Man and Bird in the Palaeolithic of Western Europe

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For Mike

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Preface

In putting together these chapters I have found that a study of the interaction between the avian world and that of the hunter - gatherer peoples of the Palaeolithic in Europe has been a search for pattern; pattern in avian ethology, pattern in human behaviour and how the separate patterns have intertwined from time to time. The outcomes show that during the timespan of the Palaeolithic cultures, ecological change was a constant and repetitive process and that in the study of the period, minute faunal detail was an important part of the interpretation of it.

The first three chapters are concerned with some aspects of avian ethology and the archaeological background; later chapters with the process and patterns of interaction between them. The pattern does not always come together. In the record of the Middle Palaeolithic in particular, the data from sites belonging to the Acheulean and early Neanderthal settlement is too patchy, intermittent and inconsistent to give more than a tiny glimpse of what might have been the bigger picture. As the Neanderthal populations expanded across Europe each with its own cultural markers, a pattern begins to emerge showing how resources, including birds, were exploited and put to use.

The gradual penetration into Western Europe of what we call Upper Palaeolithic cultures shortly before 40,000 Kyr BP. probably did not change the relationships greatly but the available information has suffered less erosion from time-factored forces and has remained intact in more detail. So much is now known and continuously being brought to light about the way these hunter-gatherer groups lived, used their resources even trading in them and in consequence how they socialised one group with another. Clear patterns are beginning to emerge, as a result of increasingly meticulous excavation techniques, awareness of the different ways in which tiny fragments of evidence might be interpreted and the use of advancing technology have all had a part to play in the field operations. Yet, just as important is always the research that takes place both before and after any excavation is carried out. The choice of sites selected to demonstrate the way in which avian resources were put to use and attained increasing importance in the development of hunter gatherer society has been based in part on the amount of available data and in part on personal research experience.

To a great extent, in the study of faunal remains, context may determine what material evidence will be found and what will have perished; the location and its environment may affect the phenotype and genotype of the animal species under examination in terms of size, coloration, dietary preferences, movements or breeding potential, amongst other factors. Post excavation research, as technology changes, has become crucial to the extraction of all possible information from the objects revealed. Absolute dating methods, chemical analysis, mass spectrometry, and advances in microscopic, photographic and photometric studies of all types have advanced so much over the last 50 years and are continually evolving so that the researcher may now ask questions that were beyond the reach of earlier previous generations of archaeologists. The entire process takes longer and requires a diversity of specialist expertise but usually the results may be said to justify the extra cost.

And, over time, the questions change as does the relative emphasis placed on them. Currently in the field of anatomical studies, the emphasis is on the study of taphonomy, the treatment bone remains have undergone since death, who ate them, why and how were they modified, the purpose of the modification etc. And besides, what these conclusions may have to say about that social group and its lifestyle.

One of the difficulties associated with the interpretation of bone assemblages arises from the diversity of dating methods used currently and in the past and the difficulty in reconciling the data they provide. Tyreberg had to address this problem in 1998 and it is one faced by all researchers of the Palaeolithic. How to correlate the time sequences across Mammal Neogene zones, traditional glacial and biostratigraphy sequencing in different regions of Europe, reconciling them with cultural sequences. The absolute dating methods, though they present a more precise tool for comparing one site with another have imposed another hurdle to surmount, because of necessity they use different techniques. The most useful most frequently employed and consistent of the Radiometric dating, techniques within its parameters of accuracy is probably Carbon 14. As far as possible sites have been selected that carry secure uncalibrated C14 dates, although, where applicable, the sequence of Oxygen isotope (OIS) stages and land Mammal Zones (MNQ zones) have also been referred to.

Nomenclature may also create confusion not only in the changes in the scientific designations of birds

but also for cultural sequencing. In the 1950's glacial phases continued to be referred to under the names of the Alpine sequence, while these fluctuations are now recognised as having regional variations and the task is to reconcile the local sequences with the evidence of ecology and cultural change.

By the start of the 21st century, the search for the evidence left by Early Man had already had a over 150 years of history of exploration behind it and some of the early excavations have needed to be revisited and the data revised, using the residue of what was left behind by the earlier archaeologists, left behind for their re-assessment. Added to which, at the time some of the objects, documenting the discoveries recovered by these pioneers were presented as gifts to friends and colleagues. When these objects of antiquity were given to a national or local museum they have normally been conserved. But too frequently individual pieces were given to private collectors and have been difficult to trace. At the time small bones were regarded as of lesser importance. The remains of microfauna or of the birds was seldom considered of sufficient value to be studied or retained.

Nevertheless, it is on the foundations laid by these pioneers that all recent research is founded. Without such scholarly leadership from researchers and antiquarians of the past, the present level of knowledge would be a great deal poorer. Each of us has their heroes who have taught or inspired them. Among my personal heroes I count independent thinkers like Dorothea Bate, André Leroi Gourhan, the Abbé Henri Breuil and some recent researchers. I am also hugely grateful my tutor, John Waechter, at the Institute of Archaeology in London who when told, as he was handing me his bird bone collection from Gorham's cave, Gibraltar for study, that although birds were quite a thing of mine, my knowledge of anatomy was sketchy, he replied that it would be greatly improved by the time *you have dealt with this lot.* Deal with it I did and carried on.

Despite the wonderful co-operation of museum staff and the use of their collections, the priority was to prepare an avian skeletal reference collection for personal use, despite the demands it made on the tolerance and patience of family, friends and sympathetic organisations. Most specimens were collected in the field, where by experience one learnt that dried, skinned and eviscerated corpses, wrapped in newspaper, not polythene travelled better and attracted less official attention than fresh ones; and that insects, especially hornets were exceedingly efficient flensing operators if allowed to work on specimens hung out on a line, provided that line and attachments were wire, otherwise eager ants would devour the strings and their nest would require excavation to retrieve the fragmented specimen next morning. Happily, only one bird, a dunlin that had lost a wing was ever deliberately killed but it was under attack from gulls at the time without any chance of survival.

I have depended to a large extent on other researchers in ornithology and Palaeolithic archaeology. In the main most of these are referred to in the text but there has been particular dependence on the nine volumes of Cramp and Cramp and Simmons work in the *Handbook of birds in Europe, the Middle East and north Africa; Birds of the Western Palaearctic,* (1977-1994) for most of the ornithological data and on Tyreberg's site lists in *Pleistocene birds of the Palaearctic* (1998). For Anatomical detail and nomenclature, Baumel ed. (1979) has everything to recommend it and the volumes produced by the Institut fur Palaeoanatomie, domestikatione forschung und Geschichte der Tiermedizin of the University of Munich, directed bt Dr Boessneck, with Angela Von Dreisch (1976) *A Guide to the measurement of animal bones* can be useful.

But time and research move on, new techniques are becoming available all the time in answer to the increasing number of questions that are asked about animal and human behaviour, their chemistry, origins and development. And the means of seeking answers to these questions are being discovered all the time, usually emerging out of the requirements in other areas of research. Photographic techniques, photogrammetry and the electron microscope, the fields of biochemistry and materials research are being adapted for service in archaeology. Each new tool opens up the possibility of more precise information, though each has its advantages and limitations. In the end, any results depend on subjective judgement and the imaginative scope to ask the questions in the first place and explore the possible solutions, even if the answer is likely to be negative.

Chapter 1

Some aspects of bird life during the Palaeolithic of western Europe

Some of the aspects of avian ethology as they are related to Palaeolithic hunter-gatherer settlers are revealed in the fossil record that has been recovered from occupation sites and caves in western Europe and have something to say about the life of the birds themselves during the Upper Pleistocene. Conversely while an avian presence may provide some information regarding the environment of hunter-gatherer peoples, its absence may be a reflection of ecological or other issues of human priorities. Yet an even more important situation relevant to the issues raised by current climate change is that even though there were long periods when the European climate deteriorated to a point where it could not support a number of species whose niche requirements demanded temperate or Mediterranean conditions to survive, these came back fairly rapidly as the temperature rose again and restored the ecology to match their needs. The situation never became one of extinction due to catastrophic external forces, as perhaps happened during the Cretaceous, but an internal fluctuation subject to later restoration.

In his introduction to the comprehensive lists of the *Pleistocene birds of the Palaearctic, a Catalogue, 1998* Tyreberg takes the starting point of the Palaeolithic as around 1.64 MA BP, a date that follows after the Olduvai geomagnetic event. The point at which birds began to be exploited as a resource for hunter-gatherer peoples in western Europe appears to be around 500,000 Years BP, during the early Middle Palaeolithic, from which time there begins to be some clear evidence of human and avian inter-action rather than possibly random juxta positioning of bones or scavenging on the kills of other predators. The discovery of assemblages of animal and avian bone makes it possible to attempt a partial reconstruction of the changing environment and ecology of the locality. Useful data for this is preferentially obtained from the stable sequences in cave or open air settlements. Material from river terraces or shorelines is less useful, since it has frequently been re-deposited and therefore the date and context is more doubtful.

The effect of climate fluctuation on bird populations was profound. Habitats, for both summer and winter visitors to western Europe, breeding behaviour and distribution areas were all dependent on the niche requirements of individual species that were subject to changes in the environment. Some of the ecological changes brought about by climatic fluctuation, may be traced in the evidence of species distribution as derived from the archaeological record. Migration patterns undoubtedly changed, as noted by Moreau in 1972, who listed many of the passerines as having disappeared from the European list in times of glacial advance. Food availability is a major factor in defining the suitability of a habitat to support a varied bird fauna, A diverse avifauna in a particular context may therefore indicate a rich variety in the local ecology since across the spectrum birds will relate to every other taxon present, either in the sense of being broadly sympatric or in a prey/predator relationship.

The data is complicated, as noted by Tyreberg, by the different dating methods used. Not only do many older excavation publications rely on cultural chronology but the various means of absolute dating are not always consistent or standardised. Where recent C14 dates are available, these have been used as being within the range of probability. The record is also biased and incomplete. Whereas large mammals have always been a priority in considering the human environment, the significance of birds, micro-mammals and other species in the ambient fauna and flora was not fully recognised by the early excavators and the evidence was not always retained.

Seasonal movement patterns

The following tables show the species and contexts of the bird species recorded as present in dateable excavated cave deposits in western Europe. The sites where each one has been recorded are broadly and somewhat arbitrarily grouped into the major Palaeolithic cultural and climatic sequences. It attempts to give a broad picture, based on Djindjian, F., Koslowski, J., and Otte, M. 1999. There may be local discrepancies in the lists, and some noteworthy sites have been omitted since some of the determinations may require revision.

The species listed in Table 1 shows many of those species identified by R.E. Moreau in 1972 as unlikely to be able to survive in western Europe during a glacial advance.

Of particular significance is the small number of deposits dated to the Last Glacial maximum from which bird remains have been recovered, that confirm Moreau's

Species	250 – 40 Kyr BP Mousterian	40 – 28 Kyr BP transition to Upper palaeolithic Aurignacian	28 – 22 Kyr BP transition to Gravettian, deteriorating climate	22 – 17 Kyr BP Local Solutrean Last Glacial maximum	17 – 10 Kyr BP Magdalenian sequence, ice retreating	10 Kyr to recent Mesolithic <
Coturnix coturnix	A. Olha, Pyr Atlant. Aurensan Hte Pyr. B. de Gigny Jura. Valdegoba Burgos C.N. de Bellus Jativa	B. de Gigny Jura	B. de Gigny Jura Le Flageolet Dord.	A. des Pecheurs, Ardêche.	Aurensan Hte Pyr. Cauna de Belvis Hte Pyr. Bois du Cantet Hte Pyr.	B. de Gigny Jura Baume des Grottes Isère. B. des Gonvillars Hte Saône
Burhinus oedicnemus					La Madeleine, Dord. A. Dufaure Landes	
Otus scops	Combe Grenal, Dord Pech de L'Aze. Dordogne		A, Pataud Dord. A. des Pecheurs Ard. Arbreda Gerona	Bois de Brousse Herault	Cauna de Belvis Aude Laroche II Herault	Pont d'Ambon Dord Salpêtre Herault
Apus melba	Hortus Herault C.N. de Bellus Jativa Devil's Tower Gib.	C. de Zafarraya Malaga			G. des Romains Ain Cingle Vemell Barcelona	Balme des Grottes Isère
Apus pallidus		Es Poussas, Eivissa				Es Poussas, Eivissa
Merops apiaster	Combe Grenal Dordogne					Salpêtre Herault
Cuculus canorus					G. d'Eyzies Dord. Abr. de Campalou Drôme	
Corracias garrulus	Arbreda Gerona				Trou Violet Ariège Gr. dela Madonna Calabria	C. Genovesi sicily G. Polesini Lazio Es Poussas Eivissa
Hirundo daurica	Balauzière Gard G. Simard Charente Hortus Herault Pech de l'Aze Dord. Salpêtre Herault			A. du Blot Hte Loire Jaurens Corrèze	Cauna de Belvis Aude Gr. des Romains Ain	G. St Pierre Hte Savoie
Luscinia megarhyncos						C. de Nerja Malaga
Phoenicurus phoenicurus	Fontechevade Charente			A. du Blot hte Loire	A. Lafaye Tarn et Garonne	

Table 1. Some examples of the records of Summer visitors to western Europe during the Upper Palaeolithic with reference to Tyreberg 1998 and Moreau 1972.

Species	250 – 40 Kyr BP Mousterian	40 – 28 Kyr BP transition to Upper palaeolithic Aurignacian	28 – 22 Kyr BP transition to Gravettian, deteriorating climate	22 – 17 Kyr BP Local Solutrean Last Glacial maximum	17 – 10 Kyr BP Magdalenian sequence, ice retreating	10 Kyr to recent Mesolithic <
Monticola saxatilis	Aurensan Hte Pyr.				B. Loire Hte Pyr. Boids du Cantet Hte Pyr.	
Monticola solitarius	Combe Grenal Dord. C.N. de Bellus Jativa	Gatzarria Pyr. Atlant Zafarrya Malaga			Cingle Vermell Barcelona C. de Nerja Malaga	
Acrocephalus paludicola					A. des Romains Ain	
Acrocephalu palustris					A. de Rochdune Doubs	
Acrocephalus scirpaceus					Erralla Guipuzcoa	
Acrocephalus arudinaceus					A. du Calvaire Htee Pyr.	
Hippolais icterina	Combe Grenal, Dord					
Sylvia hortensis	Combe Grenal Dord					Gr. St Pierre Savoie
Ficedula hypolleuca	Salpêtre Herault Hortus Herault				G. des Romains Ain	
Lanius collurio	Combe Grenal Dord					
Lanius minor		Es Poussas, Eivissa				
Lanius excubitor		Es Poussas, Eivissa				
Lanius senator		Es Poussas, Eivissa				Salpêtre Herault

Table 1. Continued.

hypothesis. Warblers, Flycatchers and Shrikes, all of whom depend to a considerable extent on insect life, are totally absent from the selected sites. Nevertheless, as the climate warmed and the ice retreated during the final stages of the Last Glaciation, the majority of these species, many of whom depend to some degree on airborne insect life, returned to recolonise southwest Europe, re-entering via the Mediterranean regions in the south and east. This resurgence was interrupted relatively briefly by the stages of renewed cold, known as Dryas 1, 2 and 3.

The extended timespan of Mousterian development presents a more confused picture when taken as a whole but the changes become locally clearer as individual sites are studied in detail or re-examined in the light of recent revisions. Sites like Pontnewydd in north Wales (Aldhouse Green *et al.* 2012), or the current investigations into the sequence of occupations in Gorham's cave on Gibraltar. Or, the sequence at Combe Grenal in the south of the Dordogne where there appears to have been an influx of small passerine summer migrants arriving during a temperate phase towards the end of OIS 5a; species that included a beeeater, *Merops apiaster,* blue rock thrush, *Monticola solitarius* icterine and garden warblers, *Hippolais icterina* and *Sylvia borin,* with a red backed shrike, *Lanius collurio*, that with the excavations at Pech de l'Aze revealed the presence of a red rumped swallow, *Hirundo daurica*, all summer migrants into warm temperate zones (Mourer Chauviré 1975).

An examination of the fossil record would therefore appear to confirm Moreau's prediction that the ecology of Europe to the north of the Garonne and west of the Rhone was not able to support many of these small migrants during times of glacial advance.

Table 2
Apart from cave sites along the Cantabrian littoral, where the inshore waters remained at a considerable depth even during glacial maxima, the majority of sites are close to the Mediterranean shores of Iberia and Italy, where sea levels fell considerably during cold phases and shorelines extended as much as 30 kilometres. A lower mean sea level during the Last Glacial Maximum may go some way towards providing a reason for the absence of seabirds in the record of any site except Arene Candide, Savona, Italy, situated above the deep waters of the Ligurian coast.

Once the climate had begun to ease and sea levels to rise, seabird populations began to increase in these coastal locations of the Mediterranean and Cantabria.

Table 3
Table 3 aims to show the winter movements of northerly breeding wildfowl over the same time span. At the present day, many fresh and brackish water wildfowl breed in northern and arctic regions, moving southwards in Winter. There is little evidence for the breeding locations during the Palaeolithic but it appears evident that during periods of prevailing glacial advance the wintering zones of many species extended southwards of the current limits. So that *Cygnus columbianus bewickii*, the Bewick swan remains were identified in a Mousterian level at Carnello, near Soria on the river Liri in Lazio province of Italy at a latitude of 41.43^{0}N. It was also present at Dufaure, one of the rock shelters in the Pastou cliffs beside the Gave d'Oleron, France at a latitude of 43.33^{0}N, in a Magdalenian level, dated to Dryas II (12,200-11,000 BP). There are also records of identifications in the UK and Ireland but some of the dating is a little uncertain.

Finds of Whooper swan, *Cygnus cygnus* have been found to be more widely distributed in Europe, both within possible present day wintering areas and further south to regions not currently thought to be within their range. The identified sites in France where they were present during the Mousterian occupation seem to be mainly confined to southern and eastern parts of the country: at Balauzière in Gard, Ramandils in the Aude and in a dated deposit at the Baume de Gigny in the Jura carrying dates between 45,000 ans 32,000 BP. In Italy the whooper swan was recovered in association with Mousterian at the Grotta della Cava di Sezze Romano in the province of Lazio (Cassoli 1980) and at Grottoni in the Abruzzo (Giustizia 1979).

There are no certain records of either species of these swans between the end of the Mousterian in France until the beginning of the Magdalenian, although there is an undated record of bone(s) from the Grande Grotte at Arcy sur Cure in Lambrecht 1833 and Milne Edwards 1867-71 (quoted by Mourer Chauviré 1979).

The presence of whooper swan in the southwest of France and the Mediterranean seems to have become more frequent as climatic conditions began to ameliorate at the end of the Last Glaciation. Deposits at Arene Candide on the Ligurian coast of Italy contained a long sequence of 'Tardigravettian occupations dated to around 11,000 BP, each with remains of Whooper swan (Cassoli 1980) and there was a possible discovery of a bone in the Grotta Romanelli as far south as the province of Puglia on the Adriatic coast (Cassoli and Tagliacozzi 1994).

In the Pyrenean region of France, there were finds of whooper swan in Magdalenian contexts in the caves of Massat in Ariège (Clot and Mourer Chauviré 1986) Gourdan in Haute Garonne (Ibid) and in the Atlantic Pyrenees among the debris left behind by clandestine diggings into late Magdalenian deposits at the Grotte de Bourrouilla at Arancou (Eastham in Chauchat 1999).