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Physical Anthropology and Osteoarchaeology in Europe: History, Current Trends and Challenges

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Abstract

This paper provides an overview of the development and current practice of physical anthropology as relating to the treatment of archaeological skeletal remains in Europe. The evolution of physical anthropology as a discipline is covered in detail from the 18th century onwards, and current trends in education and research are also discussed. Additional topics include a synthesis of the legislative framework for studying human skeletal remains in over 40 European countries while also addressing challenges, future trends and emerging ethical questions. This overview is the product of an extensive review of the literature partnered with information received via questionnaires completed by colleagues working in nearly 50 European countries.

Key words: ethics; Europe; history; human remains; legislation; methods; osteoarchaeology; physical anthropology

Introduction

The history of physical anthropology has been a topic of interest in the literature (Spencer, 1996; Márquez-Grant & Fibiger, 2011), as has the history of palaeopathology (Buikstra & Roberts, 2012) and forensic anthropology (Komar & Buikstra, 2008; Blau & Ubelaker, 2008; Dirkmaat & Cabo, 2012). However, much of the history of physical anthropology has focused on the USA (e.g. Buikstra & Beck, 2006), and less has been written on Europe, with the exception of histories specific to one particular country. Márquez-Grant and Fibiger's edited volume (2011) did provide individual reports on a substantial number of countries worldwide, with over 40 contributions from Europe. The volume did indeed include information on the history and development of the discipline in each of the countries, the archaeological legislation, the anthropological methods employed and some of the ethical issues surrounding human remains; however, the editors failed to synthesise an overview for Europe as a whole from the different contributions, and their conclusion did not provide any statistics on current trends. This paper follows up that work and draws, in addition to this previously published literature,¹ from number of additional questionnaires² and further bibliographic research, a view on the history and development of physical anthropology in Europe as well as other aspects relating to this field, including education, training, legislation and ethics. Here, we primarily focus on aspects of biological or physical anthropology relating to human skeletal remains and predominantly from archaeological sites (bioarchaeology and osteoarchaeology) as opposed to those from forensic contexts. While it is acknowledged that developments in forensic anthropology have hugely impacted on the practice of physical anthropology, mainly through methods of age at death, sex, stature and ancestry estimation (e.g. Klepinger, 2006; Komar & Buikstra, 2008), the main focus of this paper is on the discipline of physical anthropology as related to archaeological human remains.

¹ Most of this information derives from the contributions by a number of international experts in the 'Routledge Handbook of Archaeological Human Remains and Legislation: an International Guide and Practice in the Excavation and Treatment of Archaeological Human Remains' (Márquez-Grant & Fibiger, 2011, Routledge: Cirencester). All those contributors should be acknowledged and take credit partly for this paper as without their knowledge and research, this paper would have not been possible. The following list provides the countries which participated and in brackets the authors: Albania (M. G. Amore), Andorra (A. Fortó García), Armenia (M. E. Marshall and R. A. Mkrtychyan), Azerbaijan (D. Manyard and N. Museyibli), Belarus (L. Tegajo and O. Sorokina), Belgium (K. Quintelier, A. Malevez, R. Orban, M. Toussaint, M. Vandenbruaene and G. Yernaux), Bosnia and Herzegovina (A. Zukanović, N. Sarajlić and S. Škulj), Bulgaria (B. Gaydarska), Croatia (M. Šlaus, M. Novak and M. Vodanović), Cyprus (K. O. Lorentz), Czech Republic (P. Velemínský and L. Poláček), Denmark (T. Christensen and P. Bennike), Finland (M. Nuñez, M. Niskanen, M-L Kortelainen, J-A Junno, K. Paavola, S. Niinimäki and M. Modarress), France (J. Michel and P. Charlier), Germany (J. Orschiedt, U. Wittwer-Backofen and S. Flohr), Greece (C. Eliopoulos, K. Moraitis, V. Vanna and S. Manolis), Hungary (I. Pap and G. Pálfi), Iceland (G. Zoëga and H. Gestsdóttir), Ireland (L. Buckley), Italy (D. Piombino-Mascali and R. Zink), Kosovo (S. J. Schermer, E. Shukriu and S. Deskaj), Lithuania (R. Jankauskas), Luxembourg (I. Weidig, C. Bis-Worch, N-J. Rehbach, U. Nothwang, Sindermann, J. Krier, F. Le Brun-Ricalens and J. Metzler), FYRO Macedonia (F. Veljanovska), Malta (A. Pace), Moldova (S. Musteață and A. Vazzari), Monaco (L. Bianconi), Montenegro (M. Baković and I. Medenica), The Netherlands (E. Smits), Norway (B. J. Sellevold), Poland (W. Lorkiewicz, I. Teul and P. Kubacka), Portugal (C. Umbelino and A. L. Santos), Romania (S. Sandor Gál), Russia (A. Buzhilova), Serbia (M. Djurić and A. Starović), Slovakia (R. Beňuš, S. Masnicová, Z. Obertová and D. Hulínek), Slovenia (P. Leben-Seljak and P. Jamnik), Spain (N. Márquez-Grant, C. Rissech, O. López-Costas, I. Alemán and L. Caro Dobón), Sweden (T. Ahlström, E. Iregren, K. Jennbert and L. Strid), Turkey (H. Üstündağ), Ukraine (I. Potekhina) and the UK (B. White). A small note was also available on the Vat-ican (D. Piombino-Mascali). Some of these countries have of course parts of their geographical mass in other continents such as Asia.

² Additional questionnaires were sent to Switzerland (S. Loesch) and Liechtenstein (C. Cooper), and we also thank these respondents for their participation

Development of Physical Anthropology

As observed throughout the chapters in Márquez-Grant & Fibiger's (2011) volume, in some European countries, the origins of the study of physical anthropology date to the (late) Middle Ages. It was not until the start of the 18th and 19th centuries, though, that physical anthropology developed as a discipline across most of Europe. As the study of physical anthropology largely revolves around the study of hominid and human remains as well as human biology, it should come as no surprise that the roots of the discipline are found within anatomical and medical studies. The first European medical school, Schola Medica Salernitana, opened in Salerno, Italy, in the 11th century, with the opening of schools in Bologna and Padua following shortly after (Porter, 2001). Italy was the central hub for studies on human anatomy because it allowed for human dissection – a topic that remained a taboo in most other cultures and countries (Porter, 2001).

The following centuries saw continued study and the publication of anatomical texts. Unfortunately, much of what was being published was inaccurate information, with some works even based on necropsies or inferences from zoological anatomy (Guerrini, 2003). This changed when Andreas Vesalius, a Belgian-born Parisian, relocated to Padua to further his education in anatomy. His publication, *De Humani Corporis Fabrica* (1543), corrected many of the mistakes in the already published literature (Hudson, 2005). The first volume was dedicated solely to skeletal anatomy, impacting the direction of osteological study across Europe.

Works of anatomical exploration continued into the 17th and 18th centuries, gaining especially strong footing in Germany, France and the UK. Previous publications on skeletal anatomy and biology were expanded on in 1726 when Alexander Monro of Edinburgh published *Anatomy of the Human Bones*, in 1733 when William Cheselden of London published *Osteographica, or the Anatomy of Human Bones* and in 1751 when the work of French Joseph-Guichard Du Verney was published as *Traité des Maladies des Os* on diseases affecting the bones. One of the earliest published studies known on human skeletal remains is that of anatomist Jacob Winsløw on a skull found in Greenland and published in *Histoire de l'Academie Royale des Sciences Paris* in 1722. Skeletal collections also emerged, one of the most important ones being that of John Hunter, which later became part of the well-known Hunterian Museum in London (RCS, 2015). While this article only mentions some of the main contributions, this clearly exemplifies the work relevant to physical anthropology that was produced during this time, especially in France, Germany and in the UK.

The latter half of the 18th century prefaces the converging of anatomical and anthropological studies that would lead to the definition and development of the discipline of physical anthropology. While Swedish taxonomist Carolus Linnaeus' (1767) publication of *Systema Naturae* made an attempt to classify humans into taxa based on skin colour and behaviour, German anthropologist Johan Frederich Blumenbach was the first to discuss ancestral variation based on features of the skull, as described in his 1790 publication *Decas Craniorum* (Marks, 2001). His work on what we now call 'non-metric traits' has led to him often being referred to as the father of craniometry. As physical anthropology began to establish itself with these types of studies, it was met with reservation because of concerns over scientific racism. The struggle with this view would persist throughout the development of physical anthropology, particularly in the 19th and 20th centuries.

As the 19th century progressed, the presence of physical anthropology became more prevalent within academia. The French physician Pierre Paul Broca founded the first institution dedicated to physical anthropology, the *Société d'Anthropologie de Paris*, in 1859. The establishment of the institute attracted scholars from across Europe, affirming France's position as one of the early leaders in physical anthropology development. This was furthered by Broca's creation of the journal *Revue d'Anthropologie* in 1872.

The trend began to spread throughout Europe with the second society being established in London (The Anthropological Society of London, 1863), the third in Moscow (Императорское общество любителей естествознания, антропологии и этнографии or Society for Enthusiasts of Natural Sciences, Anthropology and Ethnography, 1863³), the fourth in Madrid (Sociedad Antropológica Española or Spanish Anthropological Society, 1865) and the fifth in Berlin (Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte or Society for Anthropology, Ethnology, and Prehistory, 1869). The latter was founded by Rudolph Virchow, who was also a physician, but differed in that his interest in anthropology was not simply based on anatomical knowledge. Virchow travelled to many archaeological sites, becoming more interested in remains associated with

archaeological burial contexts and their interpretation, as well as palaeopathology, rather than simply focusing on craniology.

While physical anthropology has come a long way since the 19th century, the influence of Broca and Virchow remains one of the chief catalysts in the development of the discipline as a whole across Europe. Craniology and ethnogenesis were hugely prevalent in the initial studies of physical anthropology in most countries. In fact, 53% (24/45)⁴ of the European contributors (Márquez-Grant & Fibiger, 2011) mention studies of craniology and ethnogenesis as the foundation of the establishment of physical anthropology in their countries, with 20% of the countries (particularly those in Western, Central and northern Europe) explicitly mentioning the influence of Broca or Virchow.

During the time in which Broca and Virchow's influence was being established, a publication was released that would pull attention away from studies on ethnogenesis to focus instead on the development of Man as a species. This publication was, of course, Charles Darwin's *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle of Life* in 1859. It generated profound interest in human evolution and variation, as well as triggering research within physical or biological anthropology, with a particular focus on the hominid finds during the second half of the 19th century. An international congress in Monaco in 1906 (XIIIème session du Congrès International d'Anthropologie et d'Archéologie Préhistorique) led to the 'International agreement for the Unification of Craniometric and Cephalometric Measurements', outlining the standardisation of cranial measurements.

Although craniology was not entirely abandoned at the start of the 20th century, anthropologists slowly began to diversify their studies by taking a holistic approach to the study of the skeleton. This could be due, in part, to an increasing association between anthropological and archaeological studies. Before this time, human remains were seen largely as being unrelated to the context in which they were found. As archaeological excavation increased, especially in areas where cemetery excavation was becoming popular, relating contextual and biological information became increasingly important. Palaeoanthropology, along with palaeodemography and palaeopathology, became popular with increased interest in past populations and lifestyle reconstruction. This was reflected across Europe in a number of universities creating anthropology departments with physical anthropology courses. Publications, conferences, journals and international collaborations devoted to physical anthropology were also on the rise in the first half of the 20th century. This included the foundation of journals such as *Rivista di Antropologia* (1911, Italy), *Anthropologie* (1923, Czech Republic), *Revue Turque d'Anthropologie* (1925, Turkey) and the establishment of departments of anthropology throughout Europe. One example is the Department of Anthropology and Prehistory at the Royal Belgium Institute of Natural Sciences in Brussels, established in 1936.

Like many academic disciplines, physical anthropology could not escape the ramifications of World War I and World War II. While this affected some European countries more than others, the development of the discipline was affected across the continent. However, mass graves and cemeteries resulting from World War I and World War II pushed some countries to pursue physical anthropology out of the immediate need to re-cover and identify those who had been killed. Croatia, Lithuania, Poland and Slovenia are examples of countries that are still affected by these events to this day, with efforts to investigate mass graves from World War II ongoing (e.g. Groen et al., 2015). With advances in archaeological and geophysical methods to search for clandestine graves (e.g. Hunter et al., 2013), and developments in forensic anthropology relating to personal identification (e.g. Dirkmaat, 2012; İşcan & Steyn, 2013; Christensen et al., 2014), these nations like many others are able to continue these excavations with a combined archaeological, anthropological and forensic approach. The second half of the 20th century represents a time of increased diversification within physical anthropology, as well as increased use of scientific methods and standardisation of techniques. Between 1940 and 1960, the volume of publications increased as physical anthropology in Europe saw the start of rescue as well as mass grave excavations.

³ Some references refer to 1864 for this foundation, but following Buzhilova (2011), the date for this is 1863. The society also focused on anthropological research.

⁴ Forty-three European chapter contributions in Márquez-Grant & Fibiger (2011) in addition to the information provided from questionnaires by scientists in Switzerland and Liechtenstein. See footnotes 1 and 2.

Palaeoanthropology and palaeodemography continued to be prevalent topics in physical anthropology, but palaeopathology experienced the most dramatic increase in popularity. Significant work from this time includes studies on remains from a leper cemetery in Denmark, which led to new knowledge on the disease's skeletal effects (Møller-Christensen, 1953), and investigations into the origins of treponematoses (Hackett, 1963). Europe's first general introduction to palaeopathology was also published during this same decade by Calvin Wells (1964). The most significant change from previous work on palaeopathology was that, as the 20th century progressed, the focus switched to patterns of disease and reconstruction of past life within a population, rather than anecdotally describing a pathological condition on a single skeleton (e.g. Roberts & Manchester, 2005).

This development continued into the 1970s and 1980s when the Paleopathology Association had its first European meeting in London in 1974. In 1976, the European Anthropological Association was established under the presidency of Dr G. Olivier. This time also saw further developments in dental anthropology, studies on cremated bone and overall research methods within physical anthropology. In London, Simon Hillson published one of his earliest works, 'Diet and Dental Dis-ease' (1979), drawing attention to the study of the dentition within physical anthropology. This coincided with other methodological developments of this time, such as Gustafson and Koch's work on age estimation from dental development (1974). The standards established during this time culminated in 1996 with the first edition of Hillson's book, *Dental Anthropology*, which is still widely used today.

The 1990s and 2000s continued with diversification within physical anthropology but also with an emphasis on a multidisciplinary approach. Evolutionary studies increased under the sub-discipline of biological anthropology, and studies of archaeological human remains gained increasing attention. One significant discovery was that of Ötzi (known as 'The Iceman'), a 5300-year-old mummy found on the border between Austria and Italy in 1991 (Barfield, 1994). In light of this discovery, anthropologists began working with DNA specialists, pollen experts, geochemists, isotope experts and others in a cohesive effort to learn more about the life of this individual. This trend in archaeological science, particularly the use of DNA and (stable) isotopes, would only increase across physical anthropology as the 20th century ended and the 21st century began. In addition, wide participation of anthropologists in the field with regard to excavation and recording of human remains is almost the norm now, as opposed to just working in the laboratory. Methods for standardisation also continued with the publication of Buikstra & Ubelaker's (1994) standards and that of Brickley & McKinley (2004) amongst others. Developments in forensic anthropology, which applies physical anthropological techniques to medico-legal investigations (Komar & Buikstra, 2008), have also developed physical anthropology as a whole. A number of associations have emerged in recent decades including The Forensic Anthropology Society of Europe, The Latin American Forensic Anthropology Association and the anthropology branch of the American Academy of Forensic Sciences. Many members of these associations under-take research on trauma and methods of biological profiling, which have had an impact on the examination of archaeological human skeletal remains. Apart from a number of recommendations being published globally, for example the *Recomendaciones en Antropología Forense* of the Spanish Association of Forensic Anthropology and Odontology published in 2013 (Serrulla, 2013), the system of accreditation in a number of countries has increased standards in forensic and physical anthropology. More recently, the nature of physical anthropology practice is changing and includes new research questions and more destructive analysis. Practical and ethical considerations have changed alongside scientific and technical developments, which include new recommendations for sampling human bone (e.g. APABE, 2015).

Education and training

The contributions included in Márquez-Grant & Fibiger's (2011) volume show that the availability and level of education in physical anthropology is far from uniform across Europe. Formal education in anthropology as part of a university degree is reported by 21 of the 45 European countries surveyed (46%). The remaining countries are divided into those that have no formal academic courses or training in physical anthropology (including Andorra, Azerbaijan, Kosovo, Luxembourg, Monaco and Montenegro) and countries where formal education is limited (Figure 1). The degree of limitation varies by country but generally includes those that do not offer any formal degrees at either Bachelor's or Master's level. Some, however, run modules and organise lecture series (such as in Belgium, Bosnia/Herzegovina and Cyprus) on topics like human anatomy, biological anthropology and osteoarchaeology as a part of other undergraduate degrees. Others, like Norway, invite guest speakers to lecture on specific topics within physical anthropology.

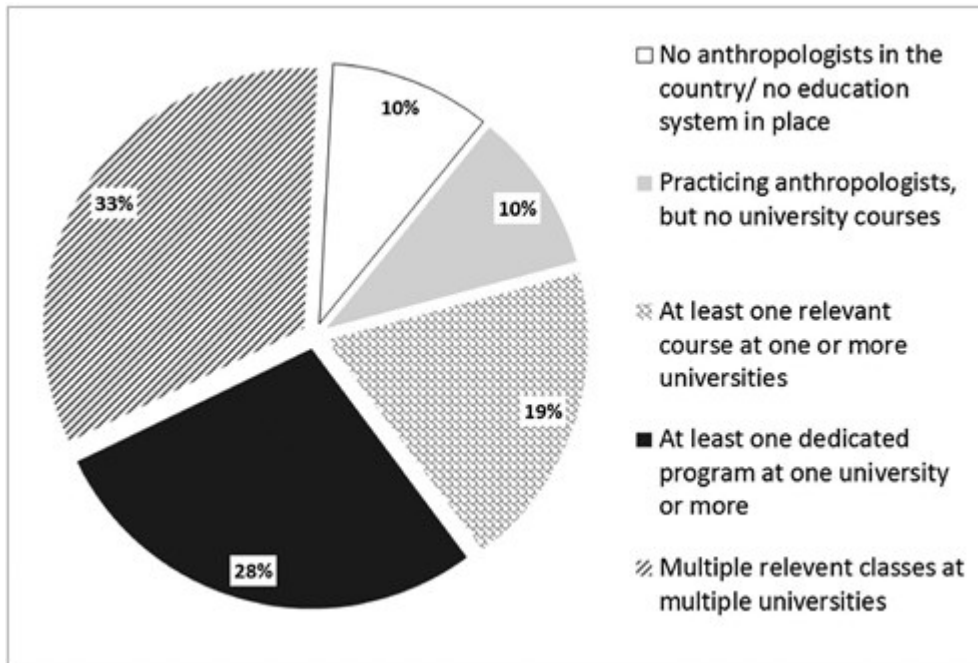


Figure 1. Physical anthropology education in Europe

Official degrees in physical anthropology or osteoarchaeology and related subfields are really only available in Croatia, France, Germany, Italy, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, Turkey and the UK. Departments vary, and in some countries (e.g. the Netherlands and the UK), physical anthropology or osteoarchaeology is taught in archaeology departments; in other countries, such as Spain, the subject may be taught primarily in either biological or medical faculties. Absence of training or specialised anthropologists within a country is often reflected in limited professional opportunities. It can become a self-perpetuating process in which failure to create training opportunities results in a lack of job prospects, leaving a deficit of those who would carry out training in the first place. In many cases, those working in a country deficient in physical anthropology education seek it elsewhere in order to gain the qualifications necessary to perform their work. This is the case in 74% of countries lacking means of accreditation for physical anthropology. Any-one wishing to gain an accepted education must leave their home country in order to do so.

Methods Employed

One of the important considerations when working in a particular country is what methods to use for a particular skeletal assemblage. With a range of methods published for the analysis of skeletal remains, it is not surprising that Europe uses a wide variety of methods that vary from country to country. Some countries stipulate which specific methods are to be used, while others entirely lack guidelines. Amongst these varied situations, common themes can be identified. Of the countries considered for this paper, 61% report using 'International Standards'. While this term is not officially defined, it is generally agreed to include Buikstra and Ubelaker's standards (1994) and Brickley and McKinley's standards (2004). The European standards described by Ferembach et al. (1980) are also frequently mentioned, along with the Hungarian methods of Acsadi & Nemeskéri (1970) and the Russian methods of Pashkova (1963), Alekseev & Debets (1964) and Alekseev (1966).

The methods selected (or whether any are selected at all) are chosen for a variety of reasons but appear to be largely related to the educational status of physical anthropology as well as sociocultural relationships, geographical proximity and political history. Countries that were formerly part of the Soviet Union, for example, tend to use methods by Russian authors; French-speaking countries often favour French authors and countries neighbouring Hungary have an inclination for methods derived from the Hungarian tradition (which is included in Ferembach et al., 1980).

In addition to these national and international standards, some countries (approximately 23%) have been known

to develop and use their own local methods. This is often carried out in an effort to gain population-specific data where national or international methods are not suited to their studies. Variety in selected methods in addition to this regional development can be observed, for example, in stature estimation (Table 1). Use of the methods of Trotter & Gleser (1952, 1958) was reported in 65% of the countries that discussed their stature estimation methods. While the formulae for White individuals are most commonly preferred, some countries found that formulae for other ancestral groups were more accurate. For example, in Poland, anthropologists found the formulae inaccurate for their prehistoric and historical remains and instead used a method developed by Czech anthropologists (Vančata, 1996).

Table 1. Methods of stature estimation in a number of European countries as reported in Márquez-Grant and Fibiger's Routledge Handbook (2011)

Country	Stature estimation methods
Belarus	Trotter & Gleser (1952, 1958)
Bosnia/Herzegovina	Trotter & Gleser (1952); Sarajlić & Cihlarž (2006)
Czech Republic	Breitinger (1937); Bach (1965); Sjøvold (1990)
Denmark	Trotter & Gleser (1958); Boldsen (1984a, 1984b)
Finland	Telkkä (1950); Telkkä et al. (1962); Palkama et al. (1962); Virtama et al. (1962)
France	Trotter & Gleser (1952); Olivier (1960, 1969)
Hungary	Bernert (2005, 2008)
Iceland	Trotter & Gleser (1958)
Italy	Trotter & Gleser (1958); Formicola (2003)
Luxembourg	Cleuvenot & Houët (1993); Olivier et al. (1978); Trotter & Gleser (1958); Pearson (1899)
Norway	Trotter & Gleser (1952, 1958)
Portugal	Olivier et al. (1978); Mendonça (2000); Santos (2002)
Russia	Trotter & Gleser (1958); Olivier (1960); Bunak and Debets' methods as reported in Alekseev (1966)
Serbia	Trotter & Gleser (1958); Ross & Konigsberg (2002)
Slovakia	Sjøvold (1990); Manouvrier (1893); Breitinger (1937); Bach (1965)
Spain	Pearson (1899); Manouvrier (1893); Trotter & Gleser (1952, but recommended use of formulae for Blacks); Mendonça (2000)
Sweden	Sjøvold (1990a); Trotter & Gleser (1952, 1958)
Turkey	Pearson (1899); Trotter & Gleser (1958); Sağır (2000)

As far as other aspects of biological profiling are concerned, specifically with age-at-death and sex estimation, methodological trends are similar to stature. Buikstra and Ubelaker's 'standards' (1994) are cited frequently, as well as the previously mentioned Russian, Hungarian and French methods, with a similar culturally related distribution. Still, local methods persist. For example, in Finland, Kajanoja's (1966) paper on sex estimation from the cranium persists as the commonly selected method but is not reported to be used elsewhere. With so much variation on a continent that is characterised by frequent international collaboration, there can often be confusion about which methods should be used when an anthropologist is working out-side of their home country. There are no specific legal means of establishing this, but it is generally thought that an anthropologist working abroad should employ the methods of the country they are in, not the country they are from.

Legislation

Legislation relevant to physical anthropology includes laws and regulations relating to what happens upon the discovery and excavation of human remains, whether an anthropologist should be involved, whether human remains should be studied and what their subsequent fate (i.e. retention and reburial) should be. Again, there are variations as well as unifying features present across Europe. A major common feature of European legislation is that 100% of countries surveyed require a permit to perform archaeological excavation. This is likely due to the Valetta Treaty, a 1992 multinational agreement of the Council of Europe. It is more formally known as the European Convention on the Protection of Archaeological Heritage. Article 1 states that the treaty aims 'to protect the archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study'. Approximately 86% of European countries signed the Valetta Treaty. Some countries also have additional local laws that seem to reiterate the purpose behind the treaty, such as Greece's Law 3028/2002 on 'The Protection of Antiquities and Cultural Heritage in General'.

While the Valetta Treaty covers many aspects of preserving archaeological remains in Europe, it does not specifically mention human remains at any time. This is probably the reason that only 7% of European countries distinguish human remains from other archaeological finds. While this means that the remains are essentially protected under the Valetta Treaty, the legal question starts to become an ethical one as the majority of Europe would legally be treating human re-mains the same way as artefacts. Only 7% of countries surveyed require an anthropologist to be on site when excavating human remains. In Europe as a whole, specific legislation relating to skeletal remains seems to be lacking. Figure 2 outlines the percentages of European countries that have enacted different types of legislation related to human remains. Still, there are many countries that do not have legal requirements for the presence of an anthropologist on site. Anthropological examination is only being strongly recommended, although not required by law. Legal requirements could pose difficulties in countries that lack local anthropologists, but in countries with the appropriate professionals in place, an improvement of legislation relating to the examination of skeletal remains would not only aid in ensuring proper scientific analysis but also increase education opportunities and better manage ethical issues.

Only 16.3% of the countries have legislation that directly mentions the protection and/or treatment of human remains, with 11.6% requiring permission to study or view human remains and 18.6% maintaining legal specifications for post-excavation storage. As far as re-mains being of forensic or archaeological concern, only 23.3% of countries surveyed have a legally binding 'cut-off' point after which remains become archaeological. Other countries make this distinction on a case-by-case basis. The cut-off point varies significantly between countries, with some placing the boundary at as recently as 20–30 years but most placing it at over 50–100 years. Specifics are sometimes based around a certain historic year or event, as is the case in Hungary where independence and the subsequent expulsion of the Turks in 1711 mean that any remains after this period (Mehler, 2013: 15) are no longer considered archaeological but they are not considered forensic either unless younger than 25 years.

One of the most significant pieces of legislation with regard to human remains to be recently enacted in the UK was the Human Tissue Act of 2004 (England and Wales), which replaced most of the previous legislation involving anatomical specimens. The restrictions it places on the study of human tissue not only limits re-search in forensic anthropology, which requires the study of modern specimens (less than 100 years old), but also limits the collections that English and Welsh museums can hold. While the intentions behind the act are positive considering the needs of those claiming repatriation and showing respect towards human re-mains from the recently deceased, it has created some new challenges for education and research in physical anthropology and has altered the weight of the legal component of their work.

Lack of legislation for skeletal remains also affects the question of reburial. A number of countries occasionally rebury depending on the situation (e.g. storage space, law on sacred grounds) and on a case-by-case basis, sometimes reviewed by committees at particular institutions (such as museums and universities) or by national committees (e.g. The National Committee for Evaluation of Research Involving Human Skeletal Remains or Nasjonale forskningsetiske komiteene in Norway). Others have not specified any reburial practices (Figure 3). Countries that commonly practice reburial often have strong religious affiliations that require such practice, examples of which have been seen with historical cemeteries in Azerbaijan, Spain and in the UK. In general, the reasons for reburial, when it does occur, can be quite diverse.

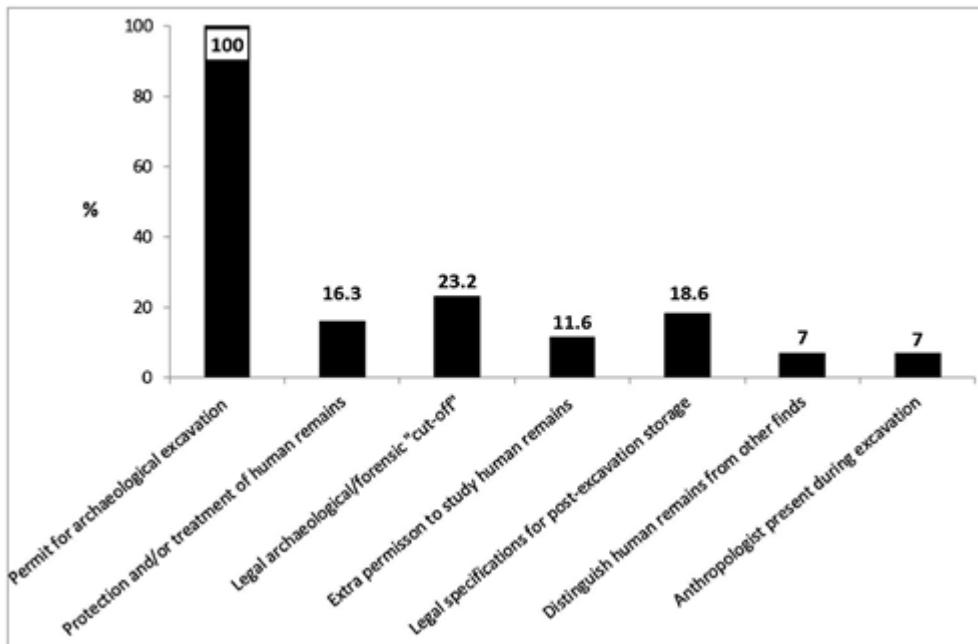


Figure 2. Proportion of European countries with legislation involving archaeological human remains.

Ethics

Ethical considerations in physical anthropology lead to a variety of questions (e.g. Walker, 2000; Fforde, 2004; Larsen & Walker, 2005; Jenkins, 2010; Roberts & Mays, 2011): Is it ethical to excavate and study human remains? Is it ethical to retain human remains in museums? What about the display of remains? Are human remains treated as objects or as individuals? Should all remains be reburied or retained for conservation and future study? There is no one correct answer to these questions across Europe, but attempts are made within individual countries to address them. It is also important to always be aware of specific ethical issues in the country that one is working in. As important a topic as ethics is, only 13 out of the 43 (30.2%) European contributions in Márquez-Grant & Fibiger's (2011) volume discussed ethical considerations for physical anthropology within their country in detail.

The active involvement in addressing these questions varies as well. A few European countries enact relevant laws in an effort to correct for ethical issues (as already discussed with reburial), some make attempts to standardize anthropological protocols, while others merely acknowledge the problems without a specific attempt to interfere and change the current situation. Belgium is one of the countries that admits to the latter but says it is due to lack of protest against working with human remains. They discuss treating remains with utmost respect and mention protocol standardisation.

Some countries have ethical concerns largely centred on repatriation. This is the case in Denmark, whose anthropologists make an active effort to find a balance between repatriation of remains to their original culture and preserving remains in their own museums in the interest of science. There are no set guidelines for this; decisions are made on a case-by-case basis. Malta attempts to strike this same balance but often refers to the

Cultural Heritage Act as a guide for what should and should not be repatriated. They also emphasise respectful treatment of the remains in this regard. Repatriation is also at the forefront of issues in Norway with regard to remains of the Sami that still exist in museum collections; the issue is not resolved, but the remains have become protected by a strict set of guidelines.

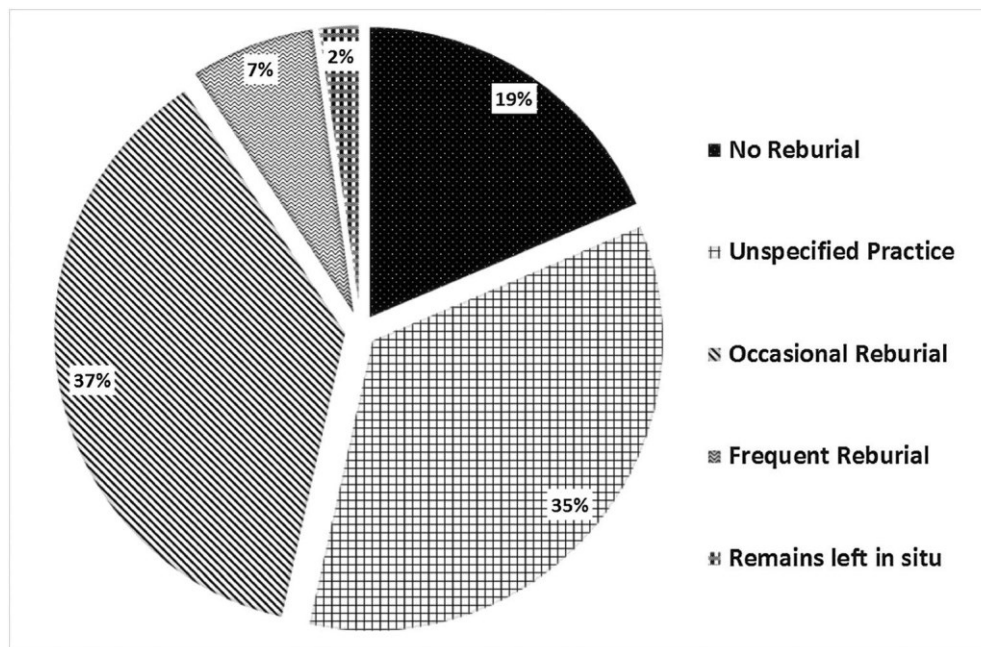


Figure 3. Reburial practices in Europe.

France is one of the countries legally responding to establishing ethical practice within physical/biological anthropology. This is likely due to a major disagreement that occurred in 2009 involving an exhibition of human remains on dissected human remains called *Our Body, á corps ouvert*. The confrontation over whether or not the exhibition was legal, resulted in conferences that attempted to create a thorough code of conduct for the treatment of human remains and issues of repatriation. Spain shares similar ethical concerns and acknowledges the need for further legislation. It acknowledges positive feedback from the general public on exhibitions that have involved human remains. This active involvement with the public could be seen as a positive step towards education and involvement of the public and is therefore relevant to the ethical argument.

With regard to destructive analysis, although institutions will have their own policies, the UK has produced a good and practical guide accessible to the public (APABE, 2013). The approach to ethical issues within physical anthropology may take a different form in each European country, but the sparse discussion of it in the Routledge Handbook suggests that it may not be receiving the attention it deserves as a continent-wide issue. While countries have the right to their own independent protocols, they are also part of a larger community within physical anthropology practice. As a place that increasingly sees international collaboration, a certain amount of standardisation would relieve unnecessary inconsistencies within practice. This is especially true where repatriation is concerned, as it can be a source of tension between countries.

Conclusion

What are the main outcomes of this overview? While the development of the discipline has taken slightly different trajectories in different areas of Europe throughout the last centuries, there are a number of common themes, strengths and concerns, and it is these that are worth focusing on if the discipline is to grow and flourish in a European context. Over a third of European countries still lack practising specialists and/or country-specific education in physical anthropology. While movement for education and work is one of the main benefits of the European Union, it is important to strengthen the educational and professional basis of the discipline in each individual country if professional standards and ethical practice are to be ensured across the continent. Specific legislation for archaeological human remains is widely lacking, as is the requirement of a physical anthropologist's presence when excavating these remains. Similarly, ethical considerations, such as carefully

worded and periodically reviewed codes of ethics and codes of practice, are not a uniform feature. This ties in closely with issues of methodology. Uniform standards do not necessarily demand absolutely uniform methods, as is evident when considering the usefulness of many sample-specific or region-specific methods. What is absolutely imperative, however, is transparency in reporting and a clear identification and justification of the methods applied. This also affects sampling for biomolecular studies, which are becoming increasingly common. As a non-renewable resource for education, training and re-search, human remains need to be protected, and their destructive sampling should be guided by rigorous selection and sampling strategies and procedures. While physical anthropology as a discipline is probably a long way off revisiting the issue of cross-European methods (Ferembach et al., 1980), the importance of using established and appropriate tested methods cannot be overstated.

This article, and the published volume from which it resulted (Márquez-Grant & Fibiger, 2011), presents a picture of a thriving and growing discipline but one that is also still in the process of coming to terms with a number of legislative, ethical and practical issues. Physical anthropology is central to understanding past populations and investigating aspects of demography and epidemiology that can directly inform strategies for current and future populations. All of those practising physical anthropology need to take stock and consider how we can best advance our discipline at an international level. Looking at the strengths, practices and procedures of our European neighbours as summarised in this article is an opportunity to learn, improve and help each other, to ultimately achieve good practice across the continent. The authors hope that this article encourages fruitful pan-European discussions on how we can ensure the discipline's successful future in an accessible, sustainable and inclusive way beyond country borders.

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