both forensic and archaeological practitioners, characterising specific types of erosion and damage which, if misinterpreted, might mislead crime scene investigators (CSI) [R2]. Working with the Natural History Museum (London), Gowland has also co-produced research which differentiates stillborn from live-born infant burials on the basis of their skeletal remains, through the micro-CT analysis of bioerosion of long bones. This offers new insights into the contexts for infant death in both archaeological and forensic spheres [R3].</p> <p>Gowland has introduced entirely new methods, approaches and perspectives that have led to significant advances in the fields of human identity and identification. She has developed innovative statistical approaches to improve estimations of age-at-death [R4], vital for building a profile of the deceased as part of archaeological or criminal investigations. Her research has also focused on socially vulnerable and marginalised demographics including infants and</p>		

the elderly [R5]. Understanding the skeleton in relation to social context has allowed her to identify markers of abuse, neglect and health stress in infancy and later life, research which is materially relevant to her work with practitioners and legal experts. As well as establishing methods that enable differentiation between stillborn and short-lived infants [R3], working with DU colleague Montgomery, she has co-developed a new technique that allows sex to be reliably and cost-effectively determined in infant, juvenile and fragmentary skeletons for the first time [R6]. Both have immediate forensic applications and are contributing to the study of past human life courses and infanticide in archaeological and forensic contexts. Furthermore, Gowland's 2015 *Entangled Lives* article has changed the way that infant remains are interpreted across multiple disciplines, including paediatrics [R5].

3. References to the research (indicative maximum of six references)

[R1] Gowland, R. L. and Thompson, T. J. U. 2013. *Human Identity and Identification*. Cambridge University Press. Hard copy available in Dept. cited in review as providing 'an important contribution to our collective understanding of the identification process' (Prof Bruce Anderson). Submitted for REF2014. Google scholar citations 60.

[R2] Griffith, S., Thompson, C. E., Thompson, T. J. U., Gowland, R. L. 2016. 'Experimental abrasion of water-submerged bone: the influence of bombardment of different sediment types on micro-abrasion'. *Journal of Archaeological Science Reports* 10: 15-29. DOI: [10.1016/j.jasrep.2016.09.001](https://doi.org/10.1016/j.jasrep.2016.09.001) Google scholar citations: 11; Journal Impact Factor: 1.75 for 2019

[R3] Booth, T., Redfern, R. C. & Gowland, R. L. 2016. 'Immaculate conceptions: Micro-CT analysis of diagenesis in Romano-British infant skeletons'. *Journal of Archaeological Science* 74: 124-134. <https://doi.org/10.1016/j.jas.2016.08.007> Google scholar citations: 23; 5yr Journal Impact Factor: 3.182

[R4] Samworth, R. and Gowland, R. L. 2007. 'Estimation of adult skeletal age-at-death: statistical assumptions and applications'. *International Journal of Osteoarchaeology* 16: 1-15. <https://doi.org/10.1002/oa.867>. Google scholar citations: 30; 5yr Journal Impact Factor: 1.465

[R5] Gowland, R. L. 2015. 'Entangled lives: Implications of the developmental origins of health and disease hypothesis for bioarchaeology and the life course'. *American Journal of Physical Anthropology* 158(4): 530-540. <https://doi.org/10.1002/ajpa.22820> Submitted for REF 2021. Google scholar citations: 147; 5yr Journal Impact Factor: 2.614

[R6] Stewart, N., Fernanda Gerlach, R. Gowland, R. L., Gron, K. Montgomery, J. 2017. 'Sex determination of human remains from peptides in tooth enamel'. *PNAS* 114(52): 13649-13654. <https://doi.org/10.1073/pnas.1714926115> scholar citations 51; 5 yr Journal Impact Factor: 9.412

4. Details of the impact

In 2009 Gowland launched a bespoke Continuing Professional Development [CPD] programme – *Forensic Archaeology and Anthropology* – at the invitation of the North East Police Scientific Support Managers (SSM) who had themselves identified a gap in their expertise which was having negative impacts on their investigative processes. Since August 2013, this training at Durham has been expanded from a regional to national level and now works across international boundaries to impact active humanitarian forensic casework. It is impact from this which is claimed here. From its inception, the ethos of the teaching has been to incorporate the very latest archaeological and osteological research, including that produced by Gowland herself [R1-6], to ensure a direct impact on professional practice. The course was the first of its kind to be approved by the Chartered Society of Forensic Sciences and has been highlighted as an exemplar of good practice for its innovative university/industry co-production. Described as '*pedagogically very exciting*', it was an invited case study in Professor Ruth Helyer's 2016 book *Facilitating Work-Based Learning. A Handbook for Tutors*.

Using this pathway, Gowland has translated her research to real-life forensic contexts, achieving: (1) significant change, efficiency and cost-effectiveness in the creation and delivery of forensic strategy at regional North East crime scenes; and (2) capacity building in international agencies through the translation of the CPD to a Massive Open Online Course

(MOOC) co-produced with the International Committee of the Red Cross (ICRC). This FutureLearn course has now been studied by 20,000 individuals from over 140+ countries. The international recognition of this research has led to invitations for Gowland to take on special advisor roles in key international forensic contexts (3), where her influence has been far-reaching through changes to and recommendations for international policy and procedures.

1. Improving efficiency and effectiveness at relevant crime scenes

Gowland has trained over 90+ forensic and civil contingency practitioners to date in person – including representation from around 25% of all English police forces plus investigators from the Balkans and the Caucasus, Beirut, Libya, Malaysia, and Western Europe [E1, 'In-person' pp.1-3, 'Balkans' p.6 and 'CMP Cyprus' p.7 survey sheets]. This has led to significant capacity building with skills acquired on the course later being shared by delegates with other colleagues [E1, 'Anon In-Person Post-Course', p.4, row 12, E2]. Delegates have adapted and evolved Durham course content to their professional and training needs [E1, 'In-person', p.3, rows 65, 72, E2] and contributed to “*new protocols for the recovery of human remains in the contexts of human rights abuses, war and disasters*” within the context of their own international organisations [E1, 'Anon In-Person Post-Course', p.5, row 31]. The reflexive and interactive nature of the CPD training facilitates the discussion of 'live' forensic cases/challenges so that Gowland can advise on forensic strategy and its implementation, for example “[continued] *contact with the course directors has therefore allowed a much speedier resolution of such cases and considerable financial savings to Cleveland Police*” [E3].

Gowland's published work on taphonomy and the burial environment [R1], as well as on ageing and vulnerable demographics [R1,3,6], has proved particularly influential. 97% of surveyed delegates felt that the course had improved their understanding of the role of forensic archaeologists and anthropologists when locating, excavating and analysing bodies, and 90% of forensic practitioners considered that it had enhanced their ability to formulate an effective forensic strategy [E1, 'In-Person Course Survey' pp.1-3].

[REDACTED]

In other examples, one CSI noted that the most effective strategy adopted for the recovery of infant skeletal remains was directly influenced by their course attendance: “*After speaking to the SIO a recovery of remains were agreed upon which were directly influenced by my course attendance. The Post Mortem was then arranged with the Home Office pathologist and forensic archaeologist undertaking a joint examination of the body which were able to determine and offer advice on dating, future submissions and general advice to establish if suspicious or not.*” [E1, 'Anon In Person Post-Course', p.4, row 17]. Other CSIs refer to improvements, for example in the recovery of a partially cremated skeleton; being able to differentiate more readily between animal and human remains; and increased confidence when devising a strategy to deal with skeletal remains [E1, 'Anon In Person Post-Course', p.4, rows 9, 13, 14]. Gowland's research on decomposition processes [R1-2] has also led to the co-production of bespoke training for the Durham Police Dog Cadaver Recovery Unit, introducing handlers to the latest research on the burial environment and the effects of decomposition processes on the human body.

2. Working with international agencies to build local capacity

Increasing international demand for training in the latest research in human identification has led to invitations to expand and adapt the training in collaboration with international agencies [E4-5]. Gowland and Samworth's methodology for age estimation [R2] is now in approved use in the Standard Operating Procedures (SOPs) of the Defence POW/MIA Accounting Agency (DPAA), USA – the largest skeletal identification laboratory in the world and the only such laboratory accredited by the American Society of Crime Laboratory Directors. Their *“procedures set the “gold-standard” for forensic anthropology practice. The inclusion of this method [Gowland and Samworth’s] in the DPAA’s SOPs demonstrate[s] that this method is well respected and used routinely in applicable forensic anthropological casework”* [E6].

The Durham CPD course is now fundamentally influencing practice in many parts of the world. It has been delivered to forensic practitioners from at least 13 countries including forensic practitioners identifying the bodies from the Abkhaz-Georgia conflict in 1992-93. Most recently Gowland has trained Kosovan and Bosnian medical doctors working on human identification from the Balkan war. One of these doctors noted: *“Last month I exhumed three bodies from the 1992 mass grave. Thanks to the course, I was more confident in preliminary estimation of the age and sex of skeletal remains”* and Dr Haliti from Kosovo states that *“I was able to apply the knowledge gained from the course in a case in Kosovo where a family of five (3 of them subadults) were exhumed from a clandestine grave. In particular, this knowledge was more than helpful when dealing with juvenile individuals”* [E1, 'Balkans Juvenile Osteology', p.6, rows 7 and 9].

[REDACTED]

In Gowland's close collaboration with the ICRC to deliver on their core mission of local capacity building in regions of conflict and genocide, her research has become material to skills training in taphonomy, age, sex and juveniles [R1,2,4,5]. Given the logistical and language difficulties in creating bespoke in-person training to support global capacity building for humanitarian action, the ICRC invited Gowland to co-develop the MOOC. Gowland responded in November 2019 by releasing her CPD course in a new MOOC format which saw a take-up of over 20,000 learners from 140+ countries [<https://www.futurelearn.com/courses/forensic-archaeology-and-anthropology>]. The ICRC is a large humanitarian forensic organisation which employs more than 16,000 people in over 80 countries and this is the first initiative of its kind [E4], Durham being the only University worldwide to work with the ICRC in this capacity. The online version of the training has additionally had an impact on K9 recovery and Search and Rescue teams in the USA. A Medical Investigator for the State of New Mexico [E1, 'Nov Online', p.320, row 11014, 12 Dec 2019] confirms: *“I plan on using the information obtained here to enhance my skills on death scenes. I have forwarded the information about this course to my supervisors at the office of the Medical Investigator and plan on getting the information regarding this course to my fellow investigators as well as contacts in the area law-enforcement agencies”*. Another states [E1, Nov Online, p.348, row 11902, 20 Dec 2019] *“Wow, thank you for this course. As a member of Search and Rescue, this course greatly improved my knowledge. When we look for people who have been missing for thirty years, I have a much better understanding of what I*

am looking for and will pass this knowledge onto my team mates. The depth of knowledge that you have presented is done in a manner that is easy to understand and absorb.”

3. Special advisor in key international forensic cases

The success and reputation of the sensitively tailored curriculum and its delivery methods has led to recent invitations for Gowland to take up an active role in formulating forensic strategies in a range of high-profile forensic contexts. On behalf of the *European Human Rights Advocacy Centre* (who directly represent 83 families from Chechnya), Gowland, given her ground-breaking research on human identity and identification [R1-6], co-authored a Rule 9 submission and provided oral advice to The Council of Europe’s Committee of Ministers. This challenged the Action Plans provided by the Russian Federation to implement judgments from the European Court of Human Rights. These judgments concern enforced disappearances and outline steps taken to search for the missing. The expert report draws materially on Gowland’s work on optimising the identification of individuals killed during the Chechen war [E8-Section 1.5] and formed the basis for further judgments by the Ministers. Her report and analysis “*have taken the debate beyond arguments about law and political will and into the scientific domain, making clear to all interlocutors what is still possible in scientific terms, especially as regards the identification and exhumation of grave sites*”, thus changing Council’s understanding of ways of taking action forward [E9]. In response, Gowland’s expert report has now been further used to underpin another submission to the European Court of Human Rights in June 2020, against the torture and disappearance of members of the LBG community in Chechnya.

A further example is the ongoing enquiry at Tuam, Galway, where significant quantities of infant human remains were discovered deposited in septic tanks. The *Mother and Baby Homes Commission of Investigation* produced an Expert Technical Report in Feb 2017 which was negative in its assessment of the potential for further excavation at the site, something which was contrary to the wishes of affected families [E10].

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The Irish Government has now published legislation authorising the exhumation and identification of infants from Tuam and other mother and baby homes, as reported by the BBC on the 23 October 2018.

5. Sources to corroborate the impact (indicative maximum of ten references)

- E1. Survey of learners on the CPD and online training (Aug 2013 to July 2020).
- E2. Letter from Mount Barker State Emergency Services (SES) Unit in Western Australia.
- E3. Letter from Cleveland Police.
- E4. Letter from Oran Finegan, Head of Forensics, International Committee of the Red Cross.
- E5. Letter from Dr Valon Hysensi Institute of Forensic Medicine, Ministry of Justice, Kosovo.
- E6. Letter from Nicholas Passalacqua. Defense Prisoners of War/Missing in Action Accounting Agency.

[REDACTED]

[REDACTED]

- E8. Rule 9 submission with the European Human Rights Advocacy Centre.

[REDACTED]

- E10. Letter from James Gallen, Assistant Professor, School of Law and Government, Dublin City University.