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The Role of Wallonia in the History of Palaeoanthropology

Rôle de la Wallonie dans l'histoire de la Paléontologie humaine

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Abstract

Belgium and more particularly its French part (Wallonia) occupy a select place in the development and history of Palaeoanthropology. Ph.-Ch. Schmerling was the first scientist to have clearly understood and lent proof to the existence of fossil man, in 1830. A. Spring and C. Malaise contributed to the ideas of their predecessor gaining acceptance. After the discovery of the Spy human fossils, in 1886, Julien Fraipont showed the anthropological value of Neandertal man. More recently, while the field of great discoveries has been inexorably shifting towards Asia and Africa, François Twiesselmann has been at the origin of a methodological renewal moving in the direction of taking the biological variability of taxons into account.

Résumé

La Belgique et plus particulièrement sa partie francophone (Wallonie) occupent une place de choix dans le développement et l'histoire de la paléontologie humaine. Ph.-Ch. Schmerling est en effet le premier scientifique à avoir clairement compris et apporté, dès 1830, les preuves de l'existence de l'homme fossile. A. Spring et C. Malaise ont contribué à faire accepter les idées de leur prédécesseur. A la suite de la découverte des hommes de Spy en 1886, J. Fraipont a démontré la valeur anthropologique de l'homme de Neandertal. Plus récemment, et alors que le champ des grandes découvertes s'éloignait vers l'Asie et l'Afrique, F. Twiesselmann est à l'origine d'un renouveau méthodologique allant dans le sens d'une meilleure prise en compte de la variabilité biologique des taxons.

Key words : Belgium, Wallonia, Palaeoanthropology, History of Sciences, Ph.-Ch. Schmerling, Neandertals, Engis, La Naulette, Spy.

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The recognition by established science of the contemporaneity of man and extinct animal species, which can be considered as the official birth of human Palaeontology, only goes back to around 1860, following a period of maturation during which Wallonia, the French-speaking part of Belgium, principally represented by Ph.- Ch. Schmerling, played a role of first importance.

Before Schmerling

Until the 18th century, traditional thought complied with the biblical account in its literal sense. Belief was held in the simultaneous

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formation of the whole of the earth at an era which went back to 6,000 years before J.C. at most. Living species are invariable; man appeared in possession of all his present faculties. Human history is to be divided into two phases separated by the flood, survived only by Noah and his sons, whose descendants begot all the nations of the world. The rare discoveries of human osseous remains in association with bones of extinct animals, carried out in this context, went too unnoticed to upset prevailing notions.

Research relative to fossils, to the superpostion of layers composing the terrestial globe and to the notion of species were, nonetheless, gradually to modify the concepts of the natural Sciences and led the way to the discovery of fossil man and the problems linked to his dating.

The organic or vegetative nature of fossils, earlier considered as simply games played by nature, was first hinted at by Leonardo da Vinci (1452-1519) towards the end of the 15th century and then progressively gained acceptance over the course of the 16th and 17th.

Due to the impetus of Stenon (1636-1686) and Buffon (1707-1788), awareness of the superposition of the earth's layers gradually grew. Thus, through the efforts of William Smith (1769-1839) and Georges Cuvier (1769-1832), the turn of the 19th century was to see the birth of stratigraphic palaeontology, which characterizes geological strata by associations of fossil types and was to furnish a relatively well organized research and dating method for the first palaeoanthropological and prehistorical excavations of the 19th century. As a corollary, a change in the perception of the time scale took place. It appeared that the duration of the formation of the earth was very long and that the Genesis datings must be interpreted symbolically.

The dogma of the fixity of species was also shaken by the progressive rise of transformism. Already hinted at in the 17th century by the German philosopher Wilhelm Leibniz (1647-1716), the idea of the variability and modification of species progressed during the 18th century through the theoretical boldness of Maupertuis (1698-1716) as well as Buffon's prudent approach, despite the rather unnuanced creationism of the great Swedish naturalist Carolus Linneaus (1707-1778). Despite the appearance of the first integral scientific theory of the evolution of living beings proposed by J.B. Lamarck (1744-1829) in his *Philosophie zoologique* (*Zoological Philosophy*) (1809), the outset of the 19th century was marked by the imposing personality of Georges Cuvier, the father of comparative anatomy, who considered the differences separating fossil animal species from present forms to be quite radical. Resolutely fixist in regard to species, Cuvier explained the succession of distinct faunae observed in stratified deposits by successive creations periodically annihilated by gigantic catastrophes, "global revolutions". Moreover, he rejected the idea of the existence of human fossils "in countries where fossil bones had been brought to light", for example the pseudo-human skeleton pointed out in 1708 by Scheuchzer, which upon analysis turned out to be nothing other than a fossilized salamander. It was also through mistrust that Cuvier interpreted the partial skeleton of Lahr, discovered in the Rhine valley in 1823 by the geologist Ami Boué (1794-1881), in a layer with the bones of large extinct mammals, as coming from a recent cemetery.

Around 1820, the Reverend William Buckland (1784-1856) of Oxford University, discovered animal fossils in English caves associated with stone artefacts and, in the Paviland cavern, with a female skeleton, "the Red Lady". Anxious that these observations comply with the Biblical account and imperturbably faithful to the Cuvier school, despite the stratigraphical evidence spread out before his feet, he refused to believe in the contemporaneity of man and the extinct animals. In his *Reliquae diluvianae*, appearing in 1822, he explained that the skeleton, recognized at the beginning of the 19th century as upper Palaeolithic, was modern, "clearly post diluvian".

The toddling archaeology of the pre-1830 period showed itself to be totally lacking in comprehension of notions of "antediluvian"

human fossils and of the Palaeolithic period receding into the mists of time. Its chronographical references were limited to classical antiquity and the Celtic period, or perhaps to a Neolithic age judged to have just barely preceded the former two. Its methods originated from typological classifications and permitted it to evaluate the age of objects, from the simplest to the most complex. Techniques of stratigraphy and dating by geology and palaeontology, as well as interpretations based upon ethnographical comparisons for all intents and purposes still remained foreign to it.

It is into this scientific context, in movement but still generally unfavourable to evolutionary ideas and fossil men, that the fieldwork undertaken between 1826 and 1830 by Ph.-Ch. Schmerling and his contemporaries may be fitted.

Ph.-Ch. Schmerling and his Contemporaries

One day in September 1829, Philippe-Charles Schmerling (1791-1836), a peaceable 39 years old Liège doctor (fig. 1), of an Austrian family settled in Holland, went to Chokier to attend to a sick stonecutter. He could never have imagined that his destiny was about to change and that one of the first chapters in a scientific adventure that was to upset conceptions of the origins of mankind was about to begin. He was astonished to see his patient's children playing with large bones whose form and dimensions intrigued him and which he learned were often found in the course of mining in a local quarry. The practitioner quickly grasped the importance of the discovery. The bones came from a cave crisscrossed by quarriers; in question were fossils of mammals whose existence was beginning to be widely accepted at the outset of the 19th century.

Enthused by this observation, it was not long before Schmerling was himself taking on systematic excavations of fossiliferous karstic deposits. After the Chokier cavern, soon completely destroyed by quarriers, he became especially interested in the caves of Engis, Engihoul, Fonds de Forêt and Remouchamps. At the cost of his wealth and despite the scepticism of most of his colleagues, in four years Schmerling thus explored more than forty caves in the Liège valleys of the Meuse, the Ourthe, the Amblève and the Vesdre rivers. The excavations were conducted with a carefulness altogether remarkable for the period. The researcher was constantly present and observed the activities of the workers or dug himself. All the bones were gathered, the condition of the site researched and the indices of possible perturbations of the deposits noted.

Introduced to the comparative study of bones by V. Fohmann (1794-1837), professor of anatomy at the University of Liège, he proved himself to be one of the pioneers in palaeontological research in the karstic field. He identified more than sixty species of animal in the sediments explored whereas, during the same period, Tournal (1805-1872) only reported thirty-two in the caves of the French Midi and Buckland no more than twenty-one in English caves.

It was towards the end of 1829 or at the beginning of 1830 that Schmerling exhumed two human crania from the second Engis cave, associated with the teeth of woolly rhinoceros, cave bears and mammoths. One of them belonged to a young child and a century later was to be recognized as the first fossil of Neandertal man ever discovered. The conditions of the find allowed the discoverer to affirm unequivocally in his monumental work, published in 1833-34, *Recherches sur les ossemens fossiles découverts dans les cavernes de la Province de Liège*, (Research on Fossil Bones Discovered in the Caverns of the Province of Liège), the contemporaneity of primitive man and long extinct animals : "I end up by concluding that these human remains were buried in these caverns at the same time and, consequently, due to the same causes which engulfed a mass of bones of various extinct species".

Schmerling's contribution to the genesis of Palaeolithic archaeology is of equal importance. He recognized the presence of tools

Fig. 1 Philippe-Charles Schmerling (1791-1836).

fabricated by fossil man and wrote : "In all the caverns of our province where I have found fossil bones in abundance, I have also encountered a more or less considerable quantity of [...] silexes". He added : "After full consideration, it must be admitted that these silexes were hewn by a human hand, and were able to serve in making arrows or knives". Moreover, he did not hesitate to use lithic artefacts as an indirect proof of the existence of primitive men, thus prefiguring relations between biology and culture which since then have never ceased to accompany the development of the palaeoanthropological and prehistorical disciplines : "[...] even if we had not found human bones, in conditions altogether favourable for considering them to belong to the antediluvian era, this proof would have been supplied by the hewn bones and worked silexes".

Nonconformist as they might be in an era when the recent character of man's appearance was still held out as paradigmatic, Ph.-Ch. Schmerling's deductions nonetheless fitted into the context of an ascending current of thought within which other brilliant individuals were not hesitant in evoking the possibility of the existence of very ancient human bones.

As we have seen, whereas in 1822 the Reverend Buckland was still rejecting the evidence of his own excavations for reasons of philosophy or "school", during the thirties other more critically minded excavators were not long in arriving at conclusions approaching Schmerling's, although less firmly argued for. Notably, this was the case for François-René Jouannet (1765-1845), sometimes considered to be the "grandfather" of prehistory 10, for Tournal and Jules de Christol in the French Midi and for J. Mac Enery in England. Still hesitant in 1828 when he wrote that : "The generally admitted proposition that human bones in the fossil state do not exist in our lands can thus be placed in doubt, or at least cannot be resolved", the pharmacist Tournal, who carried out his research in the Bize caverns, became progressively bolder, to the point of saying in 1834 that henceforth "geology [...] would awaken human pride by showing him the antiquity of his race".

The Success of Schmerling's Ideas

Despite their agreement, Tournal's and de Christol's finds and Schmerling's even more convincing interpretations were not enough to win approval. Although the works of the Liège precursor were widely diffused and cited during the thirties, for example by Ami Boué and Geoffroy Saint-Hilaire (1772-1844), only its palaeontological component was appreciated to its full extent. His insistence on man's antiquity and cooexistence with extinct animal species remained without echo. Official science, still under the shock of Cuvier's dictates, remained reluctant. The illustrious British scientist, Charles Lyell (1797-1875), the uncontested authority on geology at that period, nonetheless had the occasion to meet Schmerling at Liège in 1833 and to examine his collection personally, yet remained incredulous as to the age of the human fossils discovered. The same was the case for William Buckland who also studied the pieces in 1835 but refused to accept Schmerling's theories, "an opinion from which the author [...] entirely dissents" as he specified. As two of his 19th century biographers judiciously noted, Schmerling "was wrong because he was right too early". Yet, some authors outside of academic milieux, Pierre Boitard (1787-1859) in 1839 and Max. Melleville in 1842, unreservedly upheld the notion of fossil man whereas Edouard Lartet (1801-1871), who was to distinguish himself in the field of prehistoric archaeology, noted in 1837 that the idea was "not at all improbable".

The reasons preventing the views of Schmerling from immediately carrying the day are complex. They were obviously too opposed to Cuvier's views and Biblical dogma. Geology and palaeontology's being so weakly established and archaeology's still lacking so much maturity at the time resulted in their being too constraining in the 1830-1840 period to permit the birth of a true discipline on the origins of man. It was only a quarter of a century later that the decisive importance of the Walloon pioneer's discoveries and interpretations was finally internationally recognized and that palaeoanthropology was

truly formulated. This necessitated : 1) that the catastrophic theories of the geographical history of the earth were abandoned through Lyell's influence; 2) that Charles Darwin's (1809-1882) *On the Origin of Species* (1859) impose the notion of transformism and 3) prehistoric archaeology's being more firmly established, once prominent British scientists adopted the conclusions set out by Jacques Boucher de Perthes (1788-1868) in his *Celtic and Antediluvian Antiquities*.

Two other University of Liège researchers, professor J.A. Spring (1814-1872) of the Faculty of Medicine and the geologist Constantin Malaise (1834-1916) contributed further to this evolution in scientific thought. Describing his 1842 excavations at the Chauvaux cavern, in the province of Namur, in 1853 Spring maintained "[...] the existence of human fossils in diluvian sediments [...]", all the while associating his own finds with a more recent period, appropriately, judging retrospectively. He also conceived the idea of a veritable prehistoric "ethnography" and glimpsed 16 the outline of an explanation of the manner of accumulation of human bones in caverns. Although his interpretations founded upon Neolithic cannibalism were rapidly refuted. Following the discovery of human bones in stratigraphical positions in the Engihoul cavern in the Meuse valley in 1860, C. Malaise suddenly came around to Schmerling's opinion. In the appendix he adjoined to a manuscript then in press, he specified that: "we have had to yield to the facts and [...] admit that the bones found in the caverns are contemporary with those of the now extinct animals with which they are encountered".

It was during this same period that Ch. Lyell as well overcame his last reticences. Beginning to prepare *The Geological Evidence of the Antiquity of Man* (1863), in which he dedicated a number of pages to the Engis fossils, the British scientist travelled to Liège in the summer of 1860. There he met J.A. Spring and the geologist G. Dewalque, subsequently visiting the caves of the region, notably Engihoul, in the company of C. Malaise. Coming as they did on top of the evidence gleaned in the field, the fruitful discussions had by the four academicians were certainly not unconnected to Lyell and Malaise's rapid reversals of opinion.

In France, the palaeontologist Albert Gaudry (1827-1908) in 1859 presented a report to the Academy of Sciences on *La contemporanéité de l'espèce humaine et de diverses espèces animales aujourd'hui éteintes* (*The Contemporaneity of the Human Species and Various Animal Species Now Extinct).* E. Lartet, who had hinted at the same ideas some twenty years earlier, followed the same route, in 1860 publishing *Sur l'ancienneté géologique de l'espèce humaine* (*On the Geological Antiquity of the Human Species).* Fossil man was making his grand entrance into official science.

The Neandertals

The fossil men whose existence was finally admitted by 1860 were morphologically quite similar to moderns. This was the case of the adult cranium of Engis discovered by Schmerling, of the Paviland "Red Lady", of the Cro-Magnon skeletons found by Louis Lartet in 1868 at Eyzies in Dordogne. Yet discussion rapidly focussed on the recognition of archaic forms different from present types.

In August 1856, Johann Carl Fuhlrott (1803-1877), professor of Natural History at Elberfeld, saved from destruction a skull and some long bones which had been extracted by quarriers from a small cave in the Neander valley near Düsseldorf. The debate occasioned by the discovery soon became as impassioned as the opinions expressed were divergent. Due to the particular form of the cranium, very much depressed and exhibiting enormous superciliary arches, Herman Schaaffhausen (1816-1893) and the British naturalist Thomas H. Huxley (1825-1895) saw therein a representative of one of the oldest of human races. The celebrated anthropologist Rudolph Virchow (1821-1902) on the contrary considered the pieces to be pathological and linked them to a mental defective, whereas Mayer attributed them to a cossack killed in war !

Shortly thereafter, the British geologist George Busk noted that a cranium extracted in 1848 from the ossiferous breach of a cave in Gibraltar presented morphological characteristics quite close to those of the Neander valley. Considering the fossils of the Neandertal group to be too different from modern man to receive the same denomination, King, Professor of Geology at Queen's University, Galway, Ireland, in 1864 proposed classifying them as a distinct species, *Homo neanderthalensis*. However, this taxonomic division did not stand the test of time and the pieces were reintegrated into the species *Homo sapiens*, as a sub-species, under the appelation *Homo sapiens neanderthalensis*, distinguishing them from *Homo sapiens sapiens*

The discussion initiated by the Neandertal finds would hardly have progressed had not a Dinant geologist Edouard Dupont (1841-1911), graduated from the Catholic University of Louvain, not discovered, a decade earlier, at the beginning of 1866, in the Naulette Hole, in the Lesse valley, in Namur province, a human mandible in a relatively well defined stratigraphical position, associated with the remains of extinct mammals, such as the mammoth, rhinoceros and the megaceros deer. The anthropologists who soon after studied the piece, among them notably Prüner-Bey and Blake in the year following the discovery, pointed out its primitive characteristics, particularly the absence of a chin. Moreover, Paul Broca (1824-1880), Professor at the Faculty of Medicine of Paris, who was to have a decisive role in the development of anthropology, showed no hesitation in declaring that "the La Naulette jaw is the first fact providing an anatomical argument for the Darwinists; it is the first link in the chain which, according to them, must extend from man to the monkies".

The circumstances surrounding the La Naulette discovery were symptomatic of the state of mind animating progressist academic milieux and authorities of the new Belgian nation at that time. Due to the new interest raised by the existence of fossil man, in 1863 the French Geological Society decided to hold a special meeting at Liège, so as to visit the caverns where Schmerling had earlier worked. Edouard Dupont, who actively participated in the Congress, organizing an excursion to the Lesse valley, submitted a project to the academy the following year submitted for excavations in the caves of Wallonia. Thanks to a favourable report by PJ. Van Beneden (1809-1894), J.-B d'Omalius d'Halloy (1783-1875), G. Dewalque and J. Kick, he benefited from Ministry of the Interior support and became the first naturalist to be subsidized by a government to carry out fieldwork in the area of the prehistory and palaeontology of the Quaternary era. From 1864 onwards, he thus explored a series of caverns, some of which were to become as well known as Laugerie, La Madeleine, or Le Moustier rockshelters in France. Among many others : the caves of Goyet and of Montaigle, the Magrite Hole, the Chaleux Hole and the Diable Hole at Hastière. Palaeontological and sedimentological analyses of these sites allowed the excavator to propose a succession of three periods, or the "Age of the Mammoth", the "Age of the Reindeer" and the "Present Era". Typological examination of the lithic industries carried out, unfortunately based upon the postulate of the evolutive unicity of each site, led Dupont as well, shortly after E. Lartet and G. de Mortillet (1821-1898) in France, to divide the prehistoric industries into 6 successive phases : the basic levels of Hastière, Montaigle and the Magrite Hole belonging to the "Age of the Mammoth", the Goyet level to intermediary characteristics, the Chaleux-Furfooz level originating from the "Age of the Reindeer" and finally the Neolithic age discovered in sediments of the "present era". Thus it was within the framework of a methodical and long-term research programme, as much in the field, where the profiles of deposits were carefully noted, as in the laboratory, where classifications and palaeoethnological and palaeoclimatical studies were elaborated, that the La Naulette mandible was exhumed. Dupont summarized what was essential to his work in caves in a brilliant synthesis entitled *L'homme pendant les âges de la pierre dans les environs de Dinant-sur-Meuse (Man During the Stone Ages in the Environs of Dinant-sur-Meuse)*, published in two editions in 1871 and 1872. Among his other remarkable anthropological finds figure the bones of the

Frontal Hole at Furfooz, linked to the age of the Reindeer at the time of the excavation but soon attributed to the Neolithic by most 19th century anthropologists.

Two other general works, published in Belgium during the period when Dupont was pursuing his excavations, confirm the growing interest in fossil man and the nation's prehistory: *L'Homme fossile en Europe (Fossil Man in Europe)* published in 1867 by Henri Lehon (1809-1872) and *L'Age de la Pierre et l'Homme préhistorique en Belgique (The Stone Age and Prehistoric Man in Belgium)*, written by Xavier de Reul (1832-1895) in 1868.

The multiplication of discoveries taking place in the meantime led A. de Quatrefages (1810-1892) and E.T. Hamy (1842-1908) to draw up an inventory of human palaeontology in the first three volumes of *Crania ethnica* (1873 and 1874), wherein known fossils are divided into three categories, the Neandertal and La Naulette pieces being placed into the "first human fossil race or the Canstadt race". By considering the representatives of the Neandertal group as a simple race rather than as a different species or as a particular ethnic type, these authors, in conformity with a position current at that time, attempted to minimize the importance of the parentage between man and the higher primates.

Another Walloon find, taking place in 1886 at the "Betche-al-Roche" cave at Spy near Namur was to mark the subsequent development of anthropology profoundly insofar as it constituted the first discovery of Neandertal fossils in Europe exhibiting satisfactory guarantees in the threefold domain of stratigraphy, palaeontology and archaeological context. The significance of earlier finds, for that matter quite fragmentary, was in fact at that time still blemished by a certain incertitude due to the absence of associated lithic industry, as was the case at La Naulette, or because their geological age was poorly defined, as at Neandertal itself. Yet such guarantees were that much more necessary at the end of the 19th century in that numerous French naturalists were violently opposed to Darwinian theses, which the Catholic Church moreover condemned, especially when they were applied to man.

It was during June and the first 10 days of July 1886, during excavations begun during the preceding August, that two Liège researchers, the amateur archaeologist Marcel De Puydt (1855-1940) and Maximin Lohest (1857-1926), a future Professor of Geology at the University of Liège, exhumed two human skeletons having an archaic aspect from the terrace of the Spy cave. The anthropological study of the bones was entrusted to the zoologist Julien Fraipont (1857-1910), then invited professor at the same university. Since the inside of the cave was already quite disturbed by the the digging conducted by A. Rucquoy in 1879, De Puydt and Lohest concentrated their research on the terrace in front of the shelter. Having blasted away calcareous blocks encumbering the site, they began by digging an exploratory trench three metres long, two wide and one metre eighty deep at the entrance to the cave. In order to explore an "ossiferous level" so discovered, and given the increasing thickness of the sediments and their lack of financial means, they thereupon called on the services of a retired miner, Armand Orban, who constructed an underground, wooden gallery in order to follow the deposit of bones like a miner following a vein. It was during these operations, rather unorthodox to say the least, during which they unknowingly crossed numerous distinct stratigraphical levels, that the excavators came across the remains of a first Neandertal skeleton, subsequently designated by the name Spy II. The gathering conditions were bad. The cranium was broken into some forty fragments, the skeleton's position was not noted, neither as to plotting nor as to stratigraphy. Realizing nonetheless the exceptional interest of their find and the carelessness of their research procedures, De Puydt and Lohest accordingly reverted to more classical methods and dug an open trench across the terrace. They thus brought to light a second, partial skeleton of a Neandertal man, Spy I, in conditions more propitious for stratigraphic notation and palaeoethnological, palaeontological and archaeological observation, correctly done for the period.

Fig. 2 Julien Fraipont (1857-1910).

The exhaustive monograph published in 1887 by Fraipont (fig. 2) and Lohest in the "Archives of Biology" merits a place apart in the history of human palaeontology. In fact it was the first work to associate the morphological characteristics and the palaeoenvironment of fossil men in detailed description. Moreover, it may be said that "[...] the discovery of the Spy I cranium drew the Neandertal cranium out of its relative isolation in that the pieces from the Neandertal valley were seen not to be pathological but to represent a particular human type". According to the authors, this Neandertal or Canstadt race presented more pithecoid traits than any other human race known at the time of the Spy discovery. Notably, it is characterized by the "great development of the superciliary arches, the flatness of the forehead" and the development of a strong occipital torus and on the mandible, by the "absence of a chin protuberance". The bearing of the Spy men also particularly interested J. Fraipont, who in 1886, in a first report, considered that they must have walked "with the knees advanced, the thigh obliquely incurvated from back to front and from above to below, whereas the leg was inversely directed; meaning that the femur rested obliquely on the tibia". Illustrated by two sketches by Lohest, these attempts at reconstruction, today judged fantastical, prefigured those of La Chapelle-aux-Saints, upon which Marcellin Boule (1861-1942) based himself in 1913 in order to exclude Neandertal man from the ancestors of modern man.

From Spy to Engis

During the last decade of the 19th century, a Dutch military physician, Eugène Dubois (1858-1940) found the first testimony of a phase of human evolution predating the Neandertals at Trinil on the island of Java. First called *Anthropopithecus erectus*, following the discovery of a cranium and a femur having human characteristics, subsequently, in 1894, these finds received the name *Pithecanthropus erectus*, when the excavator reactivated the old term advanced by the German transformist Ernst Haeckel (1834-1919) to identify the "missing link" intermediate between the anthropoid monkies and *Homo sapiens* The new fossils immediately elicited lively interest, even though their contribution to human phylogenesis was to be bitterly debated and only unanimously recognized following complementary discoveries by Gustav H.R. von Koenigswald (1902-1982) at Java itself from 1931 onward and by Davidson Black and Frans Weidenreich (1873-1948) in China during the twenties and thirties. This brought about a change in the perception of the location of the cradle of humanity which, from Europe, with Wallonia at the forefront of research, slid towards Asia during an initial period, only to be displaced to South Africa and then towards East Africa, due to the discovery of a still more archaic layer of hominids, *Australopithecus.*

In Wallonia, two new cave sites explored at the end of the 18th century, right after the Spy finds, further enriched the inventory of Neandertalian bones, or those presumed to be such. In 1889, Louis Bayet (1844-1912) uncovered a diaphysis of a femur apparently associated with Mousterian archeological material in the "Rotches de D'Gennly" cave at Montignies-le-Tilleul. The excavations carried out shortly thereafter, in 1895, in the Fonds de Forêt cave in the Vesdre valley, by Doctor Ferdinand Tihon (1846-1934) led to the discovery of another fragmentary femur of a Neandertal man, the detailed study of which awaited 1961.

Meanwhile, the Neolithic bones exhumed in Mosan caverns, already succinctly studied by J.A. Spring, P.J. Van Beneden, Prüner-Bey, G. Arnould, R. Virchow and E.T. Hamy among others, became the object of two detailed anthropological syntheses. The first, *Les Néolithiques de la Meuse (The Neolithics of the Meuse)* (1898) was the work of J. Fraipont, the second, *Les Néolithiques de la province de Namur (The Neolithics of the Province of Namur)* (1904) is owed to Emile Houzé (1848-1921), Professor at the University of Brussels. Despite divergences of opinion as to the importance of the remarkable cranial type of "Furfooz" and as to the age of the eponymous site, the Frontal Hole, the two authors agreed in considering the regional Neolithics to

be a cross-bred population produced by the intrusion of "Neolithic brachycephalics" into a substrate of "dolichocephalous autotochthons".

Following repeated discoveries of eoliths, the flint pseudo-artifacts which in reality are not hewn by man but result from the activity of natural agents, the question of man's existence during the tertiary era, marked Belgian research at the tum of the 18th century, under the influence of Alphonse Cels (1845-1919) and Aime Rutot (1847-1933).

From 1914-18 until 1940-45, palaeo-anthropological research essentially took place in the palaeontology laboratory of the University of Liège, where Charles Fraipont (1883-1946) continued the work of his father, Julien. Notably, his works dealt with the astralagus of the Spy man as well as with the curvature of the femur, culminating in 1936 with a revision of the age of the child's cranium from Engis, discovered by Schmerling a century earlier, and since then linked to the upper Palaeolithic, to the same period as the adult subject from the same site. Set on course by the judicious comments of Professor Loth of Warsaw, the younger Fraipont devoted himself to indepth study of the fossil and concluded that it belonged to a group of Neandertals, an attribution which, despite the German anthropologist H. Weinert's reticence, has been fully confirmed by a recent examination based upon distinguishing primitive, derived and juvenile characteristics.

Charles Fraipont also founded the Free School of Anthropology of Liège and in 1928 obtained the creation of a Doctorate in Anthropological Sciences, the suppression of which in 1972 greatly diminished a long Liège scientific tradition inaugurated by Schmerling. Among his collaborators figure the names of Suzanne Leclerq who also studied the femoral curvature and René Bailly whose analysis of the Moniat skeleton (near Dinant) represented an original attempt at greater rigour in comparisons between specimens. Notably, the calculus of differences between measurements of different fossils, each expressed in percentages of the value of a reference piece is implemented here.

Methodological Renewal

At the end of the thirties, the torch of palaeontology was taken up by François Twiesselmann, a doctor originating from Bouillon, who in 1936 developed a new section for Anthropology and Prehistory in the Royal Museum of Natural History, before being named professor at the Free University of Brussels. His methodological approach, notably illustrated in his 1961 monograph dedicated to the Neandertalian femur from Fonds de Forêt is innovative. He set out to integrate the observations, among others the measurements characterizing the fossils, within the variability of the human race, by specifying the position of individuals in relation to reference samples representative of populations and by taking the associations between characteristics into consideration. The method used to this end involves equiprobable ellipses and was proposed in 1955 by the mathematician Elizabeth Defrise-Gussenhoven in order to lend a graphic representation to the two dimensions of the variability of a population by integrating the correlation between the two measurements retained. The originality of the technique, which fits into the movement leading to recent applications of multivariate analysis to human fossil study, is particularly evident if one compares it to approaches focussing more on comparative anatomy, as characterizing works carried out at the same time by leaders in palaeoanthro-pology.

The role of Hyacinthe Brabant (1907-1975), Professor at the University of Brussels, in the study of dental characteristics of Palaeolithic and Neolithic populations also deserves to be brought to the fore. Elsewhere Marie-Antoinette Delsaux, collaborating with F. Twiesselmann, concentrated on the biometric evolution of the humerus over the course of time, whereas Andra Thoma, who joined the Vertebrate and Human Palaeontology Laboratory of the Catholic University of Louvain in 1973, took on a revision of the Spy Neandertals. Furthermore, Belgian academicians have not been wholly absent from fields of advanced anthropological research, with R.P. Edouard Boné (Catholic University of

Louvain) participating in the excavations at the Makapansgat *Australopithecus* site in South Africa during the fifties and the Hainault geologist Jean de Heinzelin (Rijksuniversiteit Gent) and his students at the Omo international mission in Ethiopia.

The last two decades have seen the development of applications of multivariate analysis to the study of hominid fossils, for example the La Naulette mandible, and the discoveries of new Palaeolithic and Mesolithic specimens, brought about by the proliferating of multi-disciplinary excavations in Walloon karstic caves. This new research has yielded two Ahrenbourgian human teeth at Remouchamps in 1970, an ancient double Mesolithic sepulture at Loverval near Charleroi in 1983, a decidual tooth at the "Trou de l'Abîme" at Couvin, as well as a collective, early Mesolithic sepulture at the Margaux Cave in 1988.

Conclusion

Despite the reduced number of researchers participating in the study of fossil man and the limited number of pieces discovered in its soil, Wallonia occupies a select place in the development and history of human palaeontology. Schmerling was the first scientist to have clearly understood and lent proof to the existence of fossil man. Spring and Malaise contributed to the ideas of their predecessor gaining acceptance. Julien Fraipont showed the anthropological value of Neandertal man. More recently, while the field of great discoveries has been inexorably shifting towards Asia and Africa, François Twiesselmann has been at the origin of a methodological renewal moving in the direction of taking the biological variability of taxons into account.

Future perspectives for regional palaeoanthropological research seem intimately linked to its capacity to generate the formation of multi-disciplinary teams capable of incorporating themselves into research domains which are at the forefront at the end of the 20th century : the origin of Hominids in Africa and the new statistical, biochemical and genetic methods of analysis, for example, as well as carrying out correct excavations in the fossiliferous fills of Walloon caves. In fact, this type of terrain is particularly capable of yielding up new osseous remains, whose discoveries in the past have always preceded decisive progress in the evolution of the discipline. Meanwhile the carelessness of a number of unqualified excavators threatens to bring about indescribable insufficiencies in the excavation conditions of the pieces exhumed, as in the case of the Neolithic sepultures at Salet in 1984 and at Ben-Ahin in 1988, which might prove dramatic in the case of the discovery of Palaeolithic fossils. In this regard, there is cause to attack the nation's lack in the area of fundamental research as applied to the origins of man, lacunae which reduce one of the countries which have been at the heart of the development of human palaeontology and prehistory to the rank of disadvantaged nations and places one of the most emotionally charged facets of the cultural patrimony of humanity in peril.

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