Archaeological Approaches to Human Remains: France

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Chapter 5
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Origins of Skeletal Studies in France

The French scholarly landscape of human skeletal studies does not lend itself easily to general overviews due to separation of related disciplines, regionalism, and, most importantly, deep historical origins. Due to separate developmental trajectories, there is no unified discipline of "anthropology" in France, a situation that is similar to the academic organization of other European countries, including Germany and the United Kingdom. When "anthropologists," either biological or sociocultural, interact in joint projects, a development that is encouraged but not formalized, this is considered part of an interdisciplinary approach. This situation is not unique to France, but is likely an outcome of colonization of, especially, parts of Africa, which fostered the development of *ethnobiologie* as part of ethnology (*ethnologie*) that includes ethnography, a subject that developed alongside but separately from physical anthropology in the early decades of the twentieth century in France (see Conklin 2013).

Paul Broca, a medical specialist in neuroanatomy, is considered the "father of physical anthropology" in France (see below). Thus biological anthropology (also *l'anthropologie biologique*, *bioanthropologie*, or *anthropobiologie*), formerly physical anthropology (*l'anthropologie physique*), has a longer association with medicine and with paleontology and prehistory (i.e., Paleolithic to Neolithic periods) – stretching well back into the nineteenth century – than with archaeology (i.e., protohistoric and historic periods). In France, prehistory sprang from paleontology (*contra* Cleuziou et al. 1991, who cite an origin from physical anthropology); philosophy, with its inheritance from the *siècle des lumières* (the "Enlightenment"); and geology, a science that deals with the "natural history of mankind." With its diverse origins, the interdisciplinary ambition of such studies today is aptly summarized on

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the plaque outside the entrance to the recently reopened (17 October 2015) Musée de l'Homme in Paris, after a period of refurbishment. Found next to the central entrance, it reads in translation as follows:

> One hundred and fifty researchers work here to understand the origins of Mankind in all its dimensions, whether biological, social, or cultural, in the full expanse of time, from their origins into the future. Studies in primatology, prehistory, biological and social anthropology undertaken at the Musée de l'Homme contribute to tracing the history of Humankind in its natural and social environment.[1]

The link between human remains and prehistory being older, terms such as *paléobiologie* (paleobiology), *paléoanthropologie* (paleoanthropology), and *paléontologie humaine* (human paleontology) are often employed to distinguish this type of research from the study of Holocene archaeological human remains, which is a more recent development referred to by the terms *archéoanthropologie* (archaeo-anthropology) or *bioarchéologie* (bioarchaeology), which can be loosely equated to human osteoarchaeology and bioarchaeology (including faunal and plant remains, following the earliest definition of this term – see Knüsel 2010), respectively. The multiple terms used to describe the study of human remains reflect the organic and continuing development of the subject, to which scholars trained in a variety of disciplines have contributed, often on an ad hoc basis as an adjunct to or development from their main area of training and interest.

Among the most well-known early French prehistorians were priests, such as l'abbé Henri Breuil, who contributed much early work on parietal art; Pierre Teilhard de Chardin, who became involved in the Piltdown Man hoax and underlined the importance of the Neolithic for the development of human consciousness in *The Phenomenon of Man* (1955); and Jean and Amédée Bouyssonie, excavators of the La Chapelle-aux-Saints (Corrèze) site. Others were lawyers, such as Édouard Lartet, who published early works on fossil apes such as *Dryopithecus* and was the father of Louis Lartet, who discovered the Upper Paleolithic Cro-Magnon (Dordogne) specimens; customs officials, such as Jacques Boucher de Perthes, responsible for demonstrating the antiquity of humans by associating them with Acheulian stone tools; and medical doctors, such as Louis Capitan, who participated in excavations at St. Acheul (Somme) and a number of sites in the Dordogne region with Denis Peyrony, a school teacher.

Up to the present day, the study of human remains in France is normally undertaken after the completion of a first-degree course of study in another discipline, for example, biology, geology, history, sociocultural anthropology, history of art and archaeology, or medicine, among others.

[1] "Cent cinquante chercheurs travaillent à la connaissance de l'Homme dans toute ses dimensions, qu'elles soient biologiques, sociales ou culturelles, et dans toute l'épaisseur du temps, des origines de l'Homme à son devenir. La primatologie, la préhistoire, l'Anthropologie biologique et culturelle pratiquées au Musée de l'Homme contribuent à retracer l'histoire de l'Homme dans son environnement naturel et sociale." (translation by the first author)

Link to National Identities

As intimated in the Musée de l'Homme statement, above, it is the origins and development of *Homo sapiens sapiens* that defines French early prehistory. The focus of the subject predates by millennia the rise of the French nation-state, although the study of the "races of mankind," an early focus of both disciplines, contributed – unwittingly perhaps – to a biologically defined national identity (see below). Archaeology, much more than biological anthropology, has been influenced by and fostered the rise of national identities, drawing on various periods of the past as analogous to the more recent troubled history of the twentieth century (see Dietler 1994).

Napoleon I Bonaparte founded the *Académie Celtique* in 1804, the same year marking the foundation of the First Empire. In this, the Emperor underlined the descent of the French from Gallic peoples in opposition to a "Germanic" French royalty and aristocracy, who saw themselves as descendants of Frankish peoples who had migrated into the eastern part of the country in late antiquity from an origin to the east of the Rhine River and, more specifically, of the fifth-century Frankish (and first Christian) King Clovis I (see Dietler 1994). Political figures of the past two centuries have carried on this tradition of Gallic identity. The Emperor Napoleon III (1808–1873), Field Marshal Philippe Pétain (1856–1951), General and President Charles de Gaulle (1890–1970), President François Mitterrand (1916–1996), and politicians to the present day have made reference to "nos ancêtres les Gaulois" ("our ancestors the Gauls") as an allusion to national origins as an independent Gaul ("la Gaule indépendante"), terms used by archaeologists to describe the region prior to the Roman conquest, as in Jean-Louis Brunaux's (1996) *Les Religions Gauloises: Rituels Celtiques de la Gaule Indépendante*. The occupation of the country by Roman invaders thus became analogous to the resilience of the French nation and endurance of French culture under occupation during the Second World War Vichy government (see Amalvi 1984).

Key Institutions

A number of institutions act very much to define French identity and reflect its strongly philosophically humanist orientation. In the second part of the nineteenth century, physical anthropology as a domain of scientific enquiry was formalized in France, perhaps the first country in the world to see this development. Paul Broca (1824–1880) figures prominently in the initial developments of the discipline.

In 1859 Broca and colleagues founded *La Société d'Anthropologie de Paris* (The Anthropological Society of Paris). The first and oldest society of its kind, the SAP as it is known, recently convened for its 1842nd meeting in January 2017. Early on the Society met many times a year, but in the 1990s its gatherings became annual meetings. Its journal, the *Bulletins et Mémoires de la Société d'Anthropologie de Paris* (BMSAP) was founded at the same time and, as a consequence, is the oldest

journal in the world devoted to the study of the natural history of humankind as a part of the natural sciences. It remains one of the main publication venues for French biological anthropologists. Further formalization of the discipline came in 1875 when The Anthropological Society of Paris founded the School and Laboratory of Anthropology, at the instigation of Broca and colleagues Jean-Louis Bertillon, a medical doctor, statistician, and demographer, and Jean-Louis Armand de Quatrefages, who became the first Professor of Anthropology and Ethnology at the Natural History Museum (Muséum d'Histoire Naturelle) in Paris in 1855, the first person to hold such a position in the world (Bocquet-Appel 1996). Broca became the first head of the Laboratory. Broca also served as the first director of what became the Broca Laboratory at the École Pratique des Hautes Études (EPHE, School for Advanced Studies) in Paris, which was established in 1867 (Ferembach 1980) in order to foster practical instruction in the life and earth sciences, historical and religious sciences, and philology.[2] In 2017, the Society of Anthropology's laboratory was fused with that of the École Pratique des Hautes Études, and as a part of a scientific reorganization to form part of a GRET (*Groupement de Recherche et d'Enseignement Thématiques*) (*Thematic Research and Teaching Group*), which encompasses evolutionary, morphological, anthropological, and genomic areas of interest.

Paul Broca's capacity to organize and create has been felt internationally, even after his death in 1880, causing Denise Ferembach (1980: 17) to note that almost all international scholars who came to work in Broca's laboratories established similar facilities in their country of origin or wherever they established themselves. For example, Aleš Hrdlička established a laboratory at the Smithsonian Institution in 1903, a journal, the *American Journal of Physical Anthropology* (AJPA), in 1918, and a society, the American Association of Physical Anthropologists (AAPA), in 1919, after leaving his native Czechoslovakia and spending part of his early career in Paris.

The Muséum d'Histoire Naturelle (MNHN), founded originally as a royal garden dedicated to medicinal plants and teaching in 1635, has been a focal point for research and teaching in the natural sciences for over four centuries. It is a multisite, interdisciplinary museum, with botanical gardens and green houses, a zoological park, as well as museum galleries. It adopted its present name in 1793 and now includes 12 sites in France. Jean-Baptiste de Lamarck, Georges Cuvier, Étienne Geoffrey Saint-Hilaire, and Georges-Louis Leclerc de Buffon number among the early naturalists who taught there.[3] It remains a focus for anthropological research on human remains through the Musée de l'Homme (the Museum of Mankind), one of its branches.

Inaugurated in 1938 and reflecting the political atmosphere on the eve of the Second World War, the idea behind the creation of the Musée de l'Homme was, following its founder and first director Paul Rivet, to consider that "l'humanité est un tout indivisible, non seulement dans l'espace mais aussi dans le temps" ("humanity

[2] https://www.ephe.fr/ecole/histoire-et-personnalites

[3] http://www.museedelhomme.fr/fr/musee/histoire-musee-homme/creation-musee-homme-1937

is an indivisible whole, not only in space but also in time").[4] As noted in the introduction, above, this ethos guides the museum to the present day. It serves as a repository for all vestiges of the human past to intimately link government-funded research with public display. The major theme of the permanent exhibition focuses on the social, cultural, and biological diversity found among humans in the past to the present day.

The former Royal College (*Collège Royal*), founded by King Francis I in 1530 and now known as the Collège de France, is a non-degree-granting institution that offers instruction free of charge in the disciplines of science, literature, and the arts.[5] Professor Yves Coppens, one of those responsible for the discovery of Lucy (AL-288), a member of the species *Australopithecus afarensis* in 1974, held the Chair of Paleontology and Prehistory at the Collège de France from 1983 to 2005, having previously served as assistant professor at the MNHN (1969) and as the Director of the Musée de l'Homme (1980). Today, Professor Jean-Jacques Hublin holds the Chair in Paleoanthropology at the Collège de France as a three-year invited professorship and, since 2004, has also served as the head of the Department of Human Evolution at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany.

The *Institut de Paléontologie Humaine* (Institute of Human Paleontology) was founded by Prince Albert I of Monaco in 1910 with the aim to "progress of science on any issue regarding the origin and history of fossil Man."[6] It is responsible for managing the extensive prehistoric excavations in France that have contributed so prominently to understanding of early prehistory and the evolution of the *Homo* lineage. The Institute is unique as the oldest dedicated solely to the study of world prehistory.

The CNRS, Centre National de la Recherche Scientifique (National Centre for Scientific Research), founded in 1939, forms a network of research-focused state (i.e., national) employees that populate the terrain of French academia in biological anthropology, prehistory, archaeology, and many other fields of enquiry, from physics to oceanography and history to sociology. The CNRS operates as a government body under the aegis of the Ministère de l'Éducation Nationale, de l'Enseignement Supérieur et de la Recherche (Ministry of National Education for Higher Education and Research), employing 32,000 people as researchers and technicians across all disciplines. The CNRS is thus the backbone of research in France, and the majority of CNRS researchers are partnered with higher education or other research establishments, where they can also contribute to teaching and administration. To date with some 100 collaborative agreements with private enterprises, the CNRS has generated 1026 innovative enterprises (spin-off companies) and 6629 patents.[7] Since 2009, the CNRS has offered seven to nine permanent research positions a

[4] https://www.mnhn.fr/fr

[5] https://fr.wikipedia.org/wiki/Collège_de_France

[6] http://www.fondationiph.org/spip.php?article67

[7] http://www.cnrs.fr/fr/organisme/presentation.htm

year for young scholars in fields related to the evolutionary interaction of humans with their natural and cultural environments.[8]

Historical Events Affecting the Discipline

Despite the early foundations of this panoply of institutions and many disciplinary firsts, the influence and acceptance of Georges Cuvier's catastrophism, whereby new species came into being after cataclysmic events and not through slow evolutionary change, coupled with the earlier appearance of Lamarckian transformism that argued for the transformation of animals by acquired characteristics in response to changes in their natural environment, delayed the acceptance of Darwinian evolution in France (Spencer 1984: 25). These theoretical currents also played a role in Henri Victor Vallois' early championing of a pre-sapiens phase in the human evolutionary lineage, in which Neandertals were excluded as an ancestral species to modern humans due to the number of anatomical specializations (i.e., autapomorphies) present among these hominins (see Spencer 1984: 34). The "less than human status of Neandertals" held by many in the past and still today, albeit among a reducing minority of researchers, still affects perceptions of Neandertals and their contemporaries in Asia and Africa (Giacobini and Maureille 2007).

Although the origins of French prehistory in the nineteenth century predate the earliest fossil human discoveries, the discipline's development was greatly accelerated by the repeated discoveries of substantial remains of Neandertals (such as those from Malarnaud, 1888; Bau de l'Aubesier, 1903; Petit Puymoyen, 1907; Le Moustier, 1908; La Chapelle-aux-Saints, 1908; La Ferrassie, 1909, 1910, 1912; La Quina, 1911), their Lower and Middle Paleolithic predecessors, and anatomically modern successors (Cro-Magnon in 1868) and their respective cultural assemblages, including parietal and mobiliary art, structures, and material culture. These discoveries, their subsequent descriptions, and continuing study have defined the discipline on a global scale. The numerous fossil remains from France have stimulated the search for the remains of ancestral human populations across Eurasia and Africa and maintained a vibrant research orientation targeted to explain the appearance and the eventual disappearance of the Neandertals and the appearance of modern humans.

Research on the mechanisms of this transition and their biosocial behavioral implications continue to the present time, with renewed impetus from the discovery of Neandertal-derived genetic sequences in modern Eurasian populations (Green et al. 2010). As a consequence, these studies now focus on the appearance of key sociocultural behaviors, such as burial and symbolically charged uses of material culture, including ornamentation and colorants (Zilhão 2007; Zilhão et al. 2010). The earliest evidence for funerary behavior is of critical importance for understanding the development of human cognition and consciousness, and thus much debate

[8] http://www.cnrs.fr/comitenational/sections/section.php?sec=31

surrounds the interpretation of the earliest evidence for intentional burial in the Middle Paleolithic (see Gargett 1989, 1999; Dibble et al. 2015; Rendu et al. 2014, 2016). As a consequence, find locations receive fine-grained analysis as much as do the human remains. Detailed recording of features and taphonomic studies of the archaeological context increasingly employs GIS (Geographic Information Systems) and 3D Geomorphometrics. These and the application of new dating techniques (Maureille et al. 2016) have become highly visible hallmarks of recent French paleoanthropological research.

In the early twentieth century, the discipline of human paleontology was essentially divided along the lines of scientific (physical) anthropology and prehistory, which remains to this day, with the exception of the University of Bordeaux, where the two subjects are joined in research and teaching, a comparatively recent development (see below). This division is reflected in the editorship of the major journal *L'Anthropologie*, first published in 1890 and devoted to the prehistoric sciences and paleoanthropology.[9] The founders and first editors-in-chief of the journal were the paleontologist Marcellin Boule, Professor of Paleontology at the Natural History Museum in Paris and the first to study the La Chapelle-aux-Saints (Corrèze) Neandertal, who was responsible for prehistoric archaeology (archéologie préhistorique), and René Verneau, who was Professor of Anthropological Science or Physical Anthropology also at the Natural History Museum, with interests in the population history of the Canary Islands. This original pairing was replaced in 1930 by Henri Victor Vallois, who took up the role once occupied by Marcellin Boule, and Raymond Vaufrey, a student of Boule's with interests in the prehistory of North Africa, who succeeded René Verneau (Bocquet-Appel 1996). Despite this division between physical anthropology and prehistoric archaeology, the close relationship between these subjects is also clear in Boule's much heralded 1921 seminal volume *Les Hommes fossiles: Eléments de Paléontologie humaine*, which provided a synthetic treatment of geology and paleontology (Piveteau 1989). A similar synthesis can be found in Vallois and Movius (1953) *Traité sur les Hommes fossiles*, a forerunner to the British Museum Catalogues of Fossil Hominids (Oakley et al. 1967; Oakley et al. 1975, 1977) and Michael Day's (1986) *Guide to Fossil Man.*

While Paul Broca's early success in establishing the framework for the study of biological anthropology grew out of the anticlerical and pro-science atmosphere of the founding of the Third Republic in 1870 (Conklin 2013: 28), the development of biological anthropology was greatly influenced by the two World Wars and the overt racism and bigotry of the National Socialists. In an interview by Jean-Pierre Bocquet-Appel (1996), Henri Victor Vallois identified the "Modern Synthesis" of genetics and Darwinian evolutionary theory in the 1930s and the postwar period as marking a turning point in relations between French biological anthropology and that in the Anglophone world, especially as practiced in the United States. Although clearly not himself a racist, the concentration on human races, a topic that Vallois had explored for much of his career, as an analytical category, rather than a subject of research, was clearly influential, and its subsequent history influenced by the

[9] https://www.journals.elsevier.com/lanthropologie

notion of human races. After the war, with the exception of the Eastern Bloc countries, France continued scientific exchanges with countries worldwide, including Germany, but the fundamental change to population approaches in North America, and the abandonment of the concept of race as a biologically meaningful category (see Washburn 1951; Marks 1996), may be largely responsible for this split in traditions after the Second World War.

A similar argument applies to the notion of cultures as defined on the basis of regional artifact distributions. These have more often been used as an analytical category than as a subject of research. Despite the powerful legacy among French scholars of André Leroi-Gourhan and his "systèmes techniques" (technical systems) and "chaîne opératoire" (operational sequences) from the 1950s for lithic tool manufacture (see Soressi and Geneste 2011) – which represented a break with established tradition to develop the typological heritage of the abbé Henri Breuil – the notion of cultures endures. Unfortunately, a number of Leroi-Gourhan's major works have not, or not until very recently, been translated into English, so they have not had the same impact as that contributed by François Bordes, whose work came to the fore in the Bordes-Binford debate of the 1960s and 1970s. This series of debates, which pitted Bordes' notion of cultures to explain lithic assemblage variability of Mousterian *facies* against Binford's functional interpretations of the same variability, reflects varied and profound differences in approach (see papers in Dibble and Mellars 1992).

The University of Bordeaux: A Case Study

The University of Bordeaux provides an insightful example to help to trace the more recent relationships between prehistory and biological anthropology – and archaeology – in French academia. Prehistory has been taught at the University of Bordeaux since the middle of the 1950s, where it grew out of geology, and thus its subject matter, separate from archaeology, is considered part of the Faculty of Earth and Ocean Sciences (Faculté des Science de la Terre et de l'environnement). Within this framework, prehistorians investigate the interaction of early humans and the natural environment, its lithic resources, and its animals specifically. The first Professor of Prehistory at Bordeaux was Georges Malvesin-Fabre, who was named to the position in 1954. He created an advanced study certificate in anthropology and prehistory and also established and was the first director of the Higher Education Institute for Prehistory (l'Institut Pratique de Préhistoire) at les Eyzies-de Tayac (Dordogne), which is part of the University of Bordeaux to this day. In 1956, François Bordes succeeded Malvesin-Fabre, becoming the second Professor of Prehistory, while also assuming the directorship of the Institute of Prehistory. Although engaged in teaching biological anthropology from 1956, in 1959 Bordes abandoned teaching the subject, creating a certificate in prehistory, with the Institute becoming the Laboratory for Quaternary Geology and Prehistory (*Laboratoire de Géologie du Quaternaire et Préhistoire*).

In 1969, Bordes supported the creation of a teaching position for Raymond Riquet, a specialist on Neolithic human settlement who became assistant professor of biological anthropology in 1973 and then professor in 1977. From that time, biological anthropology was a part of the Faculty of Biological Sciences (where it remains to the present day). Arriving in 1983 from the University of Pierre and Marie Curie (Paris VI), Bernard Vandermeersch, with the support of the CNRS, had the opportunity to create a scientific and teaching laboratory in biological anthropology separate from prehistory, geology, and paleoenvironmental studies. Vandermeersch thus became the second Professor of Biological Anthropology at the University, serving in that role from 1983 to 2001. Prehistory and biological anthropology were thus not only separate disciplines but found themselves in separate faculties at this time, as they continue to be, in general, in French universities today.

In 2004, the University Bordeaux 1, as it was then known, and the CNRS merged the two laboratories, prehistory and biological anthropology, to create a unique *Unité Mixte de Recherche* (Mixed Research Unit, abbreviated UMR), France lacking academic departments per se. Today, this is known by its acronym PACEA, which stands for *De la Préhistoire à l'Actuel: Culture, Environnement, et Anthropologi*e.[10] Its academic complement includes teaching-researchers (*enseignants-chercheurs*), comprised of "maître de conférences" (equivalent to lecturers and professors of various grades in Anglophone universities) and "professeurs d'université" (full professors), and a substantially more numerous complement of CNRS researchers and technicians (*ingénieurs*) associated with either teaching or research. Anne Delagnes, a CNRS researcher specializing in the Paleolithic of East Africa, is the current head of PACEA, having succeeded the second author in this post in 2015 after the now statutory 5 years of service from 2011. The first author presently serves as Professor of Biological Anthropology, and Jacques Jaubert is the current Professor of Prehistory at the University of Bordeaux.

In Bordeaux's academic landscape, then, archaeology remains separate from prehistory and biological anthropology, the latter two being uniquely joined at the now federated University of Bordeaux (formerly University of Bordeaux I, II, and IV), and these fields of enquiry are separate from social anthropology and ethnology (Anthropologie Sociale et Ethnologie), a separate faculty at the University. Due to a political split in 2014, archaeology and archaeological sciences are now taught with history and art history at the neighboring University of Bordeaux Montaigne, the former University Michel-de-Montaigne-Bordeaux III.

The Role of Studies of Human Remains in Society

The first law applied in France to legislate on the relationship between the excavation of archaeological remains, including human remains, and property owners dates to the 1941 Vichy government, which reinvigorated a law of 1913 that

[10] http://www.pacea.u-bordeaux1.fr/Presentation-generale.html?lang=fr

stipulated that human remains could not be sold, as had by that time become the practice by some to finance their excavations. After several documented cases involving the destruction of archaeological sites as a result of highway and housing construction projects, a new law came into effect in 1973 creating the AFAN (l'Association pour les Fouilles Archéologiques Nationales) that governed both research and rescue excavations and shared the associated costs among the AFAN, the landowner, and the State via the Ministry of Culture. After a period of time, this law was reinvigorated by the creation of the Inrap (l'Institut National de Recherches Archéologiques Preventives, The National Institute for Rescue or Salvage Archaeology) founded on the principles of the European Convention for the Protection of Archaeological Heritage signed into law as part of the Treaty of Malta, 16 January 1992. The Convention created the means by which to finance the survey and excavation of cultural heritage. The law was promulgated in France on 17 January 2001 and the Inrap put in place on 1 February 2002.[11]

Today, the Inrap employs many archaeo-anthropologists (see page 2) in excavations of human remains and is a major source of professional employment for both this group and archaeologists in general. By 2012, the Inrap had become the largest archaeological research organization in Europe, with more than 2000 employees and a budget of 170 million euros supporting thousands of archaeological surveys, many thousands of excavation days, and more than 20,000 research days that contributed to some 5000 public presentation days over 10 years. In the past 10 years, Inrap archaeologists have undertaken 2500 excavations within France and its overseas territories. The monopoly exerted by Inrap over public archaeology surveys has recently contributed to legal wrangles between it and other privately operated public archaeology enterprises.

Popularization of research for the purposes of education and entertainment is a key outcome of research through permanent, annually occurring, and temporary public exhibitions. Visitors to museums and their shops in France will find many books intended for the general public, such as *Les Ancêtres de l'Homme* by Priscilla Bayle and Anne Delagnes (2014) and the Musée de Préhistoire, Les Eyzies-de-Tayac's multi-authored exposition catalogue *Première Humanité: Gestes Funeraires des Néandertaliens* (Vandermeersch 2008). Although accompanied by an increased emphasis on English-language journal publication, a major source of dissemination of research continues to be published as roundtable ("tables rondes"), many deriving from national and international workshops and conferences ("ateliers et congrès"), as well as "belles oeuvres," popular books with an emphasis on pictorial content such as Clottes and Lewis-Williams' (1996) *Les Chamanes de la Préhistoire: Transe et Magie dans les Grottes Ornées*, Randall White's (2003) *L'Art Préhistorique dans le Monde*, and Norbert Aujoulat's (2013) *Lascaux – le Geste, l'Espace et le Temps*, all of which are dedicated to the Upper Paleolithic.

A growing interest in medico-legal investigations among the general public has also spawned popular works on this subject. Philippe Charlier has authored a number of books on subjects in medicine, medical history, and paleopathology, termed

[11] http://www.inrap.fr/de-l-archeologie-de-sauvetage-l-archeologie-preventive-9724

"Pathographie" (a type of osteobiography of the deaths of historical figures), and medico-legal science. His recent (2014) book, *Quand la Science Explore l'Histoire: Médicine légale et Anthropologie*, has recently been translated into English as *When Science Sheds Light on History: Forensic Science and Anthropology.*

Disciplinary Contributions

Although fossil human studies have dominated biological anthropology in France, researchers have also had lasting influences on other subjects germane to the discipline. Paleopathology and paleodemography have a long history of professional research and public interest, while that in medico-legal anthropology (forensic anthropology and archaeology) is comparatively recent.

Paleopathology

Because Neandertals were considered to have suffered from pathological conditions to explain their physical appearance (see Straus and Cave 1957), paleopathological considerations of fossil specimens in France had an early origin. Although early on these conditions were not the subject of detailed study in themselves, a number of studies since have demonstrated that members of these early populations did suffer from pathological conditions (see, e.g., Trinkaus 1985). As in many other areas of biological anthropology, Paul Broca (1876) provided an early initiation into the subject when he demonstrated that holes in crania were cranial trepanations, the earliest surgical interventions performed in prehistory. In the early twentieth century, Marc Armand Ruffer popularized the term "paleopathology" in his study of Egyptian mummified remains (Aufderheide and Rodríquez-Martín 1998). The present Director of Studies at the École Pratique des Hautes Études, Olivier Dutour, who also teaches at the University of Bordeaux, specializes in the paleopathology of infectious disease, especially tuberculosis (Baker et al. 2015). He has co-authored a review chapter on the development of paleopathology in France (Blondiaux et al. 2012) and produced an edited introductory text on the subject, *La Paléopathologie* (2011).

Paleodemography

In 1982, Bocquet-Appel and Masset's seminal article, entitled "Farewell to paleodemography," exposed the influence of the age structure of the reference population on age-at-death estimates in paleodemographic analysis (Bocquet-Appel and Massett 1982). Since this time, research focus has been on two specific types of question: the effective population size, globally, in a region or on a site in the past from the

study of attritional mortality profiles of skeletal remains and the demographic effects of disease in past populations. Both types of study are founded on estimates of age-at-death determinations from skeletal remains but take a different approach to overcoming the insidious problem of estimating the age at death of adults based on skeletal changes associated with senescence or "growing old" that are highly variable from one individual to another. Both types of study also rely on use of model life tables of pre-Jennerian (i.e., pre-vaccination) populations. In the first case, in order to compare the entire populations, researchers employ a Bayesian approach to estimate ages at death (Bocquet-Appel 2008) to study the effects of socioeconomic transitions on populations, such as that associated with food production (Bocquet-Appel 2002, 2011).

For the second type of question, researchers employ mortality data from known outbreaks of acute disease (i.e., those that kill their hosts before affecting skeletal change) and compare the mortality profiles from birth to young adulthood, from 0 to 19 years of age at death, those ages that can be more accurately estimated from growth-related skeletal changes. These demographic and skeletal sample mortality profiles are then compared to model attritional mortality profiles of pre-Jennerian populations, such as those of Ledermann (1969) or Coale and Demeny (1966). In this way, anomalies in mortality can be identified from departures from the model profiles. Due to distinctive pathogenicity, certain diseases can be identified by the way they affect population mortality, as with the indiscriminate mortality of plague, as posited by historical sources and confirmed more recently by the identification of the disease-causing pathogen, *Yersinia pestis*, by ancient DNA analysis (Castex and Kacki 2016).

Forensic Anthropology

Although the term is now in current use in France as "*l'anthropologie forensique*" (a direct translation of "forensic anthropology"), definitions and acceptance of the term differ greatly among French scholars. Whatever the personal viewpoint, the subject does not exist as a stand-alone area of study. The subject, if not necessarily the term, is considered to be part of medico-legal studies, a branch of medicine. In their thorough review article published in 1999, entitled "Medicolegal anthropology in France," Işcan and Quatrehomme characterized a system in which the forensic pathologist/physician (*médecin légiste*) played the dominant role as part of the French legal system, with very little input from forensic anthropology per se. They note that forensic physicians have often lacked skills in the field recovery of skeletonized remains, a repeated deficit in regions and countries that do not integrate forensic anthropologists and archaeologists in their legal systems.

Despite an early origin of medico-legal studies developed to address demographic aspects of skeletonized remains in the first half of the twentieth century, Işcan and Quatrehomme characterize the second half of the twentieth century as a largely dormant one for research in human skeletal biology. They emphasize the

lack of modern French skeletal reference collections that means that collections from other regions of the world are used in the context of French medico-legal investigations. This situation has not been remedied more recently; such collections are still rare, with one such collection being curated at the University of Aix-Marseille (see below) and another being the Georges Olivier Collection at the *Musée de l'Homme* in Paris, Georges Olivier having established the biological anthropology laboratory of the *Université de Paris 7* (Campus Jussieu) (Demoulin 1996) and author of the book *Pratique Anthropologique*, published in the 1960s in both French (1960) and English (1969). This is also reflected in the fact that medico-legal physicians receive training in forensic anthropology/skeletal biology only as a supplementary part of professional development, which often takes the form of a relevant doctoral thesis.

Courses to train students in forensic anthropological techniques have only very recently been created, and these are designed to attract students from biology, health sciences, and letters and arts.[12] Recruitment of forensic physicians has been very sporadic. At the University of Aix-Marseille, course units in medico-legal anthropology and human osteology and general anatomy are taught as part of Master's course in "*Pathologie humaine*" (Human Pathology), part of a program in biological anthropology. In Bordeaux, a longer-running course in biological anthropology and prehistory, the Master's in Biogéosciences, now with three pathways, biological anthropology, archaeothanatology, and prehistory that includes geoarchaeology and zooarchaeology, also provides training in evolutionary and skeletal biology, including analysis of demographic aspects of skeletonized remains (age-at-death, sex, stature and body proportions, discrete anatomical variations, etc.).[13] The University of Toulouse Paul Sabatier UMR 5288, *Anthropologie Moléculaire et Imagerie de Synthèse* (AMIS), directed by Eric Crubézy, offers training in molecular anthropology.[14]

In a separate development, but one still to receive recognition from the *Académie de Médecine*, the *Département of Anthropologie-Thanatologie-Odontologie* (ATO) of the l'IRCGN (*l'Institut de Recherche Criminelle de la Gendarmerie Nationale*), the branch of the police force that that oversees criminal investigations, now offers two diplomas in partnership with the University Paris-Descartes, one in "Criminalistics" and a second in the "Coordination of Criminalistic Operations" (Ducrettet et al. 2013). As Ducrettet et al. (2013) point out, although forensic archaeology and forensic anthropology are viewed as separate disciplines, they are inextricably linked in practice.

In essence, it seems that forensic anthropology, a term which did not make its appearance until the early part of the twenty-first century in France applied in the context of medico-legal science, is developing in a manner very similar to that in the United Kingdom in the 1990s. Forensic anthropological interests there grew out of

[12] http://formations.univ-amu.fr/ME5APH-PRAPH4D0.html

[13] https://www.u-bordeaux.fr/formation/2017/PRMA_28/bio-geosciences

[14] http://www.univ-tlse3.fr/anthropologie-moleculaire-et-imagerie-de-synthese-451429.kjsp?RH=rub03

initiatives in archaeology departments, with contributions from osteoarchaeologists and anatomically, dentally, or medically trained scholars on an initially ad hoc research-focused basis (see Hunter et al. 1996).

In France, as in other parts of Europe, forensic anthropology has roots not only in biological anthropology and archaeology but also in medicine. This is reflected in Schmitt, Cunha, and Pinheiro's (2006) *Forensic Anthropology and Medicine: Complementary Sciences from Recovery to Cause of Death*. In its desire to highlight shared interests and the value of collaborative working between broadly medico-legal and subjects akin to biological anthropology and archaeology, this volume focuses on what the Hunter et al. (1996) volume did for archaeology, archaeological science, and biological anthropology in the United Kingdom. The majority of researchers in medico-legal medicine in France pursue their vocations in faculties of medicine, for example, Gérald Quatrehomme, who is a member of the Faculty of Medicine of the University of Nice Sophia Antipolis. Most recently forensic archaeologists and anthropologists have begun to work within the Gendarmerie through the IRCGN. In 2010, an accord reached between the Inrap and the IRCGN fosters joint work and the training of forensic archaeologists (Georges et al. pers. comm.).

The "Bordeaux Approach" to the Analysis of Large Skeletal Populations

One very prominent response to Işcan and Quatrehomme's (1999) call for population-based analysis directed at age-at-death estimations and determination of sex for use in medico-legal studies has come from biological anthropologists at the University of Bordeaux. Bruzek's (2002) initial novel assessment of sex from morphognostic traits of the *os coxae* was logically followed by the metric assessment of the same element based on a worldwide survey of known sex individuals (Murail et al. 2005). The measurements employed developed from a synthesis of those previously used on a one-off basis by a number of researchers over the years, but never applied together previously. A unique contribution of this project is a web-based spreadsheet and statistical analysis package with confidence intervals that can be downloaded from the PACEA website.[15] For those individuals not preserving *ossa coxae* in large skeletal assemblages, "secondary sex assessment" is carried out through the application of discriminant function analysis of infra-cranial bone measurements developed from those individuals for whom sex could be determined from at least one *os coxae*. The approach is an extremely robust method, but, unfortunately, has not been widely adopted outside of France to date.

Another method developed at Bordeaux through the doctoral research of Aurore Schmitt (2005), now a CNRS researcher at ADES (Anthropologie Bio-culturelle, Droit, Éthique et Santé) UMR 7268 at the University of Aix-Marseille, whose

[15] http://projets.pacea.u-bordeaux.fr/logiciel/?id=2#

method for age-at-death determination employs a similar statistical probability ("probabilistic") technique to that of Murail et al. (2005) to age-at-death determinations from the adult auricular surface. This approach is based on taking the original general descriptions of the Lovejoy et al. (1985) method and defining scores on particular features of the auricular surface to arrive at a composite score that is then used to obtain an age-at-death determination from a table of estimates based on a population of known-age individuals with a life expectancy at birth of 30 years or, alternatively, one with a uniform age distribution. In inspiration this approach is similar to that taken by Buckberry and Chamberlain (2002), but their method uses a greater number of character states, with some based on the estimated percentage of the surface affected by a particular morphological change and seven age stages based on composite scores, while Schmitt's relies on attaining an 80% probability of belonging within a particular age range based on composite scores. Both place individuals into broad age groupings to account for underlying imprecisions of estimates, especially of older individuals.

A source of contention derives from the fact that the Bordeaux method does not incorporate Phenice's (1969) criteria, which have become a standard among many Anglophone workers for both sex and age-at-death determinations. The reason for this is historical. Phenice's criteria were not included in the European standards published by Ferembach et al. (1980). As the Phenice method lacks a statistical approach, French scholars have seen it as being "unreliable" and dependent on the experience and acuity of individual researchers. This situation has been remedied in the work of Klales et al. (2012), who have generated a discriminant function for the Phenice traits and thus placed them on a more rigorous statistical footing, although the method is still based on the nonparametric "grades" that are too subject to interobserver interpretation in the eyes of some.

The Archaeological Context of Human Remains: Archaeothanatology

With origins in geology and paleontology, biological anthropology, like prehistory, is strongly influenced by the natural sciences, as opposed to sociocultural anthropology, with archaeology having grown from roots in classics and history. As a consequence, the theories that permeate these disciplines owe much to Lamarck and, latterly, to Charles Lyell's uniformitarianism and Darwin's theory of natural selection, as opposed to the French "sociological school" of Émile Durkheim, Marcel Mauss (author of *The Gift)*, and others, centered around the journal *L'Année Sociologique*, and their predecessors, Arnold van Gennep (*The Rites of Passage*) and Robert Hertz (*Death and the Right Hand*). Once part of a unified approach to ethnology as envisioned in joint working between Marcel Mauss and Paul Rivet, the first director of the Musée de l'Homme, in the late 1920s and 1930s (Conklin 2013), closer links are again emerging. The work of these earlier scholars is now being

increasingly integrated due to the presence and increasing emphasis on funerary archaeology within biological anthropology. Archaeothanatology (Boulestin and Duday 2005, 2006) thus grew out of biological anthropology and not archaeology in order to aid archaeological excavation of human remains and, thanks to the research and teaching activities of Henri Duday, is now well-integrated in field projects in France, Italy, Poland, the Near East, the French West Indies, South Africa, the Nile Valley, and French Polynesia.

Anthropologie de terrain (field anthropology), as pioneered by Duday (Duday et al. 1990; Duday 2006), places human remains at the center of archaeological research (Duday and Massett 1987). As a consequence, osteologists are today routinely employed in excavations of human remains in France and in most French excavations. A new subdiscipline, archaeothanatology, employs detailed observations of the disposition of human remains in the field in order to reconstruct funerary treatments of both inhumations and cremations. The major tenet of archaeothanatology is that the disposition in which skeletonized human remains are found does not reflect the original position of the corpse when it was deposited in the past, but rather is a product of postdepositional transformations of the original placement. Archaeothanatology emphasizes a close connection between human remains, their archaeological context, and the behaviors of the living groups with respect to the dead to create what has become known as a "chaîne opératoire funéraire" (Sellier 2016; Valentin et al. 2014, 2016).

Although recognized and employed to great benefit in French-language publications and field programs since the 1980s, archaeothanatology has not had the same impact outside of France. In part, this can be explained because the earliest literature was solely in French but also because the benefits of this approach for distinguishing intentional funerary practices from the effects of natural decomposition address an incompletely conceptualized disciplinary problem (see Knüsel and Robb 2016). Through recent translations (Duday 2006, 2011) and applications (Bocquentin and Garrard 2016; Nilsson Stutz 2003; Nilsson Stutz and Larsson 2016; Rottier 2016) this type of study is now beginning to make its presence felt in English-language publications. Key work on defining what constitutes an intentional burial and intentional funerary treatments, specifically for the Paleolithic, from Leclerc (1990) to more recent works (Henry-Gambier 2008; Tillier 2011; Tillier and Meignen 2016) continues to be a major focus of this research.

The International Role of Studies

French Paleolithic sites have played a major – if not the most significant – role in studies of early human populations for the latter part of the hominin lineage and historically for the development of the discipline due to the number of finds made in the country from the nineteenth century onward. Prior to the numerous discoveries in Africa of the earlier part of this lineage more recently, much of what was known about early prehistory came from France, and this is heavily dominated by the

discoveries made among the sandstone and limestone caves and rock shelters found along the Dordogne and Charente river valleys and their tributaries in southwest France. The area has often been referred to as the "cradle of European civilization," a sobriquet that reflects the predominance of this region in studies of the biological and cultural diversity of early European human populations. The location of the Musée National de Préhistoire in Les Eyzies-de-Tayac, Dordogne, provides a showcase of what reads like a "who's who" for Paleolithic research for the Vézère river valley, a tributary of the Dordogne, that runs through it and is now a UNESCO world heritage site. Founded in 1913 by Denis Peyrony, upon his purchase of the ruins of the sixteenth-century chateau, in 2004 the Museum was expanded and completely refurbished to create an exhibition space measuring some 1500 m^2 for the display of 18,000 objects.[16]

French scholars have long participated in overseas research collaborations, especially in the natural sciences, and the country has long attracted overseas scholars due to the richness of its archaeological heritage, such as Harvard archaeologist Hallam Movius, who excavated at the rock shelter of Abri Pataud in Les Eyzies (Dordogne) from 1958 to 1964 (Stringer et al. 1984). More recently, Harold Dibble and his collaborators, Shannon J.P. McPherron and Dennis Sandgathe, have excavated many sites over the past 20 years in association with French colleagues, such as Combe-Capelle Bas (Michel Lenoir), Fontéchevade (André Debenath), and Pech-de-l'Azé IV, Roc-de-Marsal, and La Ferrassie (Alain Turq). From 2002 to 2012, one of us (BM) with Alan E. Mann ran a summer course for Princeton University students at the University of Bordeaux. It was unique for combining lectures and training with the excavation of the Middle Paleolithic site of Les Pradelles, Marillac-le-Franc, near La Rochefoucauld. Another fundamental example comes from a Franco-Israeli collaboration between Bernard Vandermeersch and Ofer Bar-Yosef of Harvard University that established the presence and early date of early anatomically modern humans in the Levant and clarified the relationships between these populations and Neandertals (Bar-Yosef and Vandermeersch 1991; Bar-Yosef et al. 1992).

The Impact of Globalization

At the present time, France is undergoing greater globalization or "opening up" of its academic landscape than ever before. One measure of this includes increasing numbers of English-language publications by French and France-based scholars, many of whom originate from outside of the country. Of these, Italian, Spanish, Portuguese, and Belgian researchers predominate, with fewer North Americans and others from elsewhere in Europe due to the predominance of the French language. At present, these individuals are more likely to be found at postgraduate and postdoctoral levels. The CNRS has for some time maintained overseas connections.

[16] http://musee-prehistoire-eyzies.fr/lhistoire-du-musee

It maintains a strong presence in the Middle East through the IfPO (Institut français du Proche-Orient) with a history of research in Lebanon, Jordan, Syria, Iraq, and the Palestinian Territories,[17] in East Africa with the Centre français des Études Ethiopiennes, and in South Africa with the Institut français d'Afrique du Sud. The CNRS and New York University collaborate in a joint research center, the CIRHUS (Center for International Research in the Humanities and Social Sciences), UMI (Unité Mixte Internationale) 3199,[18] where fellows studying subjects germane to biological anthropology and prehistory have been supported recently: cementochronology (i.e., use of dental cementum annulations to determine age at death in humans and animals) (Naji et al. 2016) and Neandertal cultural diversity (Rendu et al. 2014, 2016). Collaborations are likely to increase in coming years.

Public Perceptions of Human Remains

In France, there is no particular difficulty with the excavation and study of historic or protohistoric human remains, nor in their storage and curation in archaeological repositories such as museums. One exception concerns the remains of soldiers from the First World War; these are exhumed within the framework of the military graves administration service. After excavation and laboratory study, these remains are systematically re-inhumed in military cemeteries. These may be in the form of an individual grave for identified individuals or collective graves if personal identities remain unknown. Re-inhumation is also undertaken for all remains of identified individuals or for whom descendants are known. It is rare that the community – whether religious group, village, or city – where assemblages of human remains are excavated request or remonstrate with authorities for the re-inhumation of human remains coming from within their environs. Often these community-based excavations become the subject of exhibitions of various types.

In the nineteenth century, more ancient human remains, such as those from the Paleolithic, were the first to be treated as commodities. For example, in 1910 in Périgord Noir, the antiquarian Otto Hauser sold the skeleton remains from Le Moustier 1 and Combe–Capelle (Dordogne) to the Museum of Ethnology in Berlin for the equivalent of 200 years of a teacher's salary of the period (Maureille and Turq 2005). More recently, the owners of the land on which the Neandertal remains from Regourdou 1 and Saint Césaire 1 were found sold them to museums. These rare remains were considered to be "exceptional objects." The commercial exploitation of material from excavated sites precipitated reflection on the protection of archaeological remains of heritage significance excavated on French territory. As a result a new law on the *Liberté de la Création, Architecture et Patrimoine* ("Freedom of Creation, Architecture, and Heritage"), for the protection of artworks, historic architecture, and cultural heritage, promulgated on 7 July 2016, gives the French

[17] http://www.ifporient.org/node/1

[18] http://cirhus.as.nyu.edu/page/home

state proprietary rights to all archaeological remains from both research and rescue excavations. Human remains now have a status that does not permit them to be treated as material that can be bought and sold.

Conclusion

The study of human remains as part of biological anthropology, like its sister discipline, prehistory, has deep roots in the intellectual tradition of French scholarly life and popular culture. Due to the enormity of its contributions and long history, it has a tremendous legacy dating back to the beginnings of the early modern period. Due to the primacy of the French language, if not philosophy and approach, this development can be seen as paralleling developments in the Anglophone world, but it is older and is better integrated with popular culture through its well-developed network of museums, public-oriented displays, and accompanying publications and through close links between these and researchers in museums, universities, and the CNRS. This is a unique blend that has often fallen into disfavor to justify budget tightening in other nation-states. If maintained as it has been through the economically and politically cataclysmic events of the twentieth century and those of the early years of the twenty-first century, it augurs well for the continuing health and contributions to the discipline from France-based scholars and those working with them worldwide, as well as the global academic community and general public.

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