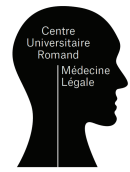


# Crimes in the Past: Archaeological and Anthropological Evidence

edited by

Tatyana Shvedchikova,  
Negahnaz Moghaddam and  
Pier Matteo Barone



ARCHAEOPRESS ARCHAEOLOGY



ARCHAEOPRESS PUBLISHING LTD

Summertown Pavilion

18-24 Middle Way

Summertown

Oxford OX2 7LG

[www.archaeopress.com](http://www.archaeopress.com)

ISBN 978-1-78969-778-0

ISBN 978-1-78969-779-7 (e-Pdf)

© Archaeopress and the individual authors 2021

All rights reserved. No part of this book may be reproduced, or transmitted, in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of the copyright owners.

This book is available direct from Archaeopress or from our website [www.archaeopress.com](http://www.archaeopress.com)

# Contents

<b>Introduction .....</b>	<b>v</b>
<b>Authors .....</b>	<b>vi</b>

## **PART ONE SCIENCE APPLIED TO PAST CRIMES**

<b>Wrapping the dead over the centuries.....</b>	<b>1</b>
Introduction .....	1
What is a crime?.....	2
Wrapped Crime Scene.....	2
Conclusion.....	8
Bibliography .....	9
<b>How forensic geology can be a valuable support to investigate past crimes .....</b>	<b>11</b>
Introduction .....	11
Crimes in the past involving forensic geology.....	12
Case study: discovery of an 8th-century burial .....	13
Soil analysis .....	14
Analytical results .....	17
Discussion and conclusion.....	18
Bibliography .....	19
<b>Complementary investigations can help the forensic pathologist .....</b>	<b>21</b>
Introduction .....	22
Presentations of some tools useful in forensic anthropology and archaeology.....	22
PMCT.....	22
Epifluorescence microscopy .....	25
Scanning electron microscope (SEM).....	26
Presentation of three cases .....	27
First case .....	27
Second case.....	29
Third case.....	30
The utility of these tools for archaeologists.....	31
Conclusion.....	37
Bibliography .....	37

**PART TWO**  
**FROM PREHISTORY TO MIDDLE AGES**

<b>'An arrow in your spine'</b> .....	<b>43</b>
Introduction .....	43
Finding forensic evidence for intentional killing in archaeological cases .....	44
Analyses of obvious killing scenarios .....	44
Projectile injuries as clear indicator for interpersonal violence and killing .....	45
Traces of violence on human remains as an indicator of murder .....	48
Secondary traces as evidence .....	53
Conclusion.....	54
Bibliography .....	54
<b>Evidence of injuries and killings in the post-catacomb world (22,000–18,000 cal. BC) ...</b>	<b>58</b>
Introduction .....	58
The first group with arrowheads .....	61
The Babino cultural circle .....	63
Lola cultural circle .....	65
Second group.....	66
Bibliography .....	69
<b>Comparative analysis of multiple burials from the Late Copper Age, Hungary .....</b>	<b>72</b>
Introduction .....	72
The archaeological context .....	74
Methods.....	75
Recovery methods .....	75
Osteological analysis .....	76
Pottery analysis.....	77
Results.....	78
Chronology .....	78
Deceased.....	81
Gestures .....	81
Structure .....	85
Site.....	88
Skeletal elements .....	88
Discussion.....	89
Conclusion.....	94
Acknowledgments .....	94
Bibliography .....	94
<b>Digital trauma analysis and the mechanism of weapon related injuries .....</b>	<b>100</b>
Introduction .....	100
Background.....	101
Digital trauma analysis .....	102
Methods.....	104
Methodological Process .....	105
Case study I .....	106
Case study II.....	111

Conclusion.....	116
Bibliography .....	117
<b>Dismembered and ditched .....</b>	<b>121</b>
Introduction .....	121
Anthropological profile .....	123
Inventory of the lesions.....	124
Anthropological and archaeological interpretation .....	125
The applied method .....	126
Facts and reconstructions .....	127
The offender .....	129
The victim .....	130
The motive and the offender profile .....	130
Conclusion.....	133
Bibliography .....	133
<b>Ritual violence or acts of warfare.....</b>	<b>136</b>
Introduction .....	136
The pit from Tiszabura: three men with sharp force cranial lesions .....	140
Archaeological background.....	140
Physical anthropological results .....	142
Interpretation .....	146
The site from Rákóczifalva: traces of a destroyed rural settlement .....	146
Archaeological background.....	146
Physical anthropological results .....	150
Interpretation .....	152
Discussion.....	154
Conclusion.....	158
Acknowledgements .....	158
Bibliography .....	158
<b>‘Los ricos també lloran’ .....</b>	<b>162</b>
Introduction .....	162
Materials and methods .....	164
Tomb 25 .....	165
Tomb 26.....	167
Tomb 30 (destroyed).....	169
Discussion.....	169
Bibliography .....	175

**PART THREE**  
**19TH AND 20TH CENTURIES WAR VICTIMS**

<b>Comparing archaeological results with written and oral sources .....</b>	<b>181</b>
Introduction .....	181
The battle of Villeneuve-Loubet in the written record .....	182
Oral accounts of the battle of Villeneuve-Loubet.....	187
Excavation of the mass grave of German soldiers at Villeneuve-Loubet.....	193
Discussion.....	200
According to the written record .....	201
According to observations from the excavation .....	201
Conclusion.....	203
Acknowledgments .....	204
Bibliography .....	204
<b>Identifying blast trauma in the human skeleton.....</b>	<b>206</b>
Introduction .....	206
Explosions and Explosives.....	208
Overview of Blast Injury .....	208
History of research .....	208
Blast injury and forensic anthropology .....	210
Materials and methods .....	211
Literature based data .....	211
Limitations.....	218
Results.....	219
Combined Data- anatomical regions and skeletal elements.....	219
Survivor Data versus Fatality Data.....	222
Discussion.....	224
Injury Patterns by Anatomical Location.....	226
Conclusion.....	230
Bibliography .....	232

# Introduction

The idea to create this publication was born after organizing Session #169 'Crimes in the Past: Archaeological and Anthropological evidences' during the 25th Annual Meeting of the European Association of Archaeologists in Bern (Switzerland) (EAA 2019). After the huge success of this event, we saw the need of a publication based on the topic and thus this book includes relevant subjects discussed during the meeting and additional contributions of invited authors.

For as long as there have been groups of humans living together, various forms of crime have been committed. But what constitutes a crime? Records of crime and punishment are all around the ancient world, and the contribution of archaeology, history, and forensic science to the identification of crimes, victims, and perpetrators as well as forms of punishment is essential. For earlier periods, archaeology must be our main source of information, while historical documents help illuminate the more recent events. And how can we detect the crime scene? While modern crime scenes are more or less evident, the crimes of the past are rarely detected. It is problematic that archaeological violent deaths and possible attempts to hide murder evidence often disappear in conclusions related to past human ritualistic behavior.

In this book, readers will find cases of historic and prehistoric 'crime scenes' known from various contexts, including the findings of (pre)historic (mass) graves and lethal violent acts related to warfare, ritual killings, or possible murder cases. In order to get to the bottom of the possible archaeological crime scenes, contemporary interdisciplinary approaches are used, which allow us to extend the frames of classical archaeological study. Archaeologists bring a number of particular skills to the table, from identifying ground disturbance based on surface indications and geophysics to meticulous excavation, detailed recording and recovery of small objects, and identifying decayed and fragmentary finds, particularly animal and human bones. Just as important is the archaeological awareness of context and sequence.

New archaeological, anthropological, and biochemical analyses, such as elemental and isotopic analysis of the human bone, together with innovations in imaging techniques, such as 3D surface acquisition, computed tomography, X-ray of the skeletal remains for trauma investigations, and survey techniques such as GPR modelling of the burial site increase the initial information value. These new technologies allow anthropologists and archaeologists to obtain more information on past killings and possible murder practices and provide a better understanding of archaeological 'crime scenes.' For instance, modern scientific methods aided the development of new archaeological disciplines such as forensic archaeology, which uses, among other things, the application of archaeological theory and methodology to search and excavate the burials of human remains or objects in legal investigations.

The book aims to discuss the possible examples of crimes in the archaeological past, their detection and interpretation with the help of modern scientific methods, and how interdisciplinary approaches can be conducted in further research concerning 'crimes of the past.'

## Authors

**Pier Matteo Barone** is a full-time lecturer at the Archaeology and Classics Department of the American University of Rome. He teaches Forensic Geoscience with particular regards to geophysical prospections (GPR, in particular), remote sensing, GIS, and archaeology applied to crime scene investigations and antiquity crimes. He is a member of the Scene of Crime (SoC) group of the European Network of Forensic Science Institutes (ENFSI) and he is nominated Crime Scene Adviser of the IUGS Initiative of Forensic Geology. He is an official Forensic Geophysical and Forensic Archaeological Consultant for the Courthouse of Rome, in both Criminal and Civil Divisions. He has several collaborations with Italian and foreign law enforcements (e.g. the Profidia cold case or the *desaparecidos* research in Chile). In 2017 and 2018 he won the Italian Investigation & Forensic Award for the Excellence in Forensic Archaeology.

He is also an expert in archaeological methods and techniques and he is a member of the Board of Trustees of the Italian Association of GPR (GPR Italia). He has the Italian Ministry of Cultural Heritage license to supervise preventive archaeological project. He is also an EU reviewer contracting for the above topics.

**Rosa Maria Di Maggio** has a MSc *cum laude* with a specialisation in Volcanology and Petrography at University Sapienza in Rome. She has more than twenty years of experience in the field of forensic geology, ten of them at the Italian Forensic Science Police Department. She performed several criminal cases related to analysis of soil, inorganic and precious geological materials. She was involved in numerous high-profile cases and international crimes. Expert of the scene of the crime and as collector of inorganic traces and micro-traces. Rosa Maria published several scientific publications and she is the co-author and editor of the first Italian book on Forensic Geology. She carries out teaching activity on forensic geology at universities for post graduated Master courses in Forensic Science and she was a keynote speaker at international conferences. Rosa Maria is registered at the Register of Chartered Geologist of Lazio region. Currently, she is member of Steering Committee of IUGS Initiative on Forensic Geology, within International Union of Geological Science, as Officer for Europe and representative for Italy.

**Fabrice Dedouit** is a French radiologist, forensic pathologist at the Rangueil-Larrey Toulouse Hospital (France). He studied Medicine at the University of Caen, Lille, and Toulouse (France). He started his radiology residency in 2000 and forensic pathology residency in 2004 at the University Paul Sabatier (Toulouse, France). He received his MD in 2004, his PhD Thesis in Biological Anthropology in 2009, and his Habilitation degree in 2011, and became Docent. His research activities are performed in the CAGT (Centre for Anthropobiology and Genomics of Toulouse) at the University Paul Sabatier (Toulouse, France). Since 2004, he published more than 110 publications and 16 chapters of books in the field of forensic radiology and forensic anthropology. He has been the head of the unit of forensic imaging and anthropology at the University Centre of Legal Medicine (CURML) Lausanne-Geneva (Switzerland) from 2016 to 2019, and became Privat Docent in 2017 at the University of Lausanne (Switzerland). Since 2015, he is president of the French national research group on post mortem imaging (GRAVIT). He is involved and active in forensic imaging and particularly virtual autopsy and virtual anthropology since 2004.



**Céline Guilbeau-Frugier** is pathologist and forensic pathologist at the Rangueil-Larrey Toulouse Hospital (France). She is the head of the Center of electronic microscopy at the medicine faculty of Rangueil, Toulouse, France. Her research activities are performed in the Institut des Maladies Métaboliques et Cardiovasculaires INSERM laboratory (Institut National de la Santé et de la Recherche Médicale).

**Caroline Capuani** is forensic pathologist at the La Timone Marseille Hospital (France). She already published articles dealing with epifluorescence microscopy. Her research activities are performed in the ADES UMR 7268 laboratory (Anthropologie bio-culturelle, droit, éthique et santé) at the Aix Marseille University (France).

**Fatima-Zohra Mokrane** is radiologist at the Rangueil-Larrey Toulouse Hospital (France). She already published articles dealing with forensic imaging and particularly virtual autopsy and virtual anthropology. Her research activities are performed in the CAGT (Centre for Anthropobiology and Genomics of Toulouse) at the University Paul Sabatier (Toulouse, France).

**Frédéric Savall** is forensic pathologist at the Rangueil-Larrey Toulouse Hospital (France). He already published articles dealing with forensic anthropology. His research activities are performed in the CAGT (Centre for Anthropobiology and Genomics of Toulouse) at the University Paul Sabatier (Toulouse, France).

**Bruno Payré** is engineer at the Center of electronic microscopy at the medicine faculty of Rangueil, Toulouse, France.

**David Gainza** is forensic pathologist at the Rangueil-Larrey Toulouse Hospital (France).

**Nihel Feki** is forensic pathologist at the Habib Bourguiba Sfax Hospital (Tunisia).

**Louis Buscail** is gastroenterologist and head of the department of Gastroenterology and Pancreatology at the Rangueil-Larrey Toulouse Hospital (France). His research activities are performed in the INSERM laboratory (Institut National de la Santé et de la Recherche Médicale) and CRCT (Centre de Recherche en Cancérologie de Toulouse) at the University Paul Sabatier (Toulouse, France). His researches concern different topics: genetics, molecular biology, pancreatic cancer research, pancreatic diseases and digestive endoscopy.

**Antoine Berry** is biologist and head of the department of parasitology and mycology at the Purpan Toulouse Hospital (France). His research activities are performed in the URMS 1043 INSERM laboratory (Institut National de la Santé et de la Recherche Médicale).

**Hervé Rousseau** is radiologist and head of the department of radiology at the Rangueil-Larrey Toulouse Hospital (France). His research activities are performed in the Institut des Maladies Métaboliques et Cardiovasculaires INSERM laboratory (Institut National de la Santé et de la Recherche Médicale).

**Eric Crubézy** is anthropologist and ex director of the CAGT (Centre for Anthropobiology and Genomics of Toulouse) at the University Paul Sabatier (Toulouse, France).

**Norbert Telmon** is forensic pathologist and head of the medico legal department at the Rangueil-Larrey Toulouse Hospital (France). His research activities are performed in the CAGT (Centre for Anthropobiology and Genomics of Toulouse) at the University Paul Sabatier (Toulouse, France).

**Tatyana Shvedchikova** finished her studies in Social Anthropology at the Russian State University for the Humanities in Moscow (Russia). Her PhD project completed in 2010 was dedicated to the analysis of human remains and archaeological context from Iron Age and Medieval Eurasian Steppes (Eastern Aral Region). Since 2006 she worked in interdisciplinary research projects dedicated to the study of victims of Napoleonic campaigns, Christianity expansion in the Black Sea region. From 2010 as a research fellow she works at the Department of Theory and Methods (Group of Physical Anthropology) at the Institute of Archaeology, Russian Academy of Sciences. In 2010–2012 was the deputy chief of Russian-Palestinian Jericho archaeological expedition. She is a member of several scientific associations including the European association of archaeologists (EAA), Association of Forensic medical experts (AFME, Russia), Paleopathology association (PPA). Dr. Shvedchikova main research interests lie in the fields of forensic anthropology and archaeology, bone tissue degradation process, and involve the multidisciplinary approach to the study and identification of human remains from medieval to modern times.

**Negahnaz Moghaddam** finished her studies in Human Genetics and Physical Anthropology at the Ludwig-Maximilians-University of Munich (LMU), Germany. She worked as a scientific associate at the Department of Physical Anthropology, Institute of Forensic Medicine at the University of Bern (Switzerland) from 2011 till 2017. Her PhD project focused on the analyses on human remains from Late Iron Age Switzerland. Her Post-Doc project included anthropological and bioarchaeological research on modern human remains from Switzerland. She is, as head of the forensic anthropology research group at the Unit of Forensic Imaging and Anthropology (UIAF) and the Swiss Human Institute of Forensic Taphonomy (SHIFT) since 2017, responsible for the operational expertise, teaching and research activities within the field of forensic anthropology at the University Center of Legal Medicine Lausanne-Geneva, Switzerland. She worked in several interdisciplinary research projects resulting in international peer-reviewed publications. Her activities on archaeological excavations, laboratory analyses, including stable isotope research, and forensic case work allowed her to gab the bridge between various disciplines. Dr. Negahnaz Moghaddam is member of several scientific associations including the International Academy of Legal Medicine (IALM), European association of forensic anthropology (FASE), and she is serving as board member of the Swiss Society of Anthropology (SSA).

**Roman Mimokhod** was born in 1973 in the city of Artemovsk (now Bakhmut), Donetsk region, USSR (Ukraine). He graduated from Donetsk National University in 1996. Since 2003 he has been working at the Institute of Archeology Russian Academy of Sciences (Department for the Preservation of the Archaeological Heritage, since 2017 – the Department of the Bronze Age). In 2013, he defended his thesis for the degree of candidate of historical sciences at the Institute of Archeology Russian Academy of Sciences on the theme ‘Lolinskaya culture. The North-Western Caspian at the Turn of the Middle and Late Bronze Age’. His research interests are the archaeology of the Age of Bronze and the Early Iron Age/Antiquity of Eastern Europe and the Caucasus. Since 2008, he has been leading the Sochi Archaeological Expedition of the Institute

of Archeology Russian Academy of Sciences. He is the author of 135 scientific publications, including 5 monographs.

**Olga Zagorodnia** was born in 1979 in the town of Bryanka, Lugansk region, Ukraine. She graduated from the History department, Kharkiv National University named after V.N. Karazin in 2004. She got a PhD degree at the Institute of Archaeology National Academy of Sciences of Ukraine in 2014. Her thesis was 'Metalproduction tools of Berezhnovka-Maiovka Srubnaya Culture (on materials of Kartamysh archaeological district)'. Her scientific interests include the archaeology of the Bronze Age/Antiquity of Eastern Europe; metalproduction of the Bronze Age; traceology of flint artifacts, granular and crystalline rock, bone and antler. She had internships at the Traceology Department of the Institute for the History of Material Culture, Russian Academy of Sciences in 2010.

In 2004-2012 Olga was employed as Assistant, Junior Researcher, Researcher at the Donbass State Technical University in Alchevsk (Ukraine). In 2014 she worked as Senior Researcher at the 'Preventive archaeology service of Ukraine' of Institute of Archaeology NASU. In 2015-2019 she had experience as a free researcher. Expeditionary activity includes participation in expeditions on the territory of Lugansk, Kharkiv, Mykolaiv regions (Ukraine), Voronezh, Rostov, Krasnodar regions, Khanty-Mansi Autonomous Area (Russia) in 2003-2019. She is the author of more than fifty scientific publications.

**Szilvia Fábíán** (PhD) is an archaeologist, museologist and the head of the Department of Archaeological Research and Coordination at the Archaeological Heritage Directorate, Hungarian National Museum. Her research interest is centered on the communication networks and cultural changes of prehistoric communities, especially focusing on the Neolithic and Copper Age periods. Her current research focuses on household archaeology which allows to study and reconstruct the spatial organisation of prehistoric dwellings, activity zones, settlements, also communal and ritual areas. She has participated in several national and international research projects, aiming to discover the cultural diversity of the prehistoric European people. Furthermore, she contributes to MA and PhD education, participates in field research, and takes part in science-to-public events (e.g. Day of Archaeology, Researchers' Night).

**Orsolya Mateovics-László** (PhD) is an anthropologist at the Department of Archaeological Research and Coordination at the Archaeological Heritage Directorate, Hungarian National Museum. She received her MSc in Biology at Debrecen University (Hungary) in 2003, and her MA in Paleopathology at Durham University (UK) in 2008. Between these years she gained experience as an archaeological site assistant and field anthropologist in several field excavations in Hungary, Ireland, and England. Her research interest is the bioarchaeological reconstruction of ancient human populations. Systematic paleopathological analysis of human remains especially focusing on the lives of children in historical times and the impact of social and environmental changes on their health, development, their mortality. She also participates in the Hungarian Archaeological Mission in Egypt, Thebes, TT184 project.

**Patricia van der Burgt** received an M.A. in Western European Pre- and Protohistory from the University of Leiden in the Netherlands in 1993. Since then, she worked predominantly for the State Archaeological Heritage Office in Saxony, as a (field) archaeologist and GIS/database

manager. She received her PhD title in 2007 with a thesis on archaeological predictive modeling, and in 2017 she received an MSc in Forensic Sciences and Engineering. Currently she works as a Desk Officer and Forensic Archaeologist for the State Archaeological Heritage Office in Saxony.

**Zsófia Masek** is an archaeologist, research fellow at the Institute of Archaeology, Research Centre for the Humanities (Hungarian Academy of Sciences Centre of Excellence). She studied archaeology and history at the Eötvös Loránd University, Budapest. Her PhD discussed the settlement research of the Middle Tisza region in the 4th-6th centuries AD, namely the Late Sarmatian period, Hun period, and Gepidic period of Eastern Hungary. Between 2010 and 2013 she was curator of the Sarmatian-period archaeological collection of the Hungarian National Museum, Budapest. Her research concerns the topics of the European Barbaricum, studied from the aspects of the Eastern Carpathian Basin, esp. the Great Hungarian Plain. Besides settlement and ceramic research she specialises in the field research of kurgans (barrow-graves) of the Roman-period Sarmatians, in the archaeology of the European Hunnic Empire, as well as in the Late Antique transformation processes in the Carpathian region.

**Zsuzsanna Veres** is archaeologist and alumna of the University of Szeged, Hungary. She works as a supervisor for Network Archaeology Ltd. in Lincoln, United Kingdom.

**Tamás Szeniczey** is a physical anthropologist. He is an assistant research fellow in the Department of Biological Anthropology at the Eötvös Loránd University and curator in the Department of Anthropology at the Hungarian Natural History Museum, Budapest. He specialises in the bioarchaeology and paleopathology of Migration Period populations in the Carpathian Basin.

**Kinga Kocsis** holds a master's degree in Biology with a specialisation in Human Biology and Neuroscience from Eötvös Loránd University (Budapest, Hungary). She is currently conducting neuroscience research as a PhD candidate at the Research Centre for Natural Sciences in Budapest.

**Tamás Hajdu** is a physical anthropologist. He is an assistant professor in the Department of Biological Anthropology at the Eötvös Loránd University and curator in the Department of Anthropology at the Hungarian Natural History Museum, Budapest. He specialises in the population history of the Carpathian Basin in prehistory (Bronze Age and Migration Period), as well as in the evolution of infectious diseases and palaeo-oncology.

**Antónia Marcsik** is a physical anthropologist. She is a retired associate professor in the University of Szeged, Hungary. She specialises in the population history of the Sarmatian and Avar Period of the Carpathian Basin and the paleopathology of infectious diseases.

**Hella Harten-Buga** is a research fellow with the project 'Palaeomechanical investigations concerning the coherence of injury patterns and weapon efficiency on the basis of Bronze Age human bones and weapons' funded by the German Research Foundation at the University of Hamburg and the Freie Universität Berlin. Hella is a prehistoric archeologist with an academic and professional background in 3D-design and engineering. She holds a Dipl.-Ing. from the University of Applied Science, Bremen as well as a MA with honor in Prehistoric Archaeology from the University of Hamburg. Her work focuses on digital trauma analysis in

osteoarchoeology and use-wear analysis of weapons, particularly in the context of Bronze Age armed conflicts.

**Ute Brinker** holds degrees from Hamburg University (MA in Archaeology, 2009) and from previous education from University of Applied Sciences, Halberstadt (Graduate engineer, FH). Her Master thesis was awarded with the Dr.-Walther-Liebehenz- Research prize 2012, University of Göttingen. For nine years she worked at the State Authority for Culture and Protection of Monuments, Mecklenburg-Vorpommern, and took part in interdisciplinary research of the Bronze Age battlefield site in the Tollense Valley, Germany. She is currently completing her PhD at the Free University of Berlin, with focus on taphonomic and traumatological findings on the human remains of the Tollense Valley. She specialises in physical anthropology. Her research interests focus on the analysis of trauma, interpersonal violence and taphonomy. From 2017-2020 she was involved in a research project of the Centre for Baltic and Scandinavian Archaeology Schleswig analyzing Stone Age burials at the shell midden Rīņņukalns, Latvia.

**Annemarie Schramm** holds a Master of Arts in Prehistoric Archaeology from the University of Freiburg, Germany. She works as osteoarchaeologist with an interdisciplinary background in Biological Anthropology, Archaeozoology and Archaeology. From 2011 to 2020 she was employed at the State Authority for Culture and Protection of Monuments Mecklenburg-Vorpommern. Five years of that time she spent in a project funded by the DFG (German Research Foundation): she was part of a team that investigates the human remains from the Bronze Age battle field site in the Tollense Valley, Germany. Her core interests include the reconstruction of habitual activities in past societies using skeletal markers and the application of medical imaging and 3D modelling techniques to the field of osteoarchoeology. To deepen her knowledge in geometric morphometrics, she had a research stay at the University of Aberdeen, UK, in 2015. With the help of this adopted method, she analysed the skulls from the Tollense Valley.

**Detlef Jantzen** from 1985 to 1994 studies in Pre- and Protohistory at Christian-Albrechts-University Kiel, doctoral thesis about Metalwork in the Nordic Bronze Age ('Quellen zur Metallverarbeitung im Nordischen Kreis der Bronzezeit'). Since 1994 employed at the state authority for the preservation of monuments Mecklenburg-Western Pomerania, different positions: project leader of archaeological surveys and excavations in connection with the planning and construction of motorways; registration and preservation of archaeological monuments in central Mecklenburg-Western Pomerania; registration and preservation of protohistoric to modern archaeological monuments in Mecklenburg-Western Pomerania. Since 2007 leader of the archaeological department of the state authority for the preservation of monuments Mecklenburg-Western Pomerania. Since 2011 state archaeologist of Mecklenburg-Western Pomerania.

**Frank Nikulka** studied Prehistoric Archaeology, Ethnology and Geology (Hamburg) and finished studies 1989 with his MA thesis on Experimental Iron Metallurgy. He then wrote his Ph.D. thesis on Iron Age burials in Southern Germany (Tübingen, 1995), and his Habilitation thesis on Archaeological Demography of the Bronze and Iron Age (Münster, 2003). After more than 10 years working in Field archaeology and as Inspector at the archaeological department of the state authority for the preservation of monuments Mecklenburg-Western Pomerania and lecturer at the universities of Münster, Greifswald and Hamburg he got a chair as Professor for Prehistoric Archaeology at the University of Hamburg in 2010. His research and publications

are mainly focused on social interactions in the Metal Ages and on medieval settlements and fortifications in Northern Germany.

**Jörg Orschiedt** anthropologist and prehistorian, studied in Mainz and Tübingen, PhD in Tübingen 1996, Habilitation Univ. Hamburg 2006, scientific research and teaching at the universities of Cologne, Hamburg, Leipzig, Mainz and Berlin. Has also worked at the Neanderthal Museum, the city of Hagen, the Curt-Engelhorn-Zentrum Archäometrie gGmbH, Mannheim and has been working as an anthropological researcher at the State Office for the Preservation of Monuments and Sites of Saxony-Anhalt in Halle/Saale since 2020. Scientific research on prehistoric burials, bioarchaeological issues, identification of violence and trauma.

**Ester Annunziata Brunetti** graduated in Medicine and Surgery at University of Bari 'Aldo Moro' in 2014 and postgraduated in Legal Medicine in 2019 at the University of Trieste. She collaborates with the Osteoarcheological Laboratory of Accademia Jaufré Rudel of medieval studies in Gradisca d'Isonzo. Her interests in the research field focus on interpersonal violence lesions in skeletal remains and paleopathology of human remains.

**Fabio Cavalli** graduated in Medicine and Surgery at University of Siena in 1978 and postgraduated in General Radiology in 1982. Is the Director of Research Unit of Paleoradiology and Allied Sciences at Sanitary Technology Lab. of Integrated Health University Enterprise of Trieste and Responsible Anthropologist of Osteoarcheological Laboratory of Accademia Jaufré Rudel of medieval studies in Gradisca d'Isonzo. He teaches History of Medicine and Forensic Radiology and Anthropology for University of Trieste.

In 1988 co-founded the Academy of Medieval Studies 'Jaufré Rudel' in Gradisca d'Isonzo (GO) and he is its actual President. Is co-founder and associate of the International Association of Mythologic Studies and member of International Association of Greek and Latin Scientific Lexicography (IALS) and of the Conservatory of Upper Adriatic Sanitary Studies of Trieste.

**Jean-Loup Gassend** was born in Canada and graduated from medical school in Zagreb, Croatia, in 2010. He is currently working as a forensic medicine resident in Switzerland. His hobby since his teenage years has been to explore battlefields and interview veterans from WWII, particularly in the region of Nice, southern France. In 2014, he authored a book combining oral history and battlefield archaeology entitled *Autopsy of a Battle: The Liberation of the French Riviera*.

**Lionel Alberti** was born in Nice, on the French Riviera. He is currently a pediatrics resident in Montreal, Canada. He previously studied at the prestigious Ecole Nationale Supérieure in Paris, and is also a Doctor of Mathematics. He participated in the exhumation of the mass grave of German soldiers at Villeneuve-Loubet in 2006, as well as in several other WWII projects in southern France.

**Pascal Boucard** is a former archaeologist now working at the Archives Départementales des Alpes-de-Haute-Provence. His hobby is to research events that occurred in his area during WWII.



**Vedrana Petrovečki** is a forensic pathologist from the Department of Forensic Medicine and Criminalistics of the Zagreb Medical Faculty, Croatia. She has gained experience regarding mass graves while working on cases from the Homeland War of 1991-1995.

**Nicholas Márquez-Grant** is a Senior Lecturer in Forensic Anthropology at Cranfield Forensic Institute, Cranfield University, UK. He is also a Research Affiliate at the School of Anthropology and Museum Ethnography, University of Oxford. Prior to taking up his full time post in academia, he worked as an osteoarchaeologist for several archaeological companies and as a practicing forensic anthropologist and archaeologist for a number of independent forensic science providers in the UK. He holds a BA in Archaeology and Education from the University of York, a Postgraduate Certificate in Education from the University of Bradford, a MSc in Osteology, Palaeopathology and Funerary Archaeology from the University of Sheffield and a DPhil from the University of Oxford. He has considerable forensic casework experience and has in recent years assisted with the recovery and identification of Spanish Civil War, as well as First and Second World War casualties.

**Hannah Webster** is currently a final year medical student at Monash University, Melbourne, Australia. Prior to that, she graduated in Biology from the University of Tampa, USA with a placement at the University of Oxford, UK. This was followed by an internship in forensic anthropology in Florida, USA. She graduated with a MSc in Forensic Archaeology and Anthropology at Cranfield University, UK, prior to commencing her medical career. Her forensic research has been focused on trauma, in particular blast trauma to the skeleton.

**Marie-Christine Dussault** is a Forensic Specialist with the International Committee of the Red Cross (ICRC) as well as an extraordinary lecturer in Forensic Anthropology at the University of Pretoria, South Africa. She was educated at the University of Toronto, Canada, followed by a MSc in Forensic and Biological Anthropology at the University of Bournemouth, UK, and a PhD at the same institution, where she undertook research on blast trauma. This was followed by internships in Bosnia and a senior postdoctoral fellow at the University of Pretoria, prior to joining ICRC in Africa.

**Michael Harris** is a Lecturer in Forensic Explosive and Explosion Investigation at Cranfield Forensic Institute, Cranfield University, UK. Following a full career in the British Army as an Ammunition Technical Officer (ATO), he has worked in the commercial defence and security sector before taking the post as Head of Resilience for a UK government department. He has a degree in International Politics and Strategic Studies from UCW Aberystwyth, a Post-Graduate Certificate in Education (PGCE) and a MSc in Forensic Explosive and Explosion Investigation (FEEI) from Cranfield University. His current research is on concealment and lethality of improvised explosive devices.

**Julie Roberts** is a Lecturer in Forensic Anthropology and Programme Leader for the BSc in Forensic Anthropology at Liverpool John Moores University (LJMU), UK. She is also Chair of the British Association for Forensic Anthropology (BAFA), national point of contact for UK DVI (anthropology) and member of the Interpol DVI Pathology and Anthropology Sub-Working Group. She holds a BA in Archaeology and Ancient History from the University of Manchester, a MSc in Osteology, Palaeopathology and Funerary Archaeology from the University of Sheffield and a PhD from the University of Glasgow. Prior to a joining LJMU, Julie was the Scientific

Lead and Team Leader for Forensic Anthropology, Archaeology and Ecology at the two largest UK Forensic Science Providers. As a forensic anthropologist and archaeologists, Julie has an extensive casework portfolio and was the lead anthropologist in the London 7/7 bombings. She has also been deployed to Kosovo, Afghanistan, Iraq, and Lebanon.

**David Errickson** is a Lecturer in Forensic Archaeology and Anthropology at Cranfield Forensic Institute, Cranfield University, UK. His background is predominantly in traditional archaeology, having studied at the University of Bradford, UK, for a BSc Archaeology, a Diploma in Professional Archaeological Studies, and a MSc in Forensic Archaeology and Crime Scene Investigation. He has also worked as a field archaeologist prior to undertaking PhD research on 3D imaging in Forensic Science at Teesside University. David has undertaken forensic anthropological casework in the UK as well as missions to recover WWII casualties.

**César Sanabria Medina** is a Researcher at the University Antonio Nariño, Colombia. He worked almost 20 years as a forensic anthropologist for the National Institute of Legal Medicine and Forensic Sciences, Colombia. He holds degrees in Anthropology from the Universidad Nacional de Colombia, and MSc and a PhD in Forensic Anthropology from the University of Granada, Spain. He has published extensively in forensic anthropology, including the analysis of blast trauma