SOCIETY OF AVIAN

PALEONTOLOGY AND EVOLUTION

INFORMATION LETTER

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In memoriam: Pierce BRODKORB

William Pierce Brodkorb died on 18 July at Gainesville, Florida. He was born in Chicago on 29 September 1908. His father died when he was still very young, and he accomplished all his university studies without much family support

He had always been fascinated by birds, since his childhood and, when be was 16 years old, he contacted Colin Campbell Sanborn who taught him how to prepare bird skins. Then he was introduced to Ornithology at the Field Museum where he was given summer employment as a staff technician.

He completed his studies at the University of Michigan where he obtained his Ph.D. degree in 1936. He worked as Assistant Curator of Birds at the Museum of Zoology in Michigan until 1946. During this time, he published numerous papers on Recent birds, but he bad always been interested in fossil birds.

After the war, in 1946, he accepted a position as Assistant Professor in the Department of Biological Sciences, at the University of Florida, in Gainesville, where he remained until his retirement in December 1989. From the 1950s, be began collecting fossil birds in the Miocene, the Pliocene, and the Pleistocene of Florida, and on the island of Bermuda. At the same time he began to build a huge collection of bird skeletons. When this collection was presented to the Florida Museum of Natural History, at the University of Florida, it included 12500 skeletons, from 129 families, that had been almost entirely prepared by Professor Brodkorb alone.

He published a very large number of papers on fossil birds, but his most famous and most important work in Paleornithology is for sure his Catalogue of Fossil Birds.

He had a strong personality, he hated people who think they are important, and called them "stuffed-shirts", and most of those who knew him remember him as "a wonderful person". He always did as much as he could to help students, and foreign research workers, and to give them as many facilities as possible to accomplish their researches on fossil birds. He helped them by allowing them to use his collections, fossil or Recent, his library, by loaning skeletons, sending xerocopies, discussing their problems with them, and giving them advice, regardless of the time he spent

It was he who proposed the creation of a Society grouping the scientists interested in Fossil birds and Avian evolution, during the meeting of the "Table Ronde sur l'Evolution des Oiseaux d'apres le Temoignage des Fossiles", in Lyon-Villeurbanne, in Septembre 1985. This informal society was later called Society for Avian Paleontology and Evolution (S.A.P.E.) and it was only after the International Ornithological Congress, in Ottawa, in 1986, that it was decided to send a letter of information every year.

The second meeting of the S.A.P.E. was organized in Los Angeles, by Kenneth Campbell, so that the dates coincided with his eightieth birthday. He did suspect something was afoot, but he was not quite sure and, after the symposium he was very proud of it" All that stuff was done for me" he said to his family.

A detailed biographical account has been written by Kenneth Campbell. who was a student of his, in Papers in Avian Paleontology honoring Pierce Brodkorb (1992: XIII-XIX).

As Storrs Olson wrote me after his death: "It marks the end of an era, and we shall truly never see the likes of Pierce Brodkorb again".

Cecile Mourer-Chauvire

THIRD SYMPOSIUM OF THE SOCIETY OF AVIAN PALEONTOLOGY AND EVOLUTION (S.A.P.E.) Frankfurt am Main, 22-26 June 1992

The third symposium of the SAPE was held in Frankfurt in June 1992. It was excellently organized by D.S. PETERS and his collaborators, and we thank them very much. It was very interesting, especially during the workshop on Mesozoic birds, where all the participants bad the possibility to examine and to discuss casts or original material of recently discovered Early Cretaceous birds.
The following papers were presented, either orally, or by posters:

ALCOVER I.A. - Fossil birds from the Canary Islands.

ALVARENGA H. M. FERRAZ de - A giant Anhinga (Aves: Anhingidae) from the Miocene of Chile.

BARYSHNIKOV G. & POTAPOVA O. - Pleistocene birds from the Acheulean site of Treugolnaya Cave in the northern Caucasus.

BOCHENSKI Z. - Early Holocene bird remains from Nemrik (North Iraq).

BOCHENSKI Z. Ir. & TOMEK T. - How many comparative skeletons do we need to identify a bird bone ?

BOEV Z. - Upper Pliocene birds from Varshets (West Balkan Range. Bulgaria).

BOLES W.E. - Preliminary analysis of the Passeriformes from Riversleigh. Northwest Queensland, Australia.

CAMPBELL K. - New specimens of *Argentavis magnificens*.

CHENEVAL I. - A fossil Procellariiform from the late Oligocene locality of Froidefontaine (Territoire de Belfort, Fraoce).

CHIAPPE L. M. - Phylogenetic relationships of the Cretaceous birds of Argentina.

CHINSAMY A. - Osteohistology of the birds *Struthio* and *Sagittarius*. and the dinosaurs *Massospondylus* and Syntarsus.

DAVIS P. G. - The taphonomy of birds.

DZERZHINSKY F. Ya. - Evidence for common ancestry of Galliformes and Anseriformes.

ELZANOWSKI A. - Mesozoic birds and avian phylogeny.

ERICSON P. - Evolution and systematics of the Paleogene family Presbyornithidae.

FEDUCCIA A. - The aerodynamic model for the evolution of feathers and feather misinterpretation.

HAFFER I. - Species versus phyletic lineages.

HAYWARD J. L. - Understanding Humpty Dumpty -the taphonomy of avian eggs.

HERNANDEZ F. & MORALES A. - Iberian Holocene avifaunas: A critical review.

HESSE A. - The waterbird-assemblages of the Nördlinger Ries (MN 6) and the Steinheimer Basin (MN 7) -a comparison.

JAMES H. - A chronotaxon of the Cape Cormorant (*Phalacrocorax capensis*) from the Pliocene of South Africa.

JANOSSY D. - Upper Miocene ornithofauna from Polgardi. W-Hoogary.

KARKHU A. - An Oligocene Trogon from the North Caucasus.

KESSLER E. - New fossil bird remains from Pleistocene of Betfia. Romania.

KUROCHKIN EN. - Morphological differentiation of paleognathous and neognathous birds.

MARTIN L.D. - The position of the Enantiornithes in avian evolution.

MIKHAILOV K. - Systematic relations within "Suborder Ciconii" (sensu Sibley et al. 1988) in terms of eggshell microstructure.

MLIKOVSKY J. - Late Pleistocene birds of Elaichoria. Greece.

MLIKOVSKY J. - Nomenclatural and taxonomic status of fossil birds described by H. G. L. REICHENBACH in 1852.

MLIKOVSKY J. - A catalogue of Tertiary fossil sites in Europe.

MOURER-CHAUVIRE C. - The Messelornithidae (Aves: Gruiformes) from the Paleogene of France.

NORIEGA J. I. - The avifauna from the "Mesopotamian" (Late Miocene) of Entre Rios Province. Argentina.

OLSON S. L. - Redescription of Thiornis sociata NAVAS. a nearly complete Miocene grebe from Spain (Aves: Podicipedidae).

PETERS D. S. - A fossil bird from Messel with peculiar osteological features.

RASMUSSEN P. C. & OLSON S. L. - Evolution and diversity of Alcidae in the Tertiary of the Western Atlantic.

TYRBERG T. - Paleobiogeography of *Lagopus* grouse in the West Palearctic.

UNWIN D. M. - The fossil record of birds: Macroevolutionary patterns, events and their reliability.

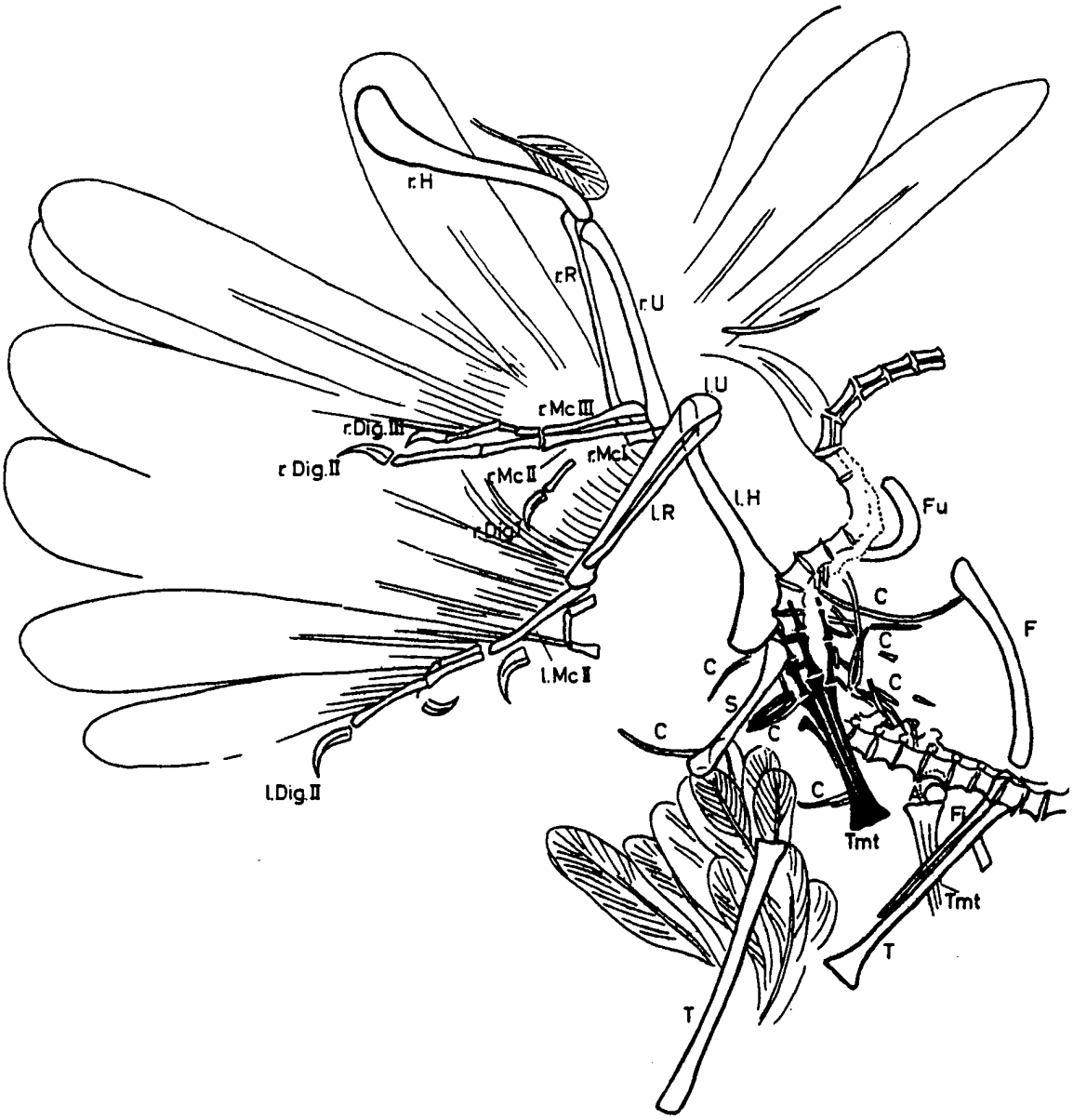
WEBER E. - Monophyly of the Galloanseres: the evidence from cranial morphology.

XUE XIANGXU - A fossil bird from the Paleocene of China.

ZHOU ZHONGHE - Discovery of new Cretaceous Birds in China.

MISSING ARCHAEOPTERYX

In 1956 the third specimen of *Archaeopteryx lithographica* was discovered near Solnhofen, and in 1959 it was described by F. Heller and published in Erlanger Geologische Abhandlungen, vol. 31. Subsequently the specimen was exhibited in the Maxberg Museum near Solnhofen - and therefore referred to as the "Maxberg specimen. in the literature - until its owner, Mr. Eduard Opitsch, removed it from display and took it back to his home in Pappenheim, in 1972. After this be would not allow access to the specimen. Even our request for a temporary loan on the occasion of the International Archaeopteryx Conference in Eichstätt in 1984 was ignored by him.
In February 1991 Mr. Opitsch, a bachelor, died at the age of 91. His heir, a nephew, however could not find the limestone slabs containing the Archaeopteryx specimen. There is no evidence that Mr. Opitsch has sold the specimen but there is a reasonable suspicion that it was stolen immediately after his death. Therefore the Department of Public Prosecution in Ansbach (Staatsanwaltschaft) has taken over the case bot has bad no success so far.
If the specimen (counterparts on two slabs of Solnhofen lithographic limestone, about 49 x 34.5 cm and 36 x 39.5 cm, each 12 to 15 mm thick) was in fact stolen it could possibly appear on the (black) market to be sold. In this case this important specimen (One out of only six) will be in danger of being lost to science for ever. Therefore we want the scientific community, especially our fellow vertebrate paleontologists, to be on the lookout for this specimen. We urge anybody who should happen to learn of the whereabouts of this Archaeopteryx, the Maxberg specimen, to be extremely cautious and to inform immediately either the Bayerische Staatssammlung fur Paläontologie und historische Geologie, Richard-Wagner-Str. 10, 8(XX) München 2, Gennany, Tel (089) 5203365 (Dr. P. Wellnhofer), Pax. (089) 5203 286, or the Staatsanwaltschaft Ansbach, Promenade 4, 8800 Ansbach, Germany, Tel (0981) 58255, Pax. (0981) 58265.



Dr. Peter WELLNHOFER
Hauptkonservator at the Bayerische Staatssammlung för
Paläontolgie und historische Geologie Museum.

News from the members

ARGENTINA

Luis M CHIAPPE recently moved to the American Museum of Natural History (New York), from where he has received a Frick Fellowship (Department of Vertebrate Paleontology) for die next two years. This project is focused on die anatomy and systematics of Mesozoic birds. In July 1992, after at tending the SAPE symposium in Frankfurt, Luis spent a week studying the Eichstätt and Solnhofen specimens of Archaeopteryx, and enjoyed the hospitality of Dr. Günter Viohl (Jura-Museum). More recently, in September 92, he joined James Lamb (Red Mountain Museum), Storrs Olson and Per Ericson in a short trip to the marine

Campanian beds of the Mooreville Formation (Western Alabama), in which a significant new bird was found. His future projects are focused on the anatomy and relationships of die Enantiornithes, and in publishing a detailed study on *Patagopteryx*.

AUSTRALIA

Bob BAIRD has been able to complete a couple of projects on Quaternary cave faunas on Australia in the last year (see literature). He has also resurrected his manuscript which summarises the literature on fossil Psittaciformes. The book which this was originally to be published was scrapped. He would appreciate any information on material which has either been discovered or published on fossil Psittaciformes since 1988. Next year be plans to complete some more of his cave fauna projects and is looking to restudy the material of *Progura* (Megapodiidae) in Australia. He would also be interested in hearing from anyone else who is either using of plans to use email.

Walter BOLES has new and ongoing projects with material from Tertiary deposits at Riversleigh, in north-west Queensland, and Murgon. in south-east Queensland. He presented a general overview of Passeriformes from Riversleigh at the last SAPE meeting. All but two of the specimens were unidentified below ordinal level. His efforts are being directed towards establishing the relationships of the more distinctive specimens. Descriptions of Riversleigh taxa now in press are logrunner (*Orthonyx* sp. nov.: Orthonychidae,: Passeriformes), in Emu, bird of prey (gen. and sp. nov.: Accipitridae), in Alcheringa, and cockatoo (*Cacatua* sp. indet.: Cacatuidae), in Ibis. Recently acquired Riversleigh material includes another swift, raising the number known from the sites to three, and a kingfisher.

Many of the smaller avian bones at Riversleigh were accumulated in caves by the highly predatory ghost bats *Megaderma*. A sample of avian prey remains have been obtained from a roost of the living M. gigas. W. BOLES will analyse the sample to determine the skeletal elements most frequently recovered, the manner of bone damage, and the size range of birds taken.

The Early Eocene site at Murgon has yielded more scraps of bird material, much that will not permit further taxonomic refinement. There are some of potential interest, however: a small proximal fragment of carpometacarpus with a large intermetacarpal tubercule (the oldest known passerine?) and several specimens apparently referable to what Olson has called "transitional Charadriiformes". Work on this material has just started.

A long-term project of compiling an osteological key to Australian birds is underway.

Last year R. E. MOLNAR received several opalised fossils from Lightning Ridge. They include several small pieces from the new opal field at Coocoran, west of Lightning Ridge. Presumably they, like the material from the Ridge, derive from the Albian Griman Creek Formation. These include two distal tibiotarsi, and a proximal piece of tibia or tibiotarsus. The proximal tibia is from a bone too small to pertain to the same individual that yielded the distal tibiotarsi. The distal tibiotarsi, a right and a left, are of the same size, and hence might derive from a single individual. The proximal tibia generally resembles that of *Nanantius*, but is different in detail, and so probably does not derive from that taxon. The distal tibiotarsi do not exhibit the roller-like elongate medial condyle of *Nanantius*, that is also characteristic of the Enantiornithines. Also the fusion of the proximal tarsals with the tibia seems more complete than in *Nanantius*. In size, however, these match (roughly) the tibiotarsus of *Nanantius*, and so would seem to derive from a bird about as big as a small modem passerine. They seem to represent One or two taxa of early Cretaceous Australian birds, that are not enantiornithines. Further work and a short descriptive paper are planned for this year.

BRAZIL

After the SAPE meeting in Frankfurt. Herculano ALVARENGA spent same days in the British Museum, with Cyril WALKER, and alsa in the Museum national d'Histoire naturelIe, in Paris. The principal goal of this trip was to study the Phorusrhacidae in these museums. After this, Herculano intends to study the Phorusrhacidae in the collections of Argentina, Brazil, the United States, and in other European museums, and to make a

revision of this family.
An interesting discovery was the remains of a bird in the shales of the Taubate Basin, in southeastem Brazi1 (Upper Oligocene or Lower Miocene), inc1uding the coracoid, the carpometacarpus, and the impression of the humerus. This bird must be a Ga11iform and is probab1y c1ose to the family Quercymegapodiidae, from the Phosphorites du Quercy, in France.
Herculano has the deep sorrow of announcing that Helmut SICK (1910-1991) died on 5 March 1991. He was born in Germany, then he was naturalized Brazilian and lived for 52 years in Brazi1. Be wrote hundreds of papers on ornitho1ogy, inc1uding the two vo1umes "Ornitho1ogia Brasileira", certainly the best book on Brazilian birds.

BULGARIA

Zlatozar BOEV continues to collect fossil birds from the Lower Villafranchian site, near the town of Varshets, where be collected 210 new bird elements, 155 of them identifiable. The total number of bird remains now reaches over 617, belonging to at least 30 species. The comparative skeleton collection of Recent birds reaches 280 species, represented by 1250 specimens.

CHINA

In May 1992 HOU LIAN-HAI and ZHOU ZHONGHE conducted a new excavation in the newly found Lower Cretaceous bird locality in Chaoyang, Liaoning province, in North East China. Several more individuals were recovered
From July to September, Hou participated in the Silkroad Dinosaur Exploration in Inner Mongolia. Unfortunately no bird fossil was found there by him in the Cretaceous strata.
In August, Hou and Zhou submitted a paper on the Lower Cretaceous bird discovery in China to the Second Conference of Vertebrate Paleontology of China, held in Dalian, Liaoning province. Zhou also gave a plenary report on behalf of Hou and himself.
The new discoveries of fossil birds include a complete skull of a Quaternary Penguin, collected by a Chinese geologist from the Antarctic, which is now under study by Hou, a complete feather found by a paleoentomologist in the Lower Cretaceous of Shandong, in Eastern China, and a new Paleocene bird locality recently found in Anhui, also in Eastern China. This locality has provided some forelimb and hindlimb elements, studied by Hou, and which resemble Rallidae.
In October 1992 Hou and Zhou are planning to go to Shandong, where the fossil feather was found, in the hope that more Early Cretaceous bird fossils could be recovered. After that, Hou will be busy studying Early Cretaceous Hesperornithiformes from the Antarctic, the Quaternary Penguin from the Antarctic and the Paleocene bird from Anhui previously recorded. and the Early Cretaceous feather from Shandong. Moreover he plans to finish the preliminary report on a new advanced type of bird from the type locality of *Cathayornis* by the end of this year. Zhou will continue to work on the abundant Lower Cretaceous birds, including *Cathayornis*, which was first found by himself in 1990.

FRANCE

Jacques CHENEVAL presented, during the Table Ronde europeene sur la Paleontologie de l'Amerique latine. in Lyon. in July 1992, a preliminary description of the Mio-pliocene avifauna of the Pisco Fomlation. in Peru. The localities of this formation are mainly known for their abundance in remains of sea-mammals (Cetaceans. Otariidae. Phocidae). Although it has never been described. the avifauna is far from being negligible. The most abundant forms are a penguin. close to the genus *Spheniscus*. and several species of *Sula*. Less common forms are a shearwater, close to *Fulmarus glacialoides,* a cormorant of the same size as *Phalacrocorax olivaceus*, and a small wader similar in size to *Tringa totanus*. Two large fragments give the first indication of the presence of Pelagornithidae in South America.

Jacques is still working on the revision of the avifauna from Sansan (Middle Miocene, Southwestern France). which will be published in a monograph.
Christine LEFEVRE has worked on the bird remains collected during the archaeological survey in the Cape Horn archipelago. the results of which will be published in the Journal de la societe des Americanistes.
She spent a month (July) at the Museum of Natural History in Lawrence. Kansas. U.S.A. studying the mammal and bird remains from the test excavation conducted in 1991 at Buldir Island, Aleutians, Alaska. A first report on the results on bird bones was presented during the first meeting of the ICAZ Bird Working Group. in Madrid. in October 1992.
A second campaign in the Aleutians took place in August 1992. In col1aboration with D. SIEGEL-CAUSEY (Museum of Natural History. Lawrence. Kansas) and S. LORING (Arctic Center, Smithsonian Institution, Washington D.C.), a preliminary test pit was excavated on Little Kiska Island.
Since the last SAPE newsletter, Cecile MOURER-CHAUVIRE has completed her work on the Sandgrouse from Quercy and Lower Miocene localities. She published. together with Odi1e BOEUF, a paper on the Upper Pliocene avifauna from Chilhac, where they described a new species of Goldeneye, *Bucephala cereti*.
At the Frankfurt Symposium she presented a paper on the French Messelornithidae, from the Paleocene of Mont-de-Berru and from Quercy.
To celebrate the five hundredth anniversary of the discovery of the Americas. Francois POPLIN organized. with the Societe d'Ethnozootechnie. a day dedicated to the Turkey. C6cile took part in this day and presented a paper on the origin and evolution of Turkeys. When preparing this paper cecile realized that. although the Galliformes are supposed to have a Gondwanian origin, they are fairly well represented as fossils in the Paleogene of the Northern continents. and are known in the Southern continents only from the Miocene (with the exception of a Galliform recently found by H. ALVARENGA from the Upper Oligocene or Lower Miocene of Brazil). Thus the fossil record known so far is in complete disagreement with the hypothesis of a Gondwanian origin.
Cecile has contributed the Paleogene and the Pliocene Avian localities of France to the book edited by J. MLIKOVSKY on European Avian Tertiary Localities. These two chapters have been much more time-consuming than she thought they would be.
Finally. in July, Cecile took part in excavations in a marsh, in the Island of La Reunion. together with Roger BOUR, from the Museum national d'Histoire naturelle de Paris. and other research workers. Thousands of bones of the extinct land-tortoise *Cylindraspis borbonica* were found. and a handful of very interesting bird bones, but for the moment the Solitaire of La Reunion remains solitary in its hidden haunts!

GREAT BRITAIN

Paul G. DAVIS is working on the taphonomy of flying vertebrates, with special reference to birds. His Ph. D. thesis should be completed within the next twelve months. He has two papers in preparation from this thesis at the moment, one on the taphonomy of feathers, and the other one on the skeletal disarticulation of birds. Two mini papers have been published: see literature.

Michael DANIELS sends the following information:

As the debate continues concerning replacement of the traditional avian classification with the new DNA based version, I think I should avoid showing any preferences as to order by listing according to size the birds that have made their appearance since my last contribution in the 1990 'Information Letter'.
More specimens have been added to what appears to be a widespread type of swift-like bird in this ancient avifauna. Much of the structure favours this group, although the tarsus, which occurred only once in twenty-two Naze individuals, is more like that of a caprimulgid. I concur with the views of others that overall, these fossils may be closer to the tree-swifts which possess the more conventional perching foot. The skull detail is revealed by combining data contributed by several similar birds, some very tiny with a pea size cranium; my drawing (Fig. 2a) should give some indication of the flight outline together with size, the like of

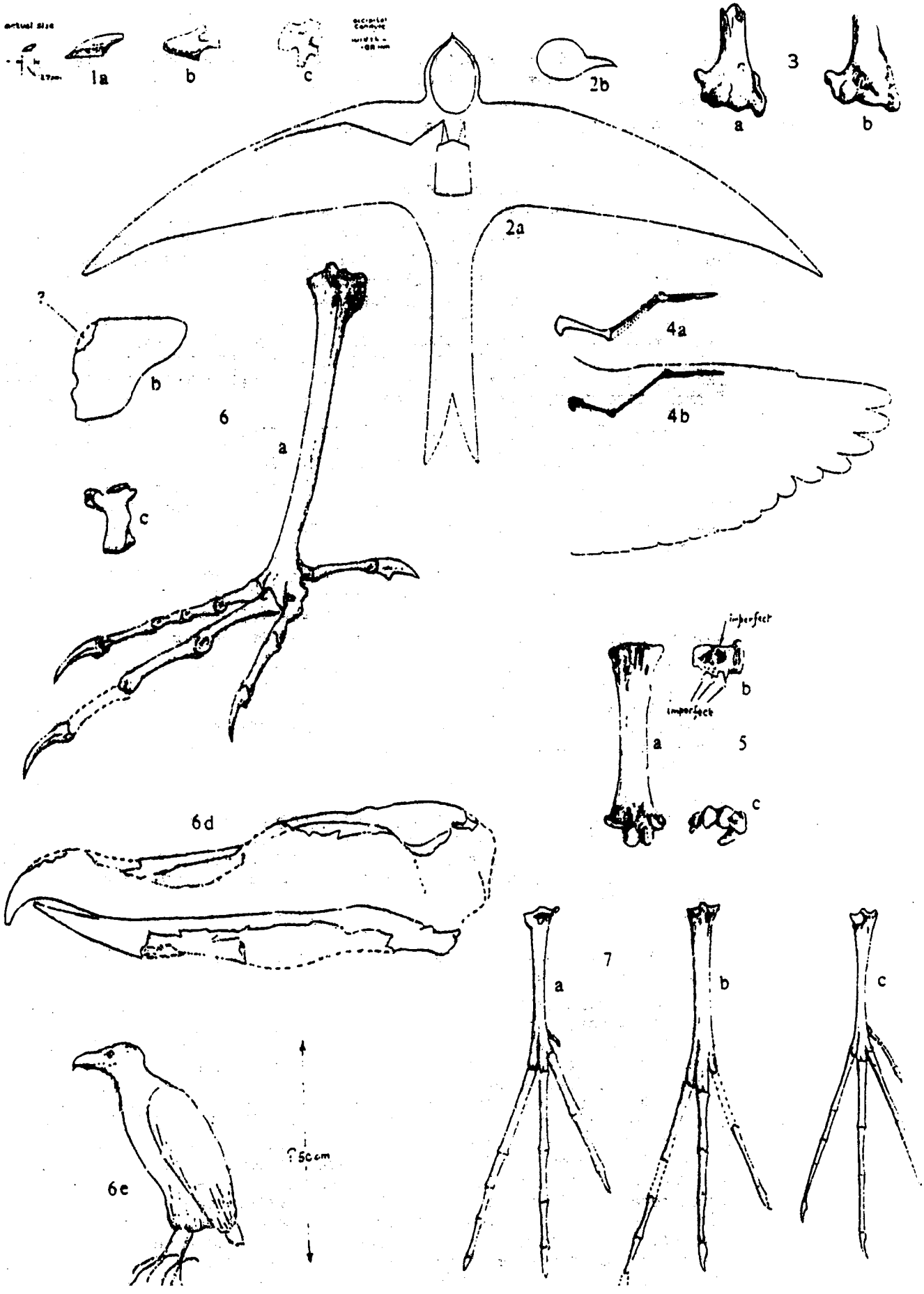
which I can find nothing as small in living members of this group.
Minute passer-like birds al so occur and one, represented by a premaxilla and basitemporal region of the cranium, which I illustrate (Fig. 1 a-c), must have been Goldcrest, *Regulus regulus*, in size. Others are a little larger and collectively contribute data on much of the skeleton, here I offer further drawings, (Fig. 4 a & b), in an attempt to show the basic wing assembly of the fossils compared to *R. regulus*. It is not possible to show the leg similarly due to lack of tibia detail. Both femur and tarsus exist complete overall and again lengths are close to the modern bird. No Naze forms bear anything approaching the distal features of the living passerine tarsus; the two different London Clay versions are both zygodactyl…perhaps the primitive norm at the time, or indeed possessed of birds having no connection whatsoever with the modern order.
Several birds, say a stage larger, roughly Sparrow, *Passer domesticus* size, were again swift or passer-like. Of the latter a distal humerus is illustrated (Fig. 3 a & b) where it is compared to that of the Stonechat, *Saxicola torquata* - the nearest counterpart I could trace in my modern material; no doubt closer candidates exist!
Next brings us to a size range at which Naze birds are at their most frequent; here we could use the Starling, *Sturnus vu1garis* as a general guide. Predominantly the fossils are of terrestrial types and these have included further examples of putative parrots, owls, plus others of uncertain affinity; all such with fully or facultatively zygodactyl feet. Interestingly, there are four instances amongst these where 'soft-parts' are preserved; in such the tubercular soles of the toes have survived and in one ca se the entire foot bears this feature. Likewise, a similar condition occurs on three 'coraciiformes' recovered, these anisodactyl types.
Amongst the parrot-like birds, there appeared yet another of the type I mentioned in the 1989 Information Letter. This has produced additional data concerning a larger size individual. Again the skull is not at all like that of a parrot, if anything, more like some form of passerine. I can better illustrate detail of the tarsus by using my Catalogue drawing applicable to a headless, but once again extensive specimen collected in 1985; Fig. 5 a-c refers.
Further specimens actually of, or related to, the fossil *Primobucco olsoni* were acquired. In all there are probably the remains of some sixteen examples from Britain alone plus those from North America. So these birds appear to have been commonplace amongst the once pan-Atlantic arboreal community.
More owls were collected, the smallest represented by much of the skeleton, even including characteristically shaped sclerotic plates. The bird approximates the size of a pygmy owl (*Glaucidium*), other forms are not appreciably larger, nearer *Scops* (*Otus*). There is one bird where I cannot with any certainty dismiss a hawk-like connection.
Within this size group I must mention one individua1 that is clearly non-arboreal and almost certainly some form of wading bird. It approximates the size Of a Ringed Plover, *Charadrius hiaticula*, and indeed the bones compare well with this kind of bird. On1y the terminal phalange of the major wing digit and part of the ulna are missing, otherwise both forelimb and pectoral gird1e survive virtually intact. It is, in my view, unquestionably ancestral to the Charadriiformes.
Finally, to deal with medium to large birds which account for about twenty percent of the Naze avifauna.
In past reports I have mentioned the possible occurrence of screamer-like birds, this based on substantial skeletal evidence; that for the existence of ducks being postulated on more limited material. However, in October 1991, an extensive and finely preserved specimen was collected in my presence. Later,
I was able to further examine the remains when much of the skull had been revealed. About the size of a smaller Muscovy, *Cairina moschata*, the fossil is clearly and unquestionably that of a true duck. A considerable part of the post-cranial skeleton survives and this in itself would be confirmatory of the Anatidae; when reinforced by the association of a hardly distorted skull equipped with characteristic beak plus convincing pterygoid and quadrate, little doubt remains. In these accounts I always prefer to err on the side of caution with any such pronouncements and in this case particularly so, bearing :n mind the serious and creditworthy attempts that have been made to chart the evolutionary path of the Anseriformes, which suggest their arise from wader-like ancestors. Now their lower Eocene existence seems indisputable, I can be less tentative in my referral of three more individuals. One, which I feel would, erstwhile have really stretched the bounds of credibility, is composed of wing elements of large size. The remains bear close comparison to the 'hand' of *Cygnus*, the carpometacarpus measuring 145-150 mm in length, other bones providing supporting

evidence include a full complement of phalanges and both minor carpals. Perhaps of no little significance diagnostically, is the presence of the third, ultimate 'phalange' of digit 2. There is also a jugal bar, 79 mm, not complete to root. A fossil of drake wigeon (*Anas*) size and another somewhat smaller, are both represented by wing and pectoral remains.

Medium large birds of other groups have made their appearance. The continued discovery of palaeognathous/cathartid-like forms clearly testify to their populous position within the ancient avian community….there are now over thirty British referrals. A specimen collected in 1990, proved to be the largest of this type from the London Clay deposits; about pheasant size, it could, by comparison to others in my collection, represent a new (?4th) variety.

Remarkable both for the measure of is likely importance to our studies and for the sheer fortune involved in its discovery, was a Whimbrel, *Numenius phaeopus*, size bird, located in the late winter of 1991. All that gave indication of its concealment at the cliff base, were the maxillaries protruding out of the clay surface. Fortunately, the rest of the skull was attached, but buried, likewise most of the post-cranial skeleton. It is clearly same sort of wading bird with a longish bill; its Godwit, *Limosa*, like head being rather disproportionately small to the rest of the skeleton.

Another highly intriguing bird emerged since my last report. Most of the skeleton being present although, as usual with Naze specimens, the remains were found disarticulated and in confused association. I provide drawings (Fig. 6 a-d) of the reconstructed skull, quadrate, pygostyle and foot. These examined together with other detail, help to conjure up thoughts as to the bird's likely affinities, perhaps considering, amongst others, the Cariamidae.* Here I found interest in the views of Olson (1985, p.150) concerning the relationships of *Neocathartes* and *Bathornis*. The tarsometatarsus from Walton, 76 mm in overall length seems to compare favourably, if not in size, certainly in proportion and structure, to the examples reproduced by that writer (Fig. 6, p.l48). Distally it appears to have most similarity with the holotype of *B. veredus*, also the proximal detail, including its block-like hypotarsus, suggests, despite the age difference, some feasible relationship. As a further contribution to hypothesis, I offer my vision of the living animal. Fig. 6e.


actual size
1a
b
c
occipital condyle
2b
3
a
b
2a
?
b
6
a
c
4a
4b
imperfect
b
imperfect
a
5
c
6d
7
a
b
c
6e
?5cm

ILLUSTRATIONS

Fig 1. Fossil remains of beak and skull: Daniels Collection NO. WN.92738, a, premaxilla, lateral view; b, dorsal view; c, basitemporal, ventral view. Scale X 4.

Fig. 2 a, flight outline of fossil swift-like bird based on wing and pectoral structure as indicated; data provided principally by WN.91690; b, skull lateral outline based on WN.82385A. X l.

Fig. 3. Fossil and recent humeri: a, WN.90664, palmar view of distal end. X 4; same of Stonechat, *Saxicola torquata*. X 3.5.

Fig. 4. Fossil and recent wing structure: a, reconstructed wing osteology of WN.87558A and WN.90660 composite; b, same and plumage outline of Goldcrest, *Regulus regulus*. X l.

Fig. 5. Fossil tarsometatarsus of WN.85506: a, posterior view; b, proximal view; c, distal view. X 2.3.

Fig. 6. Various of fossil WN.91696: a, reconstructed foot; b, pygostyle - outline; c, quadrate, external view; d, skull, lateral view. X l. e, impression of living bird.

Fig. 7. Reconstructed feet of fossil and living birds: a, Little Grebe, *Podilymbus podiceps*; b, fossil WN.92720. Both X l. c, Coot, *Fulica atra*. X.5.

Note: position of phalange 1 of digit 4 confirmed after careful check of proximal detail.

For the first time in eighteen years of collecting at the Naze, I was able to discern grebe-like features in an extensive and exquisitely preserved specimen secured last March. Only the outer wing elements and sadly, the skull, were missing, although much of the lower mandible survives. Whilst the character of this item and various other aspects are more reminiscent of the coots, *Fulica*, its sternum is certainly not rail-like, nor is the foot, where grebes seem better favoured see Fig. 7 a-c, fossil compared. Thus overall it is rather an enigmatic bird unless the Sungrebe (Heliornithidae) is somehow implicated. Then again it may well have no living descendants…… probably!

* even *Polyborus*

REFERENCE

OLSON, S. L. 1985. The fossil record of birds. In Avian biology. Vol. 8. D.S. Farner, J.R. King and K.C. Parkes (eds.). Academic Press, New York,79-252.

Cyril A. WALKER's fossil bird work. at the British Museum is progressing very slowly, due to other commitments. He has two papers in press on Kenyan Miocene birds, is preparing another olle on Pliocene Auks from Belgium, and he is putting the final touches to the Enanthiornithine manuscript.

HUNGARY

D. JANOSSY elaborated the bird remains from the Upper Miocene (Vallesian, MN 9) locality of Rudabanya (N-Hungary), remarkable for its outstanding hominoid remains. The faunal list, with the number of fossils, is

as follows:
Anas aff. *velox* Milne-Edwalds, 4
Anas s. l. sp. (size of *Querquedula*), 3
Palaeortyx cf. *phasianoides* Milne-Edwards, 2
Palaeortyx aff. *grivensis* Lydekkker, 5
Miophasianus cf. *medius* Milne-Edwards, 2
Rallida, cf. Miorallus sp., 1
Charadriiformes gen. and sp. indet, 1
Strix cf. *brevis* Ballmann, 4
Athene sp., 1
Acrocephalus sp. (*arundinaceus*), 1
Locustella sp. (small sp.), 1
Corvus sp. (size of *corone*), 4.

This modest material would not in itself be of special interest, but a comparison with the other Miocene material discovered recently in Polgardi. Hungary (see Information Letter, 1988, n° 2, p. 9-10) shows the absolute difference in Galliforms and Owls between these two localities. Not one species is identical among these systematical groups in the two localities: in Rudabanya, two species of *Palaeortyx*, *Miophasianus*, and *Strix*, while in Polgardi *Palaeocryptonyx*, *Pavo*, and among owls only *Tyto* occur. The complex picture of the two faunas (mammals and botanical material) shows clearly that only stratigraphical (changing environmental) differences may be the reason for this disparity. Thus it shows for the first time that the bird faunas also have a stratigraphical value in the Tertiary, which was not believed before.
A younger Holocene material (Classical Greek to the Middle Ages) from Eastern Greece, locality of Torone (peninsula Sithonia) was handed over to me by S. BÖKÖNYI, from the Archaeological Institute of Budapest. The unusually rich material yielded about 25, mostly banal, species. The occurrence of a tarsometatarsus of a Shearwater (cf. *Puffinus puffinus*), a radius of a Shag (*Phalacrocorax aristotelis*), and a proximal part of a tarsometatarsus of a Demoiselle Crane (*Anthropoides virgo*) is remarkable. Neither of them are known from fossil or subfossil material from Greece, *Anthropoides* not in subfossil stage at all. The material is prepared for publication.

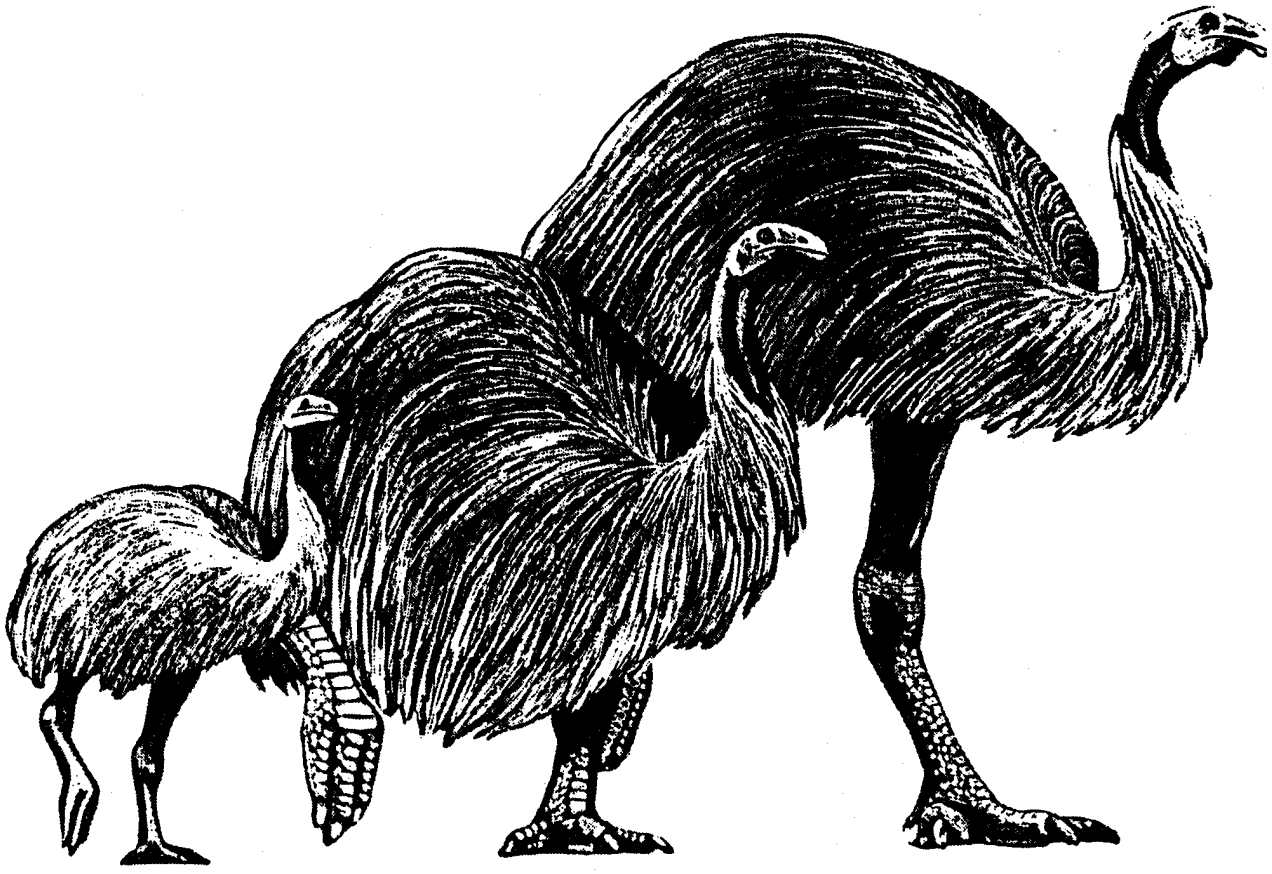
REPUBLIC OF MOLDAVIA

During the last two years, in 1990 and 1991, the archaeologists and paleontologists of the Science Academy of the Republic of Moldavia, the Pedagogical Institute of Tiraspol and the Natural History Museum, have made excavations in the different regions of Moldavia. They found fossil birds in the alluvial sediments of the Latest Pliocene in the Cimislia and Vulcanesti districts, in the paleontological locality of Duruitor, in the Riscani district. and bone remains from the Latest Pleistocene and the Holocene near the village of Brinzeni, in the Edinet district, and in other localities. As a who1e, 56 fossil bones were discovered, and among them 35 can be identified.
The fossils that were discovered in the Uppermost Pliocene (Cimislia) are of great interest A new species of *Gallus* and a new species of *Anas* were identified. The works where these species are described are in press in the Science Academy News, Biological and chemical Sciences, Republic of Moldavia. In addition, in the same journal, a paper on "Research state of fossil birds *Gallus* species in Moldavia, Ukraine, and Caucasus" was presented. (I. M. GANEA).

NEW ZEALAND

Beverley McCULLOCH has bad a set-back in her Marlborough research on moa nesting with the sudden death of a colleague who had spent many years locating numerous eggshell deposits in the region. However, hopefully his records will eventually be available. In the meantime she has published a well-received popular

book. Moas: Lost Giants of New Zealand, which is extensively illustrated and summarizes both historical and modern thinking on this extinct group.



One of the drawings by artist Geoffrey Cox for MOAS: Lost Giants of New Zealand showing three basic moa shapes
- Large and quasi-cursorial;
- Medium sized and extremely graviportal;
- Small and cursorial.

Joseph McKEE has collected same new Pliocene bird material from his locality in Taranaki, North Island, New Zealand. The material is from two different species of shearwaters. The material is fragmentary and may allow identification only to genus level. These new birds constitute the first Pliocene shearwaters from New Zealand and bring the number of different fossil birds identified from the Pliocene sediments of Taranaki to four. Other bird bones collected recently from the same locality have still to be prepared and identified.
The current work of Trevor H. WORTHY is a survey of the fossil avifaunas in Late Pleistocene-Holocene cave deposits of the South Island. In 1991-92, in collaboration with R. N. HOLDAWAY, the faunas of 43 caves in the Punakaiki area (West Coast) were studied. Over 50 bird species were represented in near 7000 fossils. Related work involves the description of a new shearwater, describing the first avian predator accumulation (Laughing Owl) from New Zealand, describing faunal changes between the last glacial period and the Holocene. Richard HOLDAWAY and Trevor WORTHY have continued this work this year, with the target area being Takaka Hill, in north-west Nelson, South Island, and North Canterbury. The aim is to characterize the fauna in each area and reveal the similarities or differences, and relate them to climatic or

environmental differences. The recognition of a predator accumulated assemblage has "opened their eyes" and since then, three more sites have been discovered, and two collections in museums are attributed to this mode of accumulation. The study of such sites offers new insights into New Zealand's ancient faunas.
Work continues on studying Moas with the attention now on describing the whole skeleton of each of the three *Dinornis* species. There are remarkably few *Dinornis* skeletons where cranial material is associated with post-cranial and legs - fewer than 10 for each taxon. If anyone reading this outside New Zealand has any, Trevor would love to know.

POLAND

Zygmunt BOCHENSKI finished his studies on the Early Holocene bird remains from Nemrik (North Iraq), dated between 10250 and ca 8500 years B.P. The paper containing descriptions of remains and some environmental implications is now in press as a chapter of a book concerning the whole fossil fauna from Nemrik. The other paper (faunistic and zoogeographical analysis mainly) was presented during the 3rd SAPE Symposium in Frankfurt, and was then submitted to the Proceedings of this Symposium. He also wrote a description of Polish Tertiary Localities with bird remains, for the volume on the European localities prepared by J. MLIKOVSKY, from Prague. Just now Zygmunt is completing a popular booklet on fossil birds, which will be most probably published next year.
Zbigniew BOCHENSKI came back to Krakow after having spent one year at the Christian-Albrechts University in Kiel, and be is finishing his study on comparative osteology of grebes. Together with Teresa TOMEK he presented at the 3rd Symposium a methodological paper "How many comparative skeletons do we need to identify a bird bone?" The paper was submitted to the Proceedings. Now he is working on bird remains from a Pleistocene locality at Piekary (S. Poland).
Teresa TOMEK submitted to Acta zoologica cracoviensia the results of her 18 years monitoring studies on bird breeding at two sample plots in the forest of the Ojcow National Park, which suffers from heavy industrial pollution. She is also working on the Recent bird fauna of North Korea and on bird remains from the locality "Oblazowa 2", in the Sub-Tatra region, dated to the last interstadial of the Vistulian.
The comparative collection of Recent bird skeletons, stored at the Institute of Systematics and Evolution of Animals, now contains more than 2600 specimens of complete skeletons, which represent 837 species (excluding domesticated forms), of 111 bird families. 24 other species are represented by partial skeletons only.

RUSSIA

In January 1992, Lev A. NESSOV, from St Petersburg, had the possibility to study the holotype, a heterocoelous vertebra, of *Parascaniornis stensioi* Lambrecht 1933, a bird from the Late Early Campanian (Late Cretaceous) of the Ivö Klack locality, in southem Sweden, at the Geological Museum of Copenhagen. Many thanks to Dr. Ella HOCH for her help and for sending a cast of this very important specimen which most probably belongs to a small hesperornitbiform.
A distal tibiotarsus, with a relatively strong furrow for the fibula, possibly of a large hesperornithiform, was determined in February 1992 in the collection of the University of Lund, Sweden (for information about other records of hesperornithiforms in Scandinavia. see SAPE Information Letter, n° 5, 1991, p. 9). This bone was found by Professor G. Troedson in 1952 at the locality of Ivö Klack. Mr. M. Siverson, from the Lund University, helped him to meet Dr. P. O. Persson, now retired, who has a very large experience in the study of Campanian Reptiles and other Vertebrates from Ivö Klack. He also met Mr. P. Cederström, Eslöv, who has a great collection of Campanian Vertebrate remains from Åsen and other localities of southern Sweden. These vertebrate faunas were very diverse, but bird bones were not identified. However small bird bones, of Cretaceous age, will possibly be found in the future in these localities.
In June 1992, Lev NESSOV was doing field-work in the Bathonian-Callovian (Jurassic) of the Tian-Shan mountains, and he was not able to attend the SAPE Symposium in Frankfurt.

Dr. L. I. KHOSATZKY, from St. Petersburg University, was buried on July 4tb. Accompanied by students, he spent a long time, in the 1960s and the 1970s, looking for Vertebrates (including birds) in the Pliocene and Pleistocene of Moldavia and Southwest Ukraine. He liked to find remains of the enigmatic bird *Gryzaja odessana* Zubareva (Gryzajidae), especially the very unusual strongly flattened tarsometatarsi of this species.
Shaft and distal tibiotarsi of small hesperornithiforms were found in August in the Kushmurun locality, Kustanaj District, NW Kazakhstan. These bones are slightly larger than in *Baptornis advenus* Marsh and were determined as belonging to the family Baptornithidae. They do not belong to the genus Baptornis because of the peculiar structure of the fossa on the tibiotarsus, related to the side of the *foramen interosseum proximale*, and because the *crista fibularis* is not so strongly turned behind as in *Baptornis*, and moch weaker.
The proximal half of a tarsometatarsus and two distal tibiotarsi of a much larger hesperornithiform, possibly of *Asiahesperornis*, were also found by L. A. NESSOV and L. I. KAMENTSEV in the Kushmurun quarry, in the rich "Niobrara-like" fauna of sharks, teleosts, turtles, mosasaurs and plesiosaurs, and Invertebrates. The remains were buried in greenish-grey glauconite, sandstones and silts with phosphate nodules. During the work in the Kushmurun quarry, it was established that the hesperornithiforms bones do not come from the Zhuravlevskij Formation (see Nessov and Prizemlin. 1991, erroneously used as Zhuravlevo Fm. in Nessov, 1991) but from the lowermost part of the Eginsaj Fm. The age of these fossils is most likely not Late Campanian-?Early Maastrichtian, but Latest Santonian-Early Campanian.
A proximal fragment of a small bird humerus was found in the Kushmurun quarry after the washing and screening of a sandstone rich in glauconite and phosphatic nodules, situated 2 m below the top of the Eginsaj Fm. The bone is hollow, with thin wal1s, and the bird was most probably able to fly. This level, after comparisons with other geological sections, is possibly Late Campanian.
The Hesperornithiformes of the Kushmurun area (52° 29' N) lived in the Turgai Strait, in the same type of environments as those which are known for the Interior Seaway of the area from Manitoba to Kansas. The fauna of Dinosaurs (including Hadrosaurs found in 1992), and the pollen flora of the western bank of the Turgai Strait, near the Campanian/Maastrichtian boundary (Zhuravlevskij locality) became similar to the Asian ones, and it is quite possible that the southern part of the Turgai Strait, at least during some periods of the Late Cretaceous, was completely or nearly completely closed. In these events, a more western passage of this strait, or another meridional strait on the Russian platform, possibly existed as the pathway of the migration of the Hesperornithiformes of the Volgograd District and NW Kazakhstan.
Lev NESSOV made the determination of the bone KKM KP 4925/P131, in the Kustanaj Museum of Natural History (Nessov, 1992, p. 28). Previously, this fossil bad been known to him only by a photograph of one side of the bone, and it looked like the shaft of the humerus of a hesperornithiform, with proximal and distal ends broken. The study of the original shows that the bone is almost complete and is an element of the precarpal or pretarsal areas of the extremities of a mosasaur, not a bird.
A. A. JARKOV, from the Volgograd District Museum, informed Lev NESSOV that the lower jaw of *Volgavis marina* Nessov and Jarkov 1989, from the locality of Malaja Ivanovka, Volgograd District, previously dated as Paleocene or Early Eocene (see SAPE Inform. Letter n° 2, 1988, p. 18-19), and later dated as Latest Maastrichtian (SAPE Inform. Letter n° 3, 1989, p. 16; Nessov & Jarkov, 1989, Proc. Zool. Inst Leningrad, 197: 78-97; Nessov 1991, p. 473; 1992, p. 29-30) is actually, according to new shark data, Danian or Early Danian in age.

SPAIN

The first meeting of the Bird working group of ICAZ (International Council for Archaeozoology) was organized by Artoro MORALES, in Madrid, in October 1992. The proceedings will be published in 1993 in the journal Archaeofauna.
Fdo. Francisco HERNANDEZ works in the Laboratorio de Arqueozoologia of the Universidad Autonoma of Madrid. He is finishing a Ph. D. dissertation on the Quaternary Avifaunas of the Iberian Peninsu1a. For this work he has carried out the revision of the old documents and he has identified the new material coming from recent archaeological excavations in this country.

SWEDEN

Per ERICSON has not been working very much within the field of Avian Paleontology and Evolution during the last year. His study on *Presbyornis* continues and at present the illustrations are being prepared. A field trip to Late Cretaceous deposits in Alabama was realized in September 1992 (see Chiappe and Olson's reports). Another field trip to Late Cretaceous deposits, this time in Scania, southernmost Sweden, is planned for next spring. In company with Lev A. NESSOV, from St Petersburg, and Lars WERDELIN, from Stockholm, the find-place of a large hesperornithiform tarsometatarsus will be prospected.

UNITED STATES

California

Steve EMSLIE has taken a break from teaching at the University of California. Santa Cruz. this year, to complete more field work in Florida and Antarctica. For five weeks this fall (Oct. 5 -Nov. 5). he will continue excavations at a Late Pliocene fossil deposit in Florida. The site is at the Richardson Road Shell Pit. near Sarasota. and contains hundreds of bones (including articulated skeletons) of a single species of cormorant In the first season of fieldwork. in 1991. Steve excavated over 20 cubic meters of sediment with the help of two students from UCSC. and Gary MORGAN of the Florida Museum of Natural History. In addition. over 500 bones and partial carcasses of the cormorant were measured in situ for orientation and dip in the sediments as part of a taphonomic investigation. It is hoped to obtain data on at least 500 more bones this fall, the last season of work at the site, for statistical analysis. Four students from UCSC will participate in the excavations. Steve has submitted another NSF proposal for taphonomic and systematic analysis of the data. At least two species of gull (cf. *Larus* sp.) also are represented in the material.
In November, Steve will make another trip to Antarctica to assist Dr. Wayne TRIVELPIECE with a long-term study on penguins and other seabirds at King George Island. He will return to the States in early April 1993. He has just published another paper on Cassin's Auklets (see Literature). Correspondence to Steve for the next year should be addressed to: 1113 Green St, Ft Collins, CO 80524.
Daniel GUTHRIE continues his work on the Late Pleistocene Avifauna of the Channel Islands.
Fritz HERTEL continues work on his dissertation studying vultures and raptors. The work includes an analysis of functional differences among vultures and different types of raptors based on feeding and flying capabilities. Guild comparisons are also underway in regions where vultures occur in a high diversity: East Africa, the Indian subcontinent, and Amazonia. The results are then compared with the Pleistocene birds from Rancho La Brea to note differences through time.

American Museum. New York

In May and June 1992, in collaboration with Dr. John M. RENSBERGER of the University of Washington, Allison ANDORS conducted a field and laboratory investigation of a giant, supposed avian footprint that was collected by an amateur paleontologist, in the Eocene Puget Group of King County, Washington, near Seattle, in early 1992, and initially identified by Dr. Donald E. SAVAGE, from the University of California, Berkeley, as possibly pertaining to *Diatryma*. Our study of the three-toed imprint, which was the subject of nationwide news accounts, revealed that it was not an actual trace fossil and that it was probably manmade. A delailed report on the apparent pseudofossil was completed by him and submitted to the American's Museum Department of Vertebrate Paleontology, which sponsored the expedition.
Allison recently published two papers on *Diatryma*, and, together with Dr. Walter BOCK from the Columbia University, a paper on the cranial and cervical anatomy of the Bucerotidae (see literature).
Francois VUILLEUMIER is pursuing his research on: (a) the evolutionary history of the steppe-inhabiting avifauna of Patagonia, and (b) the evolutionary history of the avifaunas living in southern beech (*Nothofagus*)

forest of South America, Australia, New Zealand, New Guinea, New Britain, and New Caledonia. For project (a) he has carried out transects in southernmost Patagonia (Chile) and in Chubut Province (Argentina), and he is planning another transect in Rio Negro and Neuquen Provinces (Argentina) in October-November 1992. Some of the goals of this research have been described in the paper: A quantitative survey of speciation phenomena in Patagonian birds (1991) (see literature). where several basic questions were asked, and the paper: Field study of allopatry, sympatry, parapatry, and reproductive isolation in steppe birds of Patagonia (in press in Ornitologia Neotropical), where he attempted some answers based on fresh field work. For project (b) he has carried out field work in all regions of the world with *Nothofagus* forests (listed above), and, in addition, he has visited several areas with wet north-temperate forests, including *Fagus* (northern beech) in Japan and China, and the temperate rainforests of southeast Asia (the Tongass). He is preparing various reports on this work. in collaboration with Dr. Jim KIKKAWA of the University of Queensland, Australia. The paper presented at the Symposium 6, at the Congressus Internationalis Ornithologici, Christchurch (see literature) constituted a summary of the work up to 1990, and a paper still in review summarizes the Chinese *Fagus* work. Francois plans to submit a paper comparing southern *Nothofagus* avifaunas with some northern *Fagus* avifaunas at the next I.O.C. in Vienna in 1994.

Long Island, New York

Larry WITMER completed his doctoral dissertation on aspects of facial evolution in Archosauria (including birds) during the summer of 1992, and has left Johns Hopkins University to accept a position as assistant professor of Anatomy at the New York College of Osteopathic Medicine, in Long Island, New York (see change of address). Since last contributing a report to the SAPE Information letter, be has been involved in several projects on fossil birds. His research on the early evolution of the avian craniofacial air sacs was published in 1990. He also published, with K. D. ROSE, on newly discovered skull material of *Diatryma* and the implications of skull biomechanics for interpretations of the paleobiology of this unusual bird. Larry also undertook a historical study of the debate on avian origins from Lamarck to the present, which was published in 1991. Larry accepted Julian BAUMEL's invitation to join him in revising the Osteologia chapter for the new edition of Nomina Osteologica Avium; the effort (now in press) tried very bard to juggle the often conflicting demands presented by its varied market (i. e., paleontologists, neontological avian anatomists, and veterinarians). Now that his doctoral research is completed, Larry hopes to return soon to finishing manuscripts put "on hold", including one on a new, Lower Miocene flamingo cranium from Kenya. Finally, he continues his research on skull evolution in archosaurs (feathered and otherwise), under the conviction that placing avian evolution within the broader context of archosaur evolution yields important insights.

Seattle

Ken WARHEIT has completed his postdoctoral fellowship at the National Museum of Natural History, Smithsonian Institution, and is now a Research Associate at the Burke Museum, University of Washington, Seattle. His current research now includes morphometric analyses of Common Murres (*Uria aalge*) killed in oil spills in Washington and Alaska, U.S.A.

Washington D.C.

In August. Storrs OLSON and Helen JAMES took their offspring Travis and Sydney (ages 10 and 7) with them for on month in the field in Hawaii, where they teamed up with palynologists David and Lida BURNEY of Fordham University and their two children. They camped near Hanapepe, Kauai, right where the eye of hurricane Iniki passed a couple of weeks later. Many lava tubes and sand dunes were investigated but fossil birds were disappointingly few. However the Burneys were able to get a core of nearly 7 meters of sediment from a large, open aeolianite cave by the sea that once must have held a lake. This lowland core, the deepest ever taken in the Hawaiian Islands, should reveal much about the environment in which extinct birds lived on

Kauai.
The expedition then moved to the Big Island of Hawaii to a lava tube recently discovered by Jon GIFFIN of the Hawaii Department of Land and Natural Resources. This contained abundant skeletons (nearly 30 total) of a spectacular new species of flightless goose quite unrelated to any of the goose-like birds previously known from the Islands. Helen and Storrs bad known about it previously from very inadequate material that did not permit diagnosis. Also present were skeletons of two species of flightless rails (one undescribed), a crow completely different from the living Hawaiian crow known historically in the same area and possibly a new species, and four specimens of the long-billed Hawaiian "honeycreeper" known as the akialoa. These specimens are much too large to be the *Hemignathus obscurus* known historically from the Big Island and more nearly resemble the birds that once occurred on Maui and Lanai. This is the first good deposit of extinct birds from the Big Island. Helen will have to return this winter to finish collecting all the specimens, which will probably take a couple of weeks of effort.
In September, Storrs OLSON, Luis CHIAPPE, and Per ERICSON, with their host James LAMB of the Red Mountain Museum in Birmingham, toured some of the Late Cretaceous exposures in south-western Alabama, where a fair number of specimens of *Ichthyornis* had been found in the past. The expedition was intended only to be instructive, with no expectation of finding any bird fossils. Thus the discovery of some associated bones of what appears to be a completely new bird, much more primitive than *Ichthyornis*, but with some "enanthiornithine" characters of the humerus, was an unexpected and most welcome reward

LITERATURE

A SPECIAL PUBLICATION :

PAPERS IN AVIAN PALEONTOLOGY HONORING PIERCE BRODKORB
Kenneth E. CAMPBELL Jr. Editor
Natural History Museum of Los Angeles County, Science Series, no 36

ANDORS A. V. (1991) - Paleobiology and relationships of the giant groundbird Diatryma (Aves: Gastornithiformes). Acta XX Congr. intern. Ornith., Symposium 6, New Zealand Ornith. Congr. Trust Board Ed: 563-571.

ANDORS A. V. & VUILLEUMIER F. (1991) - Introduction remarks: The methodology of reconstructing the past Acta XX Congr. intern. Ornith., Symposium 6, New Zealand Ornith. Congr. Trust Board Ed.: 553.

ANDORS A. V. & VUILLEUMIER F. (1991) - Concluding remarks: The methodology ofreconstructing the past. Acta XX Congr. intern. Ornith., Symposium 6, New Zealand Ornith. Congr. Trust Board Ed.: 587- 588.

ATHENS J. S., KASCHKO M. W. & JAMES H. F. (1991) - Prehistoric bird bunters: High altitude resource exploitation on Hawaii Island. Bishop Museum Occasional papers, 31: 63-84.

BAIRD R. F. (1991) -The Quaternary Avifauna of Australia. In: P. V. RICH, J. MONAOHAN, R.F. BAIRD, & T. H. RICH (Eds.) -Vertebrate Paleontology of Australasia: 809-848.

BAIRD R. F. (1991) -The taphonomy of the Late Quaternary cave localities yielding vertebrate remains in Australia. In: P. V. RICH, J. MONAGHAN, R. F. BAIRD, & T. H. RICH (Eds.) -Vertebrate Paleontology of Australasia: 267-309.

BAIRD R. F. (1992) -Avian fossils of pitfall origin from probable Late Pleistocene deposits in Amphitheatre Cave (O-4), south-western Victoria, Australia. Record of the Australian Museum, 44: 47-69.

BOCHENSKI Z. (1991) -Pliocene grouse of the genus *Lagopus* from Poland. Acta zool. cracov., 34 (2): 563-577.

BOCHENSKI Z. (1991) -Pleistocene bird fauna from Bir Tarfawi (Egyptian Western Desert). Ostrich, 62: 29-34.

BOCHENSKI Z. & BOCHENSKI Z. Jr. (1992) Correlation between the wing length of living birds and measurements of their bones. Belg. Journ. Zool., 122 (1): 123-132.

BOCHENSKI Z. & TOMEK T. (1991) -Late Holocene bird fauna from Duza Sowa Cave (South Poland). Acta zool. cracov., 34 (2): 553-561.

BOCK W. J. & ANDORS A. V. (1992) -Accessory occipital condyle in the hornbills (Aves: Bucerotidae). Zool. Jahrb., Abt Anat Ontog. Tiere, 122: 161-166.

BOEUF O. & MOURER-CHAUVIRE C. (1992) -Les oiseaux des gisements d'age Pliocene superieur de Chilhac, Haute-Loire, France. C. R. Acad. Sci. Paris, 314, str. II: 1091-1096.

BOEV Z. & ILIJEV N. (1991) -The birds and their importance to the inhabitants of Veliky Preslav (9th-10th

century). Archaeologia. Bulg. Acad Sci., 3: 43-48 (in Bulgarian, French summary).

CHENEVAL J., GINSBURG L., MOURER-CHAUVIRE C., & RATANASTHIEN B. (1991) -The Miocene avifauna of the Li Mae Long locality, Thailand. Systematics and Paleoecology. Journ. Southeast Asian Earth Sci., Kuala Lumpur, 6 (2): 117-126.

CHIAPPE L. M. (1991) -Cretaceous avian remains from Patagonia shed new light on the early radiation of birds. Alcberinga, 15 (3-4): 333-338

CHIAPPE L. M. (1991) La naturaleza aviana de Avisaurus del Cretacico de Estados Unidos y Argentina. VIII Jornadas Argentinas de Paleontologia de Vertebrados, La Rioja. Ameghiniana, 28 (3-4): 7-8.

CHIAPPE L. M. (1992) -Enantionithine tarsometatrsi and the avian affmity of the Late Cretaceous Avisauridae. Journ. Vert Paleont, 12 (3): 344-350.

CHIAPPE L. M. (1992) -Las aves mesozoicas de la Argentina y su aporte al conocimiento de la temprana diversification de las aves. Ecognicion 3 (2): 9-11.

COOPER A., CHAMBERS O. K., WILSON A. C., PÄÄBO S. (1991) -Molecular studies of New Zealand's extinct Ratites. Acta XX Congr. intern. Ornith., Symposium 6, New Zealand Ornith. Congr. Trust Board Ed.: 554.

DAVIS P. O. (1992) -The taphonomy of birds. In: S. LIDGARD & P. R. CRANE (Eds.) -Fifth North American Paleontological Convention. Abstracts and Programs Paleont Soc. Spec. Publ., n° 6: 82.

DAVIS P. G. (1992) -Geological Miracles. Nature, vol. 355, n° 6357, 16.01.1992: 218.

ELZANOWSKI A. & WELLNHOFER P. (1992) -A new link between theropods and birds from the Cretaceous of Mongolia. Nature, 359, 29.10.92: 851-823.

EMSLIE S. D. (with W. SYDEMAN & P. PYLE) (1992) -The importance of mate retention and experience on breeding success in Cassin's Auklet. Behavioral ecology, 3 (3): 189-195.

FRANKLIN J. & STEADMAN D. W. (1991) -The potential for conservation of Polynesian birds through habitat mapping and species translocation. Conservation Biology, 5 (4): 5M-521.

HELLYER P. (1992) -Birds extinct in the Emirates. Tribulus, Emirates Natural History Group, vol. 2.1, April 1992: 24.

HERNANDEZ CARRASQUILLA F. (1992) -Some comments on the introduction of domestic fowl in Iberia. Archaeofauna, Madrid. 1: 45-53.

HOCH E. (1991) -Bones of small animals in Grave 1. In: P. MORTENSEN {Ed.) -The Island of Umm An-Nar. Vol. 1. Third millemum graves. Jutland Arch. Soc. Public. XXVI: 1, 1991: 180-183.

ILIEV N. & BOEV Z. (1990) -The birds in the food of the people of the Outer Town of Veliky Preslav (9th-10th century). Interdiscipl. izsledv. Archeol. InsL i Muz. Bulg. Acad. Sci., 17: 91-94 (in Bulgarian, English summary).

JAMES H. F. (1991) -Review of Owls, Caves, and Fossils, by P. ANDREWS. The Auk, 109: 402-403.

JANOSSY D. (1991) -Late Miocene bird remains from Polgardi (W-Hungary). Aquila, 98:13-35.

KIRCH P. V., FLENLEY J. R., & STEADMAN D.W. (1991) -A Radiocarbon chronology for Human-induced environmental change on Mangaia, Southern Cook Islands, Polynesia. Radiocarbon, 33 (3): 317-328.

KIRCH P. V., FLENLEY J. R., STEADMAN D. W., LAMONT F., & DAWSON S. (1992) -Prehistoric human impacts on an island ecosystem: Mangaia, Central Polynesia. National Geographic Research and Exploration, 8 (2): 166-171.

LEFEVRE C. & MARINVAL-VIGNE M. C. (1992) -Histoire culturelle du Dindon dans le Nouveau Monde. In: F. POPLIN (Ed.) -Le Dindon. Ethnozootechnie, Paris, 49: 25-46.

MIKHAILOV K. E. (1991) -Classification of fossil eggshells of Amniotic Vertebrates. Acta paleont. polon., 36 (2): 193-238.

MOURER-CHAUVIRE C. (1991) -Les Horusornithidae nov. fam. (Aves, Accipitriformes) a articulation intertarsienne hyperflexible de l'Eocene du Quercy. Geobios, mem. spec. 13: 183-192.

MOURER-CHAUVIRE C. (1992) -Une nouvelle famille de Perroquets (Aves, Psittaciformes) dans l'Eocene superieur du Quercy. Geobios, mem. spec. 14: 169-177.

MOURER-CHAUVIRE C. (1992) -Un ganga primitif (Aves, Columbiformes, Pteroclidae) de tres grande taille dans le Paleogene des Phosphorites du Quercy (France). C. R. Acad. Sci. Paris, 314, ser. n: 229-235.

MOURER-CHAUVIRE C. (1992) -Origine et Evolution des Dindons. In: F. POPLIN (Ed.) -Le Dindon. Ethnozootechme, Paris, 49: 15-23.

NESSOV L. A. (1992) -Review of the localities of Mesozoic and Paleogene birds of the USSR, and description of new findings. Russian Joum. of Ornith., 1 (1):7-50 (in Russian with English summary).

NESSOV L. A. & PRIZEMLIN B. V. (1991) -Big advanced flightless sea-birds of the order Hesperornithiformes of the Late Senonian of the Turgai Strait: the first findings of the group in the USSR. Trudy Zoologicheskogo Instituta. Leningrad (proc. zool. Inst. Leningrad), 239: 85-107 (in Russian with English summary).

NORIEGA J. & CHIAPPE L. M. (1991) El mas antiguo Passeriformes de America del Sur. Vill Jornadas Argentinas de Paleontologia de Vertebrados, La Rioja. Ameghiniana. 28 (3-4): 10.

OLSON S. L. (1991) -Comments on the Proposed Conservation of *Phororhacos* Ameghino, 1889 (Aves, Gruiformes). Bull. zool. Nomencl., 48 (2): 156-157.

OLSON S. L. (1991) -The fossil record of the Genus *Mycteria* (Ciconiidae) in North America. The Condor, 93 (4): 1004-1006.

OLSON S. L. (1991) -Remarks on the fossil record and suprageneric nomenclature of barbets (Aves: Rhamphastidae) Bull. Brit Ornith. Club, 111 (4): 222-225.

OLSON S. L. (1991) -Patterns of Avian Diversity and Radiation in the Pacific as seen through the fossil record. In: E. C. DUDLEY (Ed.) -The unity of evolutionary biology. Proc. Fourth Intern. Congr. Syst. evol.

Biol., Dioscorides Press, Portland, Oregon: 314-318.

OLSON S. L. (1992) -*Neogaenornis wetzeli* Lambrecht. a Cretaceous Loon from Chile. Journ. Vert Paleont., 12 (1): 122-124.

PETERS D. S. (1991) -Zoogeographical relationships of the eocene avifauna from Messel (Germany). Acta XX Congr. intern. Ornith., Symposium 6, New Zealand Ornith. Congr. Trust Board Ed.: 572-577.

PREGILL G. K., CROMBIE R .I., STEADMAN D. W., GORDON L. K., HILGARTNER W. B., & DAVIS F. (1991) -Modern and Late Holocene fossil vertebrates and vegetation of the Cockpit country, Jamaica. Atoll Research Bull, 353: 1-19.

RIBAROV G. & BOEV Z. (1990) -Study of the animal remains in the Late Iron Age settlement Yassa- Tepe, near. Jambol. Interdiscipl. wledv. Archeol.Inst i Muz. Bulg. Acad. Sci., 17: 83-90 (in Bulgarian, English summary).

RICH P. V., MONAGHAN J., BAIRD R. F., & RICH T. H. (Eds.) (1991) -Vertebrate Paleontology of Australasia. Pioneer Design Studios.

SIEGEL-CAUSEY D., LEFEVRE C., & SAVINETSKII A. B. (1991) -Historical diversity of Cormorants and Shags from Amchitka Island, A1aska. The Condor, 93: 840-852.

STEADMAN D. W. (1991) -Extinct and Extirpated birds from Aitutaki and Atiu, Cook Islands. Pacific Science, 45 (4): 325-347.

STEADMAN D. W. (1991) -The identity and taxonomic status of *Megapodius stairi* and *M. burnabyi* (Aves,. Megapodiidae). Proc. biol. Soc. Washington, 104 (4): 870-877.

STEADMAN D. W. (1991) -Extinction of species -Past, Present, and Future. In: WYMAN R. L. (Ed.) -Global climate change and life on earth. Chapman & Hall, New York: 156-169.

STEADMAN D. W. (1992) -Extinct and Extirpated birds from Rota, Mariana Islands. Micronesica, 25 (1): 71-84.

STEADMAN D. W. (1992) -Review of Birds of Jamaica by Audrey DOWNER and Robert SUTTON, and Birds of the Eastern Caribbean by Peter EVANS. The Auk, 1090(2): 398.

STEADMAN D. W. (1992) -Review of Recent advances in Neogene Avian Paleontology by K. J. BICKART and R.M. CHANDLER. Wilson Bull., 104 (2): 384-386.

STEADMAN D. W., STAFFORD T. W. Jr., DONAHUE D. J., & JULL A. J.T. (1991) -Chronology of Holocene vertebrate extinction in the Galapagos Islands. Quaternary Research, 35 (1): 126-133.

STEADMAN D. W. & PAHLAVAN D. S. (1992) -Prehistoric exploitation and extinction of birds on Huahine,. Society Islands, French Polynesia. Geoarchaeology, 7 (5): 449-483.

TONON M. (1979) -Rinvenimento di Cinclus cinclus (L.) nell'avifauna pleistocenica delle grotte di Pradis ~ (pordenone). Atti del IV Convegno di Speleologia, Friuli-Venezia Giu1ia, Pordenone 9-11 nov. 1979: 17-20.

TONON M. (1992) Mammut '89. Catalogue of the exposition at the Musea delle Scienze naturale, Comune

di. Pordenone, ltalia: 244 p. Pleistocene birds from Grotte Verdi, p. 109.

VIGNE, J. D., LEFEVRE C., & PELLE E. (1991) -Managing comparative osteological collections for archaeologists in the "Museum national d'Histoire naturelle" in Paris, France. Guide to the curation of Archaeological collections. Proceeding of the Curation Workshop held at the Smithsonian Institution, Washington D.C., in conjunction with the ICAZ Sixth International Conference. E. HENRY (Ed.), Florida Museum of Natural History, Gainesville, Florida.

VUILLEUMIER F. (1991) -Invasions in the mediterranean avifaunas of California and Chile. In: GROVES R. H. & CASTRI F. di (Eds.) -Biogeography of Mediterranean invasions, Cambridge Univ. Press: 323-354.

VUILLEUMIER F. (1991) -A quantitative survey of speciation phenomena in Patagonian birds. Ornitologia. Neotropical, 2:5-28.

VUILLEUMIER F. & KIKKAW A. J. (1991) -Reconstructing the history of the *Nothofagus* forest avifaunas. Acta. XX Congr. intern. Ornith., Symposium 6, New Zealand Ornith. Congr. Trust Board Ed.: 578-586.

WARHEIT K. I. (1992) -A review of the fossil seabirds from the Tertiary of the North Pacific: Plate tectonics,. paleoceanography, and faunal change. Paleobiology, 18 (4): 401-424.

WITMER L. M. (1989) -Review: Paleognathous birds from the early Tertiary of the Northern Hemisphere, by P. W. HOUDE. Journ. Vert Paleont, 9 (3): 368-369.

WITMER L. M. (1990) -The craniofocial air sac system of Mesozoic birds (Aves). Zool. Journ. Linn. Soc., 100: 327-378.

WITMER L. M. (1991) -Perspectives on avian origins In: SCHULTZE, H.P., & TRUEB, L. (Eds.) -Origins of the higher groups of Tetrapods: Controversy and Consensus. Cornell Univ. Press, Ithaca: 427-466.

WITMER L. M. & ROSE K. D. (1991) -Biomechanics of the jaw apparatus of the gigantic Eocene bird *Diatryma*: Implications for diet and mode of life. Paleobiol., 17 (2): 95-120.

WORTHY T. K (1991) An overview of the taxonomy, fossil history. biology and extinction of Moas. Acta XX Congr. intern. Ornith., Symposium 6, New Zealand Ornith. Congr. Trust Board Ed.: 555-562.

WORTHY T. H. (1992) -A re-examination of the species *Euryapteryx geranoides* (Owen) including comparisons with other emeiin (Aves: Dinornithiformes). Journ. Roy. Soc. New Zealand, 22 (1): 19-40.

WYMAN R. L., STEADMAN D. W., SULLIVAN M. E., & WALTERS-WYMAN M. F. (1991) -Now what do we do? In: WYMAN R L. (Ed.) -Global climate change and life on earth. Chapman & Hall, New York: 252-263.

ZHOU Z., JIN F. & ZHANG J. (1992) -Preliminary report on a Mesozoic bird from Liaoning, China. Chinese Sci. Bull., 37: 1365-1368.

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ANNOUNCEMENT

The fourth meeting of the SOCIETY OF AVIAN PALEONTOLOGY AND EVOLUTION will take place during the week of 2 to 8 June 1996 (exact dates to be determined) at the Smithsonian Institution, Washington D C, to be co-hosted by the Calvert Marine Museum of southern Maryland. The meeting will immediately precede the North American Paleontological Convention VI to be held at the Smithsonian from 9 to 12 June 1996, for those members who may wish to attend both gatherings. If possible, it would be desirable to arrange the scientific program so as to focus on several topics of broad interest or for which there may be considerable unpublished material from scattered areas that would benefit from cross-comparisons (e.g. fossil owls). It should also be possible to arrange for several workshops such as the very successful interchange on Mesozoic birds that took place at the Frankfurt meeting. Please send any ideas You may have for symposia or workshops to Storrs L. OLSON, NHB Stop 116, Smithsonian Institution, Washington, D. C. 20560. U.S.A,

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During the closing banquet of the Frankfurt meeting an auction was held to raise money for the SAPE, after an idea of Storrs OLSON. Bea WETMORE had donated various mementos that had belonged to her husband, Alexander WETMORE, to Storrs, and other SAPE members brought rare books, casts, and skeletons to be sold. Larry MARTIN played the role of the auctioneer with great talent The total raised, plus the contributions of the participants, amounted to 7646,40 French Francs, which is about 1530 US dollars. However, if the SAPE members who were not present in Frankfurt wish to assist in defraying xerocopy and mailing expenses, they can send me a banknote or a check, for about 10 US dollars or the equivalent in other currencies.

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